Seven policies to reduce plastic pollution in Small Island Developing States

Common Seas

UNIVERSITY OF PORTSMOUTH
GLOBAL PLASTICS POLICY CENTRE

Authorship

This booklet has been co-authored by Common Seas and the Global Plastics Policy Centre of the University of Portsmouth.

About Common Seas

Common Seas works in partnership with Small Island Developing States (SIDs). We help decision-makers to gather data, calculate baselines, set targets and design a plan to stop plastic pollution for the health of our economies, our bodies and our ocean.

About the University of Portsmouth Global Plastics Policy Centre

Based at the University of Portsmouth, UK, the Global Plastics Policy Centre is an independent knowledge broker to support effective plastics policy-making in government and the private sector. The Centre provides evidence-based support through technical effectiveness evaluations at the interface of government, businesses, citizens, and researchers, including supporting the process to develop a global plastics treaty to end plastic pollution.

Common Seas, Maldivian Government, Island Councillors, Soneva Resort celebrate partnership to end plastic waste

Introduction

Small Island Developing States (SIDS) are custodians of 30 percent of the world's oceans. Vitally important members of the international community, SIDS represent some 20 percent of UN member states.

Over the next 20 years ocean plastic pollution is set to quadruple. This problem disproportionately affects SIDS as, alongside the plastic waste generated by their own citizens and visitors, plastic produced by other nations enters their waters and washes up on beaches. This in turn is harming efforts to transition to a sustainable blue economy and the islands' pristine image that attracts tourists and investment. Now more than ever before, SIDS require the judicious execution of well-designed policies to radically reduce the plastic pollution that proves so damaging to people and planet.

This booklet, co-authored by Common Seas and the Global Plastics Policy Centre, shares seven examples of practical, actionable policy guidance that can be used by SIDS to reduce the plastic pollution generated by their citizens and visitors. And crucially, it sets out case studies featuring countries that are already taking significant steps to reduce their exposure to plastic waste.

Common Seas is currently working with SIDS to reduce plastic pollution. Using Common Seas' on the ground understanding of SIDS' needs, coupled with the expertise of the Global Plastics Policy Centre on effective policy design and implementation, this booklet provides decision makers in SIDS with practical considerations for designing effective plastics policies. Equipped with this knowledge and experience, the SIDS are better prepared to advocate for a UN Treaty on Plastic Pollution which works for them.

Common Seas, Maldivian Government, partnership to end plastic waste

Support

"The magnitude of plastic floating in our oceans is a real threat today to Palau's major economies – tourism and fishery – and the health of our people. Ocean plastic is extremely degraded and is difficult and, at times, impossible to recycle."

Ilana Seid,
Permanent Representative of Palau
to the United Nations

"Common Seas has provided invaluable assistance to Maldives in supporting us to set a national baseline and develop a clear plan to address the problem of plastic pollution.

Common Seas' policy coaching is supporting us to implement the plan, including designing Extended Producer Responsibility (EPR) schemes for single-use plastic bottles."

Aminath Shauna,
The Minister of Environment, Climate Change
and Technology for the Republic of Maldives

"The policy booklet provided some key information about policies that we have been thinking about and working towards at the GSWMA. It helped provide practical case studies about how other countries have implemented similar policies and allowed me to upskill my team."

Lyndon Charles,
Grenada Solid Waste Management Association

Small island states are the pioneers of solutions to radically reduce plastics use.

Downstream interventions around recycling and waste management are imperative for dealing with existing plastic waste generation. However, to chart the way for a sustainable future – we urgently need upstream policies that reduce plastic production and consumption and turn off pollution at the source. This is especially true for SIDS, where land mass is precious and landfill sites are approaching capacity.

This booklet from Common Seas and the Global Plastics Policy Centre sets out seven key policies that SIDS can implement to reduce plastic pollution at source, before it becomes waste:

1. Bans on Single-Use Plastic Items
2. Taxes on Single-Use Plastic Items
3. Reuse Models for On-The-Go
4. Water Refill Schemes
5. Potable Water Supply
6. Extended Producer Responsibility
7. Deposit Return Schemes

Building knowledge and best practices around these key policies will support SIDS to meet upcoming requirements in the UN Treaty on Plastic Pollution , which will possibly require states to develop National Action Plans against plastic pollution. SIDS have the opportunity to pave the way for ambitious national action to inform and influence global leadership.

Tackling plastics pollution through innovating policies and systems that reduce plastic use will not only help to encourage and embed sustainable consumption behaviours, but it can also help to combat climate change. Throughout their lifecycle – from production to management as waste - plastics generate greenhouse gas emissions, with 3.7 percent of GHG emissions in 2019 related to fossil-based plastics. In addition, the policies presented in this booklet are also of larger relevance, as they have the potential to help SIDS meet 7 of the 17 UN Sustainable Development Goals.

In this spirit, Common Seas and the Global Plastics Policy Centre are supporting SIDS by providing bespoke guidance on how we can collectively tackle the problem of plastic pollution.

Note that other Common Seas policy factsheets are available upon request that tackle downstream measures (e.g. on-the-go waste collection and recycling, litter and fly-tipping)

POLICY 1:
Single-use plastic bans

Single-use plastic ban policies involve governments placing restrictions on importing, manufacturing and the sale of specific single-use plastic items.

The aim of banning items that are either unnecessary, suitable for recycling or have reusable alternatives, is to reduce the pollution of waste. This prevents these items from leaking into rivers, seas and damaging human health and the environment.

Common in more than 110 countries, such as Rwanda, Mauritius, Bangladesh, Antigua & Barbuda, Vanuatu and Seychelles, a properly designed, implemented and enforced ban would lead to a 100% reduction in the sale and use of that item. A review of the effectiveness of selected international bans on single-use plastic items found that they led to a reduction in the relevant waste stream between 18% and 89%. Higher levels of effectiveness were more likely if suitable alternatives were readily available; if the ban was national rather than local, and if the ban was well communicated and visibly enforced.

Given the complexity in managing them as waste and defining them, compostable, biodegradable, oxo-degradable, and biobased plastics should also be included in these bans to ensure that the single-use plastic items banned are not just replaced with these alternatives for which SIDS and low-to-middle income countries rarely have the capacity to manage.

Items targeted:

- Carrier bags
- Straws
- Bottles
- Cutlery
- Microbeads (e.g. in cosmetics, household and industrial cleaning products)
- Takeaway containers, cups and plates, when made of expanded polystyrene foam
- Plastic stemmed cotton buds
- Stirrers

How to design an effective single-use plastic ban

Impact: who will the ban affect? How will the government ensure that those affected are made aware?

Stakeholders: who are the relevant stakeholders and how can they be identified? These stakeholders could include single-use plastic item manufacturers, importers, manufacturers of packaged products, retailers and consumers. When identified it is important to consider which key policy design questions, they should be consulted on to ensure that the policy will work as intended. It is also worth considering what behaviour does the government expect of these stakeholders and whether the ban could seriously damage the interests of any stakeholders. If so, will the government do anything to address this?

Specificity: which single-use plastic items are to be banned? This should consider the most commonly used items.

Exemptions: will there be exemptions from the ban? For example, plastic straws for medical use, or plastic bags used to wrap meat or fish. Can these be clearly defined in the legislation? How will this be communicated to stakeholders? Exemptions should not allow for a vast set of legal loopholes nor exempt businesses and industries.

Supply chain: at what stage in the supply chain will the ban be implemented? It is important to consider that many countries have chosen to ban the import, manufacture, and sale of specific single-use plastic items, to ensure that there are no legal loopholes.

Enforcement: which public bodies or organisations will enforce the ban? How will they do this? What enforcement powers will be needed to address non-compliance?

Cooperation: does the ban require cooperation between different public bodies? How will the government cooperate with relevant industry sectors to facilitate and support the ban in the implementation stage?

Finance: how will the ban be funded? What are the government funds currently available for implementation of the ban, taking in consideration the need for training of customs officials, awareness campaigns, enforcement officers? How much internal and external funding does the planned implementation of the ban require? Are there opportunities for external donations to boost the fund in the early stages of implementation?

Unintended consequences: are there any potential unintended consequences that could arise from the chosen design of the ban? For example, companies could evade a ban by switching to a more environmentally damaging alternative or redesigning a single-use plastic item to fall outside the scope of the ban.

Once the ban has been designed, the following topics will also need to be considered at the implementation stage.

Legal context: how will the design of the ban be converted into legislation? Does any existing legislation need to be adapted or removed to support the implementation of the new legislation?

Timeframe: what will the implementation timetable be? For example, should a ban be introduced without notice, to avoid stockpiling, or should an implementation period be announced, to enable businesses time to identify and source suitable alternatives to the banned item.

Communication: how will stakeholders be made aware of the details of the new ban?

Consumers: how will consumers be supported, both in terms of raising their awareness of the ban, and helping them to understand what alternatives are available to them?

Policy cycle: how will the reporting by stakeholders be carried out in a transparent and comprehensive way? Who is in charge of overseeing the reporting and carrying out the evaluation of the ban within the chosen evaluation and review timeframe?

Ensuring success

After designing and implementing a successful single-use plastic ban, the following evaluation and reporting measures should be undertaken.

1. Regular monitoring

Regular monitoring to understand whether use of the item has been partially or completely eliminated, where and why the item continues to be illegally used, and whether it has given rise to any unintended consequences. These could be monitored through means such as consumer surveys, waste audits, landfill monitoring, and customs confiscations. It should be conducted annually.

2. Medium term evaluation

Medium term evaluation after three years, should be conducted to consider the quantity of the single-use plastic item used each year from two years before the tax was first proposed through to the point of implementation and present day. This should be compared to the quantity of the main alternatives used in each year, to establish the extent to which the ban has led businesses and consumers to change their behaviour and habits and reduce the consumption of the banned single-use plastic item.

Case study: Kenya

Problem:
Over the last ten years in Kenya, 24 million plastic bags were used monthly - half of which ended up in the solid waste mainstream. Plastic bags are easily ingested by livestock, endangering their health and even causing death. The expansion of plastic production and consumption has had a significant impact, both visibly and invisibly on the socio-physical environment in Kenya.

Solution:
In August 2017, Kenya introduced a stringent ban on single-use plastic carrier bags a result of significant activism and public campaigning. For more than a decade, previous attempts to ban plastic bags had been unsuccessful due to industry opposition, including legal challenges. The 2017 legislation was carefully drafted as early legal challenge to its validity was unsuccessful. The reason for its initial success includes the following;

Timeframe: The government allowed for a sufficient transition time – with the legislation not coming into effect for six months, giving businesses and the general public time to become aware of the ban and to source alternatives.

Enforcement: Penalisations for non-compliance included large fines and up to 4 years' imprisonment for anyone manufacturing, selling, or carrying plastic bags. In addition, the government ensured that immediately after the legislation came into force, enforcement activity was undertaken jointly between the police and the National Environmental Management Authority (NEMA). In the first year, 1,150 producers, distributors of plastic bags and roadside sellers were arrested.

Awareness: High level of awareness of the ban and was a critical incentive for the initial high levels of compliance.

POLICY 2:
Taxes on single-use plastic items

Introducing taxes on single-use plastics (SUP) is typically implemented by governments and results in a levy on import, manufacture and/or sale of single-use plastic items.

This can be applied to any problematic single-use plastic but is most effective when targeted against items where consumer demand is highly responsive to price or where a suitable alternative is available. Taxing SUP items increases their market cost and discourages their use, encouraging consumers to either stop using the taxed items or switch to a more desirable alternative. As such it reduces the tonnage of SUP entering waste stream and raises revenue, which can support additional plastic pollution mitigation activities, such as strengthening refill initiatives or other alternatives.

Taxes on SUPs can be implemented in a variety of ways. For example, a phased approach or an incremental increase of a set time can allow consumers to get use to using more sustainable or reusable alternatives. Combining a tax with a ban on the same item can be another highly effective approach.

The overarching policy is common and found in more than 30 countries across the world, including South Africa, Ireland, Saint Lucia, Tonga and Fiji. The effectiveness varies from item, tax rate and availability of alternatives. A review of the effectiveness of taxes on SUP carrier bags found that they led to a reduction in bag consumption that varied between 33% and 96%, and other SUP items had a likely effectiveness ranging from 10% to 65%.

Items targeted:

Carrier bags	Takeaway containers, cutlery, cups and plates	Single-portion food packaging
Balloons	Wet wipes	
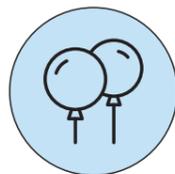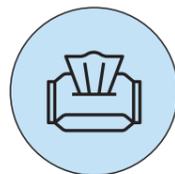
How to design an effective tax on single-use plastic items

When creating a successful SUP item tax the below topics should be discussed when considering policy design:

Existing tax regime: how will the SUP item tax fit within the wider tax regime of the country? Does the country's approach to personal and business taxation support this specific environmental tax? Are there existing legislation that could compliment this tax? To understand this, stakeholders from Finance Ministry and/or the Revenue & Customs authority should be consulted early on.

Stakeholder consultation: those affected by the tax should be consulted early on, such as manufacturers and importers of SUP items and packaged products, retailers and consumers. Key questions will include how will assessment of the tax, implementation, enforcement and any exemptions of incentives be included and implemented by stakeholders? What will be the impact of the policy on stakeholders? Could the tax seriously damage the interests of stakeholders, and if so, how will the government address this?

Target item: which group of SUP items should be taxed? Which items are most commonly used in the country, and which have the biggest impact on the environment and economy?

Point, rate and collection of tax: t what stage in the supply chain will the tax be levied? Who will be liable for the tax and who should be responsible for paying the tax - the producer, retailer or consumer? What should the rate of taxation be? Who will be responsible for collection and what enforcement powers will be needed? How will the income of the tax be used?

Unintended consequences: are there any potential unintended consequences that could arise, for example being replaced with other disposable materials (such as compostable, biodegradable, oxo-degradable or other biobased plastics), which can be equally complex to manage? How will this be tackled?

Once the tax has been designed, the following topics will also need to be considered at the implementation stage.

- **Legal design:** how will the design of the tax be converted into legislation?
- **Timeframe:** what will the implementation timetable be? For example, should the tax be introduced without notice, or an implementation period announced to enable necessary changes to be made?
- **Communication**: how will stakeholders be made aware of the details of the new tax? What details will need to be communicated? How will consumers be supported in understanding the alternatives available?

Ensuring success

After designing and implementing a successful SUP tax the following evaluation and reporting measures should be undertaken.

1. Regular monitoring

Regular monitoring to understand whether and how much the tax is discouraging the use of items and if it has given rise to any unintended consequences. It is important to also review whether consumers have over time gotten used to the tax, with sales of the affect SUP item increasing back towards the pre-tax level, as the Government may need to review the rate at which the tax is levied.

2. Medium term evaluation

Medium term evaluation after three years should be conducted into the quantity of the SUP sold each year from two years before tax to present day.

Case study: Fiji

In 2017, Fiji introduced a levy on single-use plastic carrier bags. Initially set at $0.10 per bag, in 2018 this was doubled as part of broader policy decision to raise more funds for environmental initiatives. Collected by retailers at point of sale, the tax payment is separately itemised on customer's receipts to increase visibility of the tax, and then remitted to Fiji Revenue & Customs Service.

The levy was immediately effective, with plastic carrier bag usage falling from 70 million bags in 2010 to below 44 million bags in 2018, soon after the initial introduction of the levy.

Fiji's policy was a successful for numerous reasons.

- **Awareness raising:** the levy was accompanied by numerous government led awareness campaigns raising efforts to ensure the public were informed of the reasons behind the levy, leading to a reduction in consumer resistance.
- **Income for environmental initiatives:** the income from the levy was ring-fenced into environmental initiatives and programmes which were clearly communicated to the public.
- **Enforcement:** the levy was monitored by inspections conducted by the Fijian Competition and Consumer Commission (FCCC). If traders were non-compliant, they were given a warning in first instance which escalated to fines or imprisonment.
- **Phased-out approach:** the levy was replaced by a ban on plastic bags. The Fijian population were accustomed to having regulations on SUP items, making the final ban even more of a success.

Case study: Vietnam

In 2012, Vietnam implemented an environmental protection tax on high-density polyethylene (HDPE), low-density polyethylene (LDPE), and linear low-density polyethylene (LLDPE) bags. A tax rate of VND 40,000 (US$ 1.7) per kg was imposed on the manufacturers and importers of non-biodegradable plastic bags (HDPE, LDPE, LLDPE). Pre-packed goods and plastic bags could be exempted from the tax and certified as environmentally friendly if they met the criteria set by the Ministry of Finance.

Due to poor management and supervision of the tax, some plastics bags were sold at markets at costs lower than that of the tax and producers ignored the environmentally friendly criteria and continued making polluting products. The tax was not sufficiently communicated to consumers, generating high volumes of resistance, and a lack of affordable convenient alternatives also existed. As a result, despite the implementation of tax, the use of HDPE, LDPE, or LLPDE plastic bags in Vietnam has not effectively reduced.

POLICY 3:
Reuse models for on-the-go

Reuse and refill schemes reduce plastic pollution generated by consumers on-the-go. Transitioning to reuse policies reduces plastic waste and fosters cleaner surroundings, generating income opportunities within communities.

Reuse has the potential to be a more comprehensive system, specifically designed for multiple rotations of packaging that remains within the system's ownership and often loaned to the consumer. Whereas refill practices involve packaging that is owned by the consumer and chosen to be refilled either in refill dispensing stores, or at home with concentrates.

Reuse: All packaging is owned and managed by the reuse system provider, not the consumer

Refill: Consumers use their own containers multiple times, either through in-store refill systems or at-home concentrate refills

Items targeted:
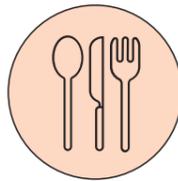
Cutlery
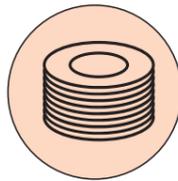
Plates
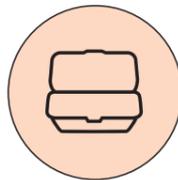
Takeaway boxes

Cups

How to design an effective reuse model for on-the-go

When designing an effective reuse model for on-the-go, the following topics should be considered.

Infrastructure: what infrastructure is required? Consider the need to provide reverse logistics, washing, sorting, replenishment and redistribution. Will a multifunctional reuse hub need to be created? Developing a dedicated reuse centres catered to system needs, including collection, cleaning, restocking, and redistribution services is pivotal.

Material: what material is required for reusable packaging? In the design process the use of durable, safe and fully recyclable materials to construct reusable packaging (not necessarily plastic) should be considered.

Standardisation: how will this be achieved? Consider standardising processes/systems such as open access software, packaging, data collection, labelling. Should a single-use reuse logo be created to help educate stakeholders? Will internationally accepted reuse standards be implemented?

Responsibility: who has ownership and responsibility? Data gathering, due to loss from the system and return rate responsibility, particularly required for collaborative pooled provision, should be all be considered.

Holistic system approach: who will be responsibility for the reuse policy? It is imperative to recognise the comprehensive nature of reuse solutions and the need for cohesive policy involving governments, industries, and regions. This is key to fostering an environment that encourages investments from both public and private sectors.

Inclusive and collaboration: how will a fair and accessible shift towards reuse necessities be implemented? Inclusive collaboration among all stakeholders and beneficiaries, guided by principles of equity, inclusivity, and transparency, is key. This approach mitigates potential negative impacts on vulnerable populations.

Local entrepreneurship support: how can local businesses be supported to prepare for change in policy? Could training and technical assistance be offered to help navigate business challenges? For example, establishing grants or micro-loan programs to support local entrepreneurs in setting up refill stations, zero-waste cafes, and sustainable food businesses.

Public awareness campaigns: how will the policy be communicated to the public to harness support and a lasting understanding of reuse systems?

Multi-stakeholder cooperatives: how will strengthening the capacity and efficiency through shared resources and multi-stakeholder collaborations bolster the expansion of reuse systems? Key stakeholders involved in adoption of reuse system include material suppliers, producers, retailers, businesses staff; reusable packaging companies; informal waste reclaimers; logistics providers, washing companies; consumers; and local authorities

The key benefits of implementing reuse in SIDS for:

Consumers;

- Personalised choices and flexibility; attractive to eco-conscious consumers; cost efficiency in the long-term; and long-term health benefit through reduced contamination, waste sanitation risks, and GHG emissions associated with single-use packaging.

Businesses;

- Financial incentives and support from governments; positive brand image; reduced waste disposal responsibility/pressures and costs, cost savings.

Environment;

- Lower GHG emissions and reduced pollution and damage to ecosystems.

Communities;

- Community engagement and awareness-raising opportunities, collaboration and support for local small businesses, and increased employment opportunities for the operation of reuse system logistics.

Manufacturers;

- Add economic value by unlocking new revenue streams, technology, and innovation.

Ensuring success

- Globally agreed definition for reuse
- Single-use plastic bans and reductions targets
- Setting specific mandatory reuse targets and regulatory frameworks for reducing single-use packaging and increasing the adoption of reuse systems
- Extended producer responsibility schemes that hold producers accountable for the end-of-life management of their packaging, encouraging them to invest in refillable and reusable solutions
- Economic incentives and/or disincentives for businesses (i.e. tax, subsidies) and incentives to achieve return rate of reusables (i.e. deposit return schemes)
- Reuse system standards and design requirements, i.e. for develop reuse labelling, health and safety standards, and packaging standardisation
- Mandatory data collection and monitoring to track the rotations of reusable packaging and progress towards reuse targets

By leveraging these policy levers, governments can create an enabling environment that encourages businesses, consumers, and other stakeholders to embrace refill and reuse practices, leading to a more sustainable and resilient food service system.

Case Study: The Tiffin Project (Canada) and Mumbai Dabbawala (India)

Problem:
Disposable takeout containers contribute about 25,000 tons of waste to Vancouver landfills each year, in a greater metropolitan area that is home to just over 3,000,000 residents. One can safely assume that larger cities around the world produces much more takeout waste.

Solution:
The Tiffin Project aimed to tackle this issue by reintroducing the traditional tiffin system, where customers bring their own reusable containers for takeout food. Project outcomes included;

- A significant reduction in single-use plastic and packaging waste in the city
- Behavioural shift amongst customers who embraced the idea of bringing their own containers, leading to a change in takeaway habits
- Creating jobs for tiffin carriers and cleaning staff, boosting local employment opportunities
- And raising the profile of plastic pollution and encouraging other cities to adopt similar systems.

This project is similar to the goals and successes of the company Mumbai Dabbawala, that also reverted to old traditions to provide cooked meals to homes and workplaces in reusable tiffin containers via Dabbawalas in India (Mumbai Dabbawala).

Case study: Muuse & We Use (Hong Kong)

Problem:
Hong Kong generates almost 1.7 million tonnes of waste per year, with more than 300 tonnes of single-use plastic discarded every day. Currently there are only three landfills to serve the almost seven and a half million population and they are filling up fast. Adding to this problem is the prominent use of disposable items such as cutlery and tableware which alone is responsible for more than 175 tonnes of disposable tableware sent to landfill daily.

Solution:
There are a number of effective reuse systems currently working to reduce plastic waste in Hong Kong. Muuse is a smart reuse system for the food and drink on the go sector. By reusing items such as drink and takeaway containers, Muuse has saved the equivalent of 2,000 single-use cups in its pilot scheme in Taikoo Place in Hong Kong. Consumers can order a coffee in a Muuse cup and deposit the cups within 14 days in Muuse bins located around the city. This has achieved over 90% return rate with an average return time within 3 days. A second reusable system is being run by We Use, who provide reusable cutlery rental and cleaning services for large-scale events in Hong Kong. We Use has reduced usage of more than 270,000 pieces of one-off tableware in more than 300 events.

POLICY 4:
Water refill schemes

Water refill schemes work by promoting the use of reusable water bottle alternatives to reduce plastic pollution generated by single-use plastic bottles of water.

To implement the policy, refill stations can be installed in public areas to allow citizens access to free or low-cost potable water to fill up reusable bottles. Alternatively, public sector buildings or local businesses may be encouraged or required to refill water bottle for free upon requests.

This policy is a win for the consumer and the environment. Reports have estimated that drinking the recommended eight glasses of water per day equals about $0.49 per year with tap water but costs approximately $1,400 with bottled water. Studies have also shown that water refill schemes can reduce plastic beverage bottle waste by anywhere between 5 and 35%. It is likely that the level of reduction will be towards the lower end of scale for low-income countries with limited potable water supplies and the higher end of the scale is more likely to be achieved in high-income countries with widespread water refill and carbonated drinks refill schemes.

Items targeted:

Plastic bottles
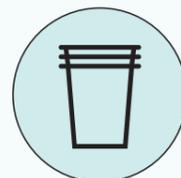
Single-use water containers, such as cups

How to design an effective water refill scheme

The following topics should be discussed when designing an effective water refill scheme.

Scope: how will you determine the scope and objectives of the water refill scheme? Target audience, geographic coverage, expected outcomes and plastic reduction targets should all be considered when designing the scope of the scheme.

Infrastructure: what existing infrastructure for potable water access and waste management is in the target? What type of refill stations will need to be installed to complement this? Where should they be placed?

Legal framework: what legal and regulatory framework will be needed to support the water refill scheme? Policies and regulations for waste reduction, phasing out single-use plastic bottle beverages should be considered, alongside resource management, public health and safety standards.

Stakeholder engagement: how will you engage stakeholders? Key stakeholders could include government agencies, NGOs, local businesses, community leaders, i.e., local advocacy groups, youth centres, informal waste workers. It is important to consider how support will be built and opportunities identified for collaboration. For example, how will you engage with local businesses who will be crucial to the success of the scheme, and could even provide financial and logistical support for installation and maintenance?

Installation: which key public areas will receive refill station installation? Will these be easily accessible, well-communicated and well-maintained? The logistics required for larger-scale reuse systems to operate with local businesses and key stakeholders should be taken into account.

Public awareness campaign: how will the water refill scheme be promoted amongst the public? How will the benefits of the scheme be communicated to educate the public on the reasons for transitioning to reusable water bottles? Should this include local benefits such as local job creation and waste management cost reductions? Partnerships with local communities and local media outlets to amplify the message should be considered. Key messages will include educating the public on the quality of drinking water and single-use plastic alternatives available for use at refill stations.

Ensuring success

After a successful water refill scheme is implemented, the following evaluation and reporting measures should be undertaken.

1. Regular monitoring
Regular monitoring to understand the usage of water refill outlets and any consequent reduction in single-use plastic bottle waste. This should be monitored annually and reported back to stakeholders to evaluate the impact

2. Medium term evaluation
Medium term evaluation after three years should be carried out by considering the annual usage of refill outlets and the tonnage of single-use plastic bottle waste each year from before the policy was first proposed by the government, through to the present day.

3. Strong awareness
Strong awareness raising campaigns should be implemented to communicate that the municipal water supply is safe to drink. The largest barrier to locals and visitors drinking the water is that they do not trust water companies and do not like the taste. An awareness campaign is required to try and untangle this norm.

Case study: Paros, Kenya

Problem:
In Kenya it is estimated that 37,000 tonnes of plastic leaks into the ocean every year. Plastic beverage bottles, followed by plastic bottle caps, were the most common waste items collected from beaches in 2019. Kenya, and Rwanda, struggle with managing plastic waste due to a lack of effective waste management systems resulting in waste leaking into the natural environment.

Solution:
The International Transformation Foundation (ITF) has been working with global organisation, Join the Pipe, to implement more refill kiosks for clean water supply in rural African towns to reduce the use of plastic water bottles. As a result, the ITF has provided school children and local communities with reusable water bottles to fill up with clean drinking water found in schools and public spaces.

The scheme has implemented 15 school water kiosks in 15 communities across Kenya and Rwanda, ensuring that 8,401 school children no longer miss school to secure water for their families. More than 87,000 community residents now have access to clean tap water in their communities, with nearly 37 thousand reusable water bottles distributed as of December 2022 to encourage these refill schemes.

Case study: Paros, Greece

Problem:
In Paros, research led by Common Seas found that even though the water on the island is clean and safe to drink, most residents and visitors believe it's not, and rely on bottled water instead, increasing plastic consumption and marine litter. As a bustling holiday island, the infrastructure in Paros struggles to keep up with the surge in the population during peak seasons. Consequently, with a surge in visitors comes a 5,000% increase in waste. During the high season, marine litter on the coastline of Paros increases eight-fold, of which 75 percent is assigned to single-use plastic.

Solution:
Common Seas has been working with the local water company, DEYAP, to encourage more people to drink tap water. Activities have included the rebranding of water refill machines to promote their use; an island-wide communications campaign targeted at residents, tourists, and the hospitality sector, to explain the benefits of switching to tap water; and the production of a guide to water filters for locals who prefer to drink filtered tap water. The project has successfully engaged 270,000 people and led to an impressive two-thirds increase in the number of residents who now believe that the tap water on Paros is safe to drink.
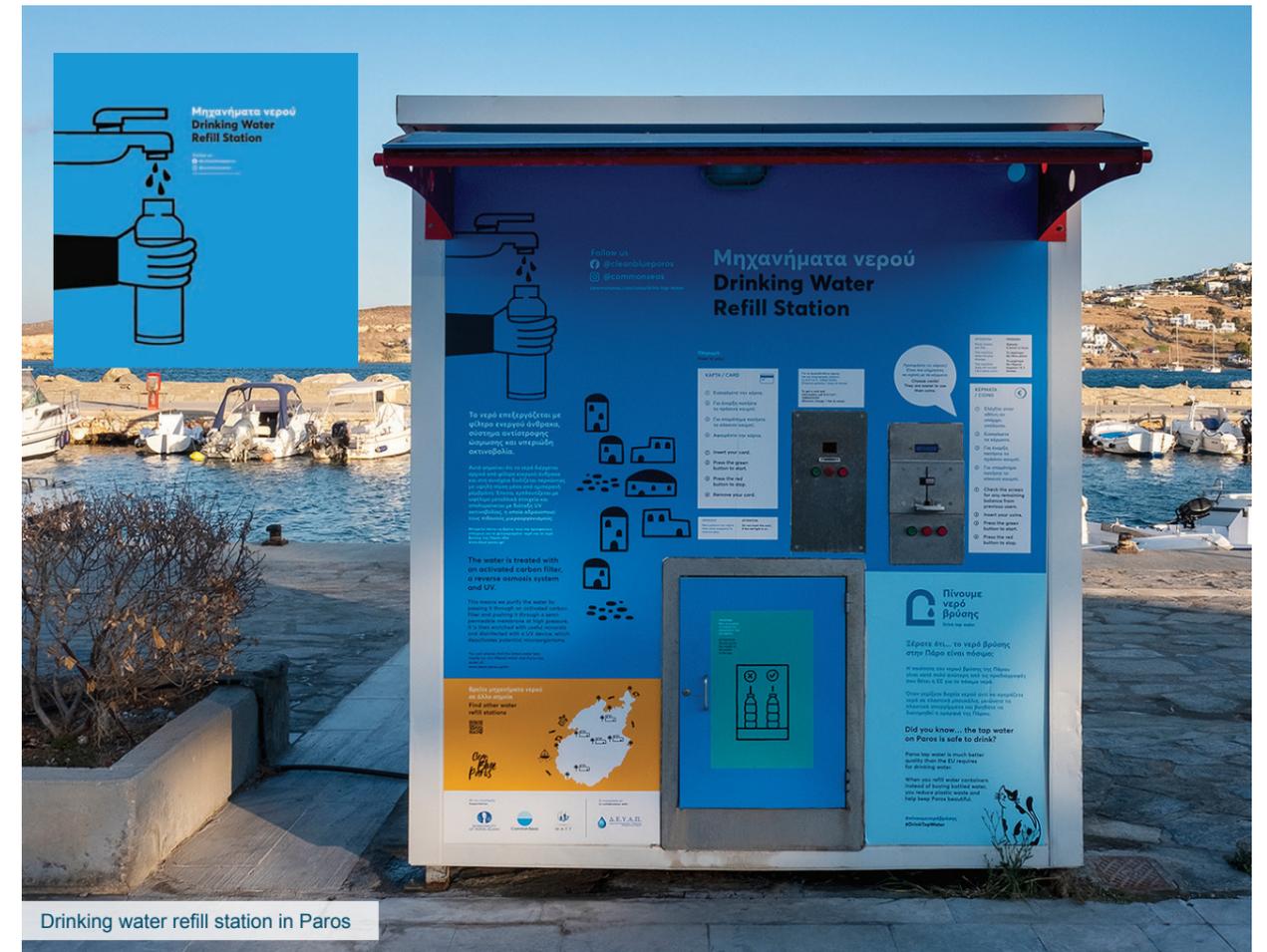
Drinking water refill station in Paros

POLICY 5:
Potable water supply

Potable water supply regulation aims to increase the number of citizens who use potable water, commonly referred to as drinking water, over bottled water and reduce the number of plastic bottles used.

The policy requires the introduction of minimum regulatory standards for the quality of potable, drinkable water on behalf of the Government to ensure it is safe to consume. To complement the regulation, the Government will often introduce policy which improves the supply, distribution and use of potable water. If effectively designed and implemented, this policy has been found to reduce the number of plastic bottles by between 5 and 17.5%.

The provision of potable water typical involvements treatment, cleaning or filtration to remove contaminants from raw water. An example of potable water is tap water which has been treated in municipal water systems, or has been UV filtered, distilled, or purified by reverse osmosis.

Items targeted:

Plastic bottles

How to design an effective potable water supply regulation

When crafting an effective potable water supply regulation, the following topics should be considered.

Current supply: what is the current level of provision of potable water? How does this vary across the country? What are the main options for increasing levels of potable supply? What are the advantages and disadvantages of each option?

Conventions: how do citizens typically obtain water to drink or cook with when tap water is not available? If alternative sources of potable water are still used even when tap water is available, what are the reasons (e.g., health, taste, perceived water quality, convenience and availability)?

Stakeholders: who are the key stakeholders that need to be involved? Relevant stakeholders could include government ministries, public or private sector bodies involved in regulation or supply of potable water, e.g., water utilities, municipalities, water sector professionals, academics, NGOs and local community. Water quality: what are the key water quality issues that need to be address?

Funding: how will the project be financed? Tariffs and subsidies may need to be considered.

Timeframe: what will the implementation timetable be? Should a phased in approach be considered? Will standards be implemented at different times? What lead time will be needed to construct new water supply infrastructure and how will this be maintained?

Standards and compliance: what standards should be implemented? Which will have the greatest early impact on water quality? How will compliance be monitored? Which organisations will be responsible for compliance and enforcement of water quality?

Communication: how will potable water policy be communicated? What consumer information and behaviour change elements, in addition to infrastructure and standards, will be shared?

Ensuring success

After designing and implementing a successful potable water supply regulation the following evaluation and reporting measures should be undertaken.

1. Regular monitoring

Regular monitoring to establish the impact on the purchase of plastic water bottles and their subsequent littering into the local environment. This could be conducted quarterly to get the best results. In addition, levels of supply and quality should be reported at regular intervals, such as annually, to demonstrate the improvements that are being made as part of a wider consumer information and behaviour change policy.

2. Long-term evaluation

Long term evaluation after five years should be conducted by considering the change in the levels of supply and quality of potable water across the country, the sales of plastic water bottles and their littering. This should occur on an annual basis from the year before the policy was first proposed through to the present-day. After evaluations, the policy should be adjusted based on findings and be scaled up, better enforced or incentivised based on the results.

3. Strong awareness

Strong awareness raising campaigns should be implemented to communicate that the municipal water supply is safe to drink. The largest barrier to locals and visitors drinking the water is that they do not trust water companies and do not like the taste. An awareness campaign is required to try and untangle this norm.

Potable water supply regulation in the world

In 2020, 74% of the global population used a safely managed drinking-water service. This is a service which is located on premises, free from contamination and available when needed. In many developing countries, access to improved sources of water is mixed - with higher access rates in urban areas compared to rural.

To provide safe water, many countries have implemented drinking water standards and regulations based on the health impact of exposure to contaminants. These policies address the provision, distribution and use of potable water as well as the infrastructure and service pricing.

From a plastics perspective, potable water supply water regulation is a novel policy change. As a result there are no sufficiently developed government-led case studies focused on the impact of improving potable water supply and the quality on the consumption and subsequent littering of plastic water bottles.

However, one example of a recently implemented potable water initiative is the 'Water Sector Resilience Nexus for Sustainability in Barbados.' This US$45.2 million project, which includes the development of potable water provision through harvested rainwater, is set to have notable effects on the reduction of single-use plastic bottles.

POLICY 6:
Extended Producer Responsibility (EPR)

EPR is an 'extended' approach to 'producer responsibility.' The policy pushes responsibility upstream to manufacturers and makes them accountable for the entire product lifecycle of items targeted, from synthesis of materials and design through to end-of-life (disposal). This 'extended' nature of EPR connects material production and design decisions to waste management costs in order to align business and environmental incentives.

Responsibility is also placed on all businesses within the value chain. This includes importers of products or materials into the country not just companies (often referred to as 'producers') that manufacture and pack finished products locally.

This is a key policy that implements the 'Polluter pays' principle – a core principle of global waste management policy that states whoever is responsible for polluting the environment should bear the costs of managing that pollution.

Items targeted:

Packaging

E-waste & batteries

End-of-life vehicles
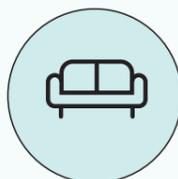
Furniture & textiles

Paints

Chemicals e.g. pesticides and fertilizers*

The zero draft of the UN Treaty on Plastic Pollution says each party shall either encourage or directly establish and operate EPR systems.

How to design an effective EPR scheme

To design an effective extended producer responsibility that is tailor-made and works at a national level the following topics should be considered.

Scope: which types of products or packaging are included? This should be clearly defined, and exemptions may be required for certain segments. For example, will the scope include reusable products or packaging, as well as single use? What specific types or sectors might be disproportionately affected? Will small businesses be included?

Baseline: a strong understanding of the material and product flows in the economy and the waste management systems is required when crafting the policy. For example: what data on the amount of product placed on the market and amounts of waste generated are there? What compositional analyses of the waste stream are available?

Regulatory requirements: producers and importers must manage their own material and product wastes, be responsible for taking back products from consumers after use, and provide collection infrastructure and cover the end-of-life costs of their products. that should include collection, reuse: collection, reuse, recycling, disposal, litter clean-up, education and program administration. Consider: how should the regulatory requirements be enforced?

Governance: mandatory schemes ted to be more effective than voluntary. A producer responsibility organisation (PRO) is typically set up to manage compliance on behalf of producers. What stakeholders should be included on the managing board to represent all interests?

Coordination: how can the scheme coordinate with existing municipal waste services and wider efforts to encourage reuse and refill schemes? Will the scheme be governed at the national or regional level to increase harmonization for producers and maximise efficiencies of scale? Evidence suggests that devolved coordination and organization of the EPR scheme at the subnational level to municipalities or provinces is less effective as it leads to confusion and a fragmented approach.

Targets: EPR legislation sets targets tailored for each waste stream. These are crucial to success. What targets should be included and how ambitious should they be?

Producer Fees and eco-modulation: fees paid by producers or importers should cover the costs of the regulatory requirements, e.g., collection, reuse, recycling, litter, disposal. In addition, to affect consumption of in-scope products or packaging, eco-modulation approaches can be used.

Which eco-modulation approaches should be used? E.g. producers could be rewarded if packaging is highly recyclable or if they moved to another packaging material or producers coudl be penalised if the packaging material, they choose is still primarily disposed of rather than recycled, increasing its cost relative to other materials. What are the main objectives that eco-modulation should contribute towards? What are the appropriate levels for the bonuses and penalties (also known as maluses)?

Ensuring success

After designing and implementing a successful EPR scheme, the following monitoring, reporting and evaluation measures should be undertaken to ensure success for years to come.

1. Transparency:
producers must regularly report on how they are meeting their EPR obligations through documented recovery rates, financing mechanisms, and operational details. These details must be made public in annual reports of the PRO to ensure full transparency and accountability.

2. Monitoring:
progress towards targets should be carefully monitored by government agencies. Early warning of any potential to miss targets should be identified and corrective action taken in advance.

3. Auditing:
some companies may avoid signing up to the EPR scheme to avoid fees, and so are 'free riding' on the system. Auditing of the PRO to ensure proper management is essential, as well as auditing of producers selling products within the country to ensure they are signed up to the scheme and paying the required fees.

4. Evaluation:
the scheme should be evaluated regularly to ensure the scope of products and packaging are up to date, whether the need for any exemptions has changed or not, and whether the level of any targets needs to be adjusted. Evaluation and improvements should be made at least every 3-5 years.

Case study: Fost Plus, Belgium

Problem:
In a country as densely populated and as developed as Belgium, the environment is exposed to intense pressures from human activities. Waste management in Belgium falls under the responsibility of three regions: Brussels Capital Region, Flanders and Wallonia, where waste management planning and statistical reporting are undertaken by three separate entities. In the 1980s and early 1990s, Belgium faced major challenges managing the growing amount of household packaging waste ending up in landfills or incineration.

Minimal recycling infrastructure existed and unregulated dumping was commonplace. Producers had no responsibility for packaging after sale, leaving municipalities struggling to deal with escalating disposal costs. With limited budgets, most cities could only offer basic waste collection with the majority of glass, plastic, paper and metal packaging being landfilled or incinerated after use.

Litter and illegal dumping became increasingly problematic as packaging volumes rose. Recycling rates remained in the single digits. The lack of producer involvement and financing for collection systems meant local governments could not address the growing packaging waste crisis alone.

Solution:
As a result of the growing waste issue, Belgium's extended producer responsibility (EPR) system for household packaging waste was implemented in 1994 and is considered a model for achieving recycling rates above EU averages. Mandatory recycling and recovery targets are set by law, and producers who are responsible for over 300kg of packaging annually must join non-profit organisation, Fost Plus. The organisation handles packaging collection and recycling nationwide on behalf of industry through curb side and bring-point systems. To fund the infrastructure, producers pay fees based on volumes and material types.

The EPR scheme has been successful for several reasons including;

- Centralised producer responsibility organisation
- Municipal engagement in collection
- Pay-as-you-throw pricing
- Ongoing communication campaigns

While continual public education is still needed on proper sorting, and reuse has seen limited uptake, Belgium's packaging EPR program provides an exemplary case of how producer responsibility can drive high diversion when combined with supporting policies like pay-as-you-throw fees.

POLICY 7:

Deposit Return Schemes

Deposit Return Schemes (DRS) require both producers and retailers to place a refundable deposit on products packaging.

Deposit Return Schemes (DRS) require both producers and retailers to place a refundable deposit on certain product packaging, which is paid back to consumers upon return of the packaging. The aim is to incentive producers to take charge of their packaging, through increased reuse or recycling, and encouraging consumers to correctly dispose of their packaging. Official return locations can be reverse vending machines (RVMs) or manual collection sites.

Traditional DRS have been highly effective in reducing litter and increasing collection and recycling rates for target materials and are used in more than twenty countries, including Belize, Chile, Norway, Germany and Israel. Successful DRS has potential to reduce different types of waste pollution by 20 – 95% depending on types of items, design and implementation of the scheme.

Items targeted:
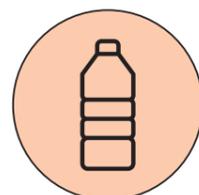
Plastic bottles
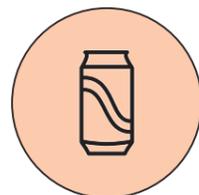
Metal cans
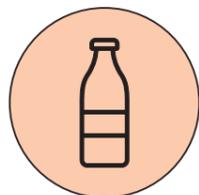
Glass bottles
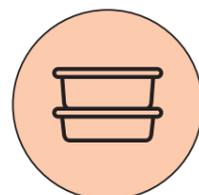
Reusable packaging

How to design an effective Deposit Return Scheme

You can craft a successful DRS for plastic bottles by considering the below topics.

Scope & target materials: what materials and products are to be included in the DRS? This should factor in the availability of local recycling facilities, the types of materials commonly littered or ending up landfills. To reduce the cost of the scheme it may be necessary to focus on high-value materials such as polyethylene terephthalate (PET) bottles.

Deposit amount: what will the deposit amount be set at? This should provide an adequate incentive for consumers to return the product, while balancing the potential cost for retailers and producers. This may need to begin lower to encourage participation.

Logistics: how the collection and transportation of used containers is designed? Whether reverse vending machines (RVMs) - automated machines that utilise advanced technology to identify, sort, collect and process used beverage containers - or manual collection systems would be preferred? Where collection points should be strategically located? The availability and capacity of recycling facilities?

Stakeholder engagement: how will you engage various stakeholders, including producers, retailers, consumers, recycling and waste management companies, and government agencies, from the beginning of the policy development process, to ensure support and participation is achieved?

Regulatory framework: how will a regulatory framework, which establish compliance with stakeholders be designed? How will the local context and existing policy implement this process? Will a formal government mechanism be required to manage the scheme and ensure stakeholders fulfil statutory responsibilities? For example, a Deposit Management Organisation (DMO) may be set up. This would be an independent, not-for-profit organisation, with a governing board which includes representatives from the key stakeholder groups. The DMO would design, set up and manage the DRS scheme, being legally responsible for collection targets, managing the material and financial flows and evaluation of the schemes' performance.

Unintended consequences: could DRS result in the increased use of alternative materials or changes in consumption? How would this be monitored? To avoid fraud, could tamper-proof labels or monitoring from local community groups be used to combat potential problems?

Financing: how will the DRS be funded? Are there existing public-private partnerships between government and industry that could boost the DRS funding? Would financial incentives, such as tax breaks or subsidies for reuse systems or reusable items, be implemented to encourage participation from private sector stakeholders?

Education: how would a communication and public awareness campaigns led by the government be designed to encourage uptake of the scheme? How will the benefits of the scheme for the environment and local economy be communicated?

Ensuring success

After designing a successful DRS, the following evaluation and reporting measures should be undertaken to monitor the success of the scheme in a local context.

1. Quarterly monitoring

Quarterly monitoring undertaken to evaluate the effectiveness of the data collection, including insights into the volume of containers collected; recycling rates; reuse rates for targeted materials; and participation across producers, retailers and consumers.
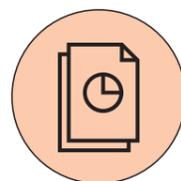
2. Regular reports

Regular reports should be shared with stakeholders, including government agencies, recycling and waste management companies, and community groups into the success of the scheme to motivate uptake.

Case study:
The Republic of the Marshall Islands

Problem:

Majuro, the capital city of the Republic of the Marshall Islands, has battled with a waste disposal epidemic. It is estimated that Majuro generates about 7.2 tonnes of residential waste per day and 13.2 tonnes of commercial waste per day. The main dumpsite at Jable–Batkan has exceeded its design capacity and some 56,600 cubic meters of waste is stored at the dumpsite, which is prone to flooding, resulting in pollution of the surrounding marine environment.

Solution:

In 2018 the Marshall Islands introduced a legislative DRS, targeting PET beverage bottles, aluminium cans, and glass bottles. The deposit was set at $0.06, of which $0.05 is returned to the consumer when they bring the container to one of two manual collection centres, both operated by the public sector. The remaining $0.01 is taken as a handling fee to fund the operation of the scheme. Further funding comes from the revenue from selling returned packaging to recyclers, and from the value of unredeemed deposits. The first year of the scheme saw a return rate of 109%, which is likely due to high returns of non-DRS bottles bought prior to the DRS implementation.

The following factors contributed to the success of the Marhsall Islands scheme;

- **Sufficient supporting infrastructure:** the systems operator, supported by the Japanese Government, had an equipped recycling shed which played a crucial role in ensuring that there was a well-established infrastructure capable of handling the return of 15 million cans and bottles brought in by the public for refunds.
- **Sufficient seed funding:** the government allocated funds to ensure the programme could survive the first few months when deposits would be less than refunds.
- **Strong leadership and political will:** supported by various levels of government, including President of the RMI, the Minister of Environment, key actors in the Ministry of Finance and the General Manager of the Environmental Protection Agency.
- **Consistent communication with stakeholders and the public:** EPA took responsibility of being the central communicator and project driver, ensuring that stakeholders and the public were informed throughout the implementation.

Further learning

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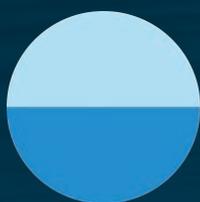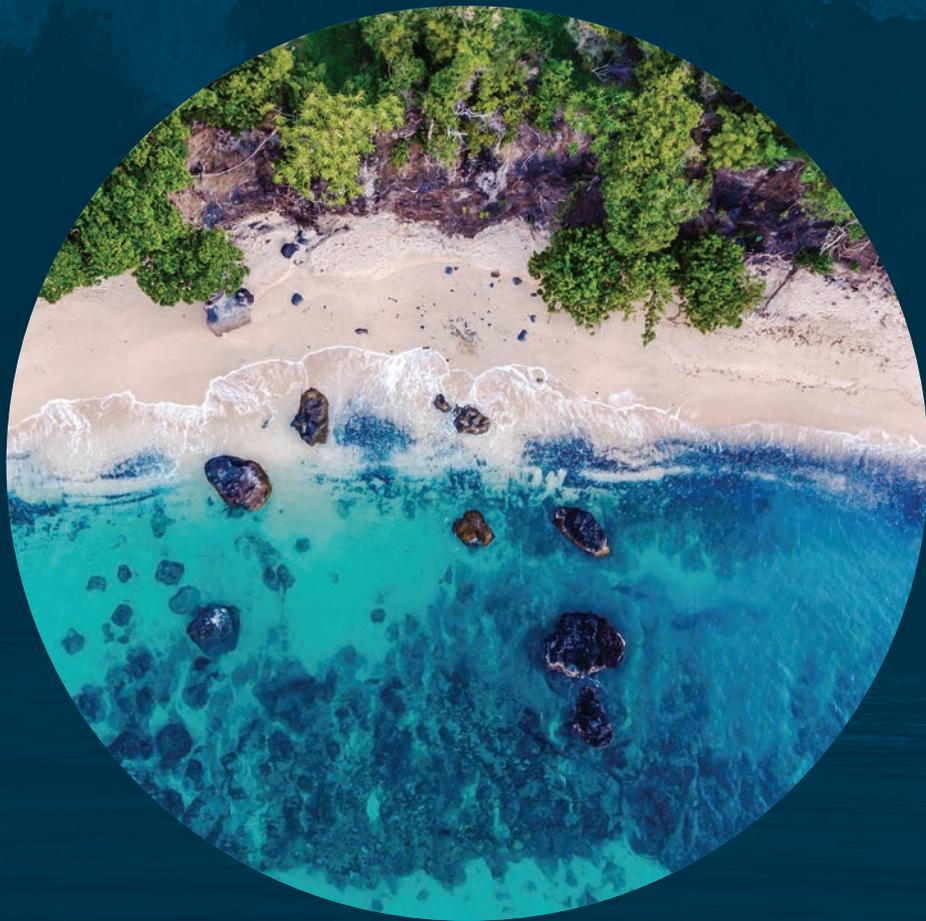
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UNIVERSITY OF PORTSMOUTH
GLOBAL PLASTICS POLICY CENTRE

hello@commonseas.com