

MALDIVES SHiFT

CIRCULARITY ASSESSMENT
Key Findings & Opportunities
for Government, Business and Communities
to tackle plastic pollution in Maldives

INTRODUCTION



The Maldives is an island nation that consists of nearly 1,200 small coral islands lying in the Indian Ocean. Malé serves as the political, economic, and administrative hub of the country. The unique geography of the Maldives, coupled with intense tourism, makes the country particularly susceptible to challenges with plastic pollution and the management of other waste materials. Small island communities like Maldives contribute a small

fraction to global plastic waste generation but suffer the impacts the most. Yet small island communities and governments are leading in finding adaptable, innovative solutions. Notably, the Maldives recently enacted a single-use plastics phase-out plan to target single-use plastic (SUP) products commonly found in litter and marine environments, which are believed to have existing affordable alternatives available on the market.



Maldives SHiFT is a holistic programme to help tackle plastic pollution in Maldives, led by eXXpedition CIC, in partnership with the Republic of Maldives' Ministry of Environment, Climate Change and Technology, the UK's Centre for Environment, Fisheries and Aquaculture Science, the University of Georgia, The Maldives National University, Parley Maldives, Fauna & Flora, The Commonwealth, and with funding from the UK Government's International Development as part of the Defra Ocean Country Partnership Programme. The programme ran from April 2023 to January 2024 and consisted of three parts: a Leadership Programme, a Circularity Assessment and an action-focused Stakeholder Meeting.





Decision-makers at local, national, and international levels need data to take an informed holistic approach to identify successful research-driven solutions in policy, infrastructure, and industry innovation.

Developed by the Circularity Informatics Lab at the University of Georgia, the Circularity Assessment Protocol (CAP) is a standardised assessment protocol to inform decision-makers by collecting community-level data on plastic usage and alternative materials. Grounded in materials flow and systems thinking concepts, the CAP uses a hub-and-spoke model to holistically characterise how consumer plastic flows into a community, is consumed, and flows out, either through waste management systems or leakage into the environment.

The model, shown here, consists of seven spokes: input, community, material and product design, use, collection, end of cycle, and leakage. At the centre, the system is driven by policy, economics, and governance with key influencers including non-governmental organisations, industry, and government.

Fieldwork for the CAP was conducted in the Maldives in the Greater Malé area, including Malé, Villingili, and Hulhumalé during July and August 2023.

The intent is for the data in this report to inform ongoing stakeholder engagement around solutions to strengthen the circular economy and waste management in the Maldives, as well as to provide a baseline for future assessment to monitor changes with the implementation of policy.



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INPUT

Methods:

Twenty-seven stores were surveyed and 120 unique brands of fast-moving consumer goods were recorded, including 25 beverages, 31 biscuits, 32 candies, 20 chips, 8 tobacco products, and 4 waters.

Findings:

Most convenience products travel between 3,000 and 9,000 kilometres to reach the Maldives, except for bottled water which is locally produced. 95% of products were manufactured internationally, with only 6 out of the 120 brands identified as having local manufacturing. These local products were all beverages that were bottled locally with imported bottles. International companies are profiting from selling products in the Maldives without contributing to the management of the associated waste.

Opportunities:

- Everything is imported, which is both a challenge and an opportunity, in terms of control of plastics & packaging.
- There are local bottlers currently importing PET bottles for their beverages, which could be migrated to a local reuse system leveraging existing bottling infrastructure.
- Extended producer responsibility (EPR) could spark new industry and investment around waste collection from importers.
- Aligning with other small island developing states (SIDS) was also suggested as an opportunity to have a stronger voice to put pressure on companies to change their packaging practices.

COMMUNITY

Methods:

To understand current attitudes and perceptions of plastic waste, semi-structured interviews were conducted with 19 key stakeholders.

Findings:

The taste and safety of tap water are a concern for many residents, leading to a lot of bottled water use. Overall, interviewees felt that there is limited awareness about plastic pollution's impacts on human health. Alternatives are more available with the single-use plastic phase-out plan currently being implemented in the Maldives, but there is still a desire for refill and composting systems. Even with current policies, the burden of change still rests on the community.

Opportunities:

- Because many community members have not historically had access to formal waste management, as segregation, collection, and recycling expands, there is a need to improve awareness of proper waste practices.
- Expanding home water filtering infrastructure and public filtered refill stations could expand trust and ability to refill reusable water bottles.
- Further communication and information on the benefits of the plastics ban to community members could help gain more support and participation.

PRODUCT DESIGN

Methods:

127 samples of unique forms and brands of fast-moving consumer goods were purchased in stores to obtain packaging weights; these included 26 beverages, 35 biscuits, 42 candies, 20 chips, and 4 waters. Visual surveys were conducted in stores to estimate material composition for chips, candy, beverages, shampoo, laundry detergent, oil, and rice. To-go ware was also surveyed in 27 restaurants, with 100 items categorised including straws, utensils, cold cups, and food containers.

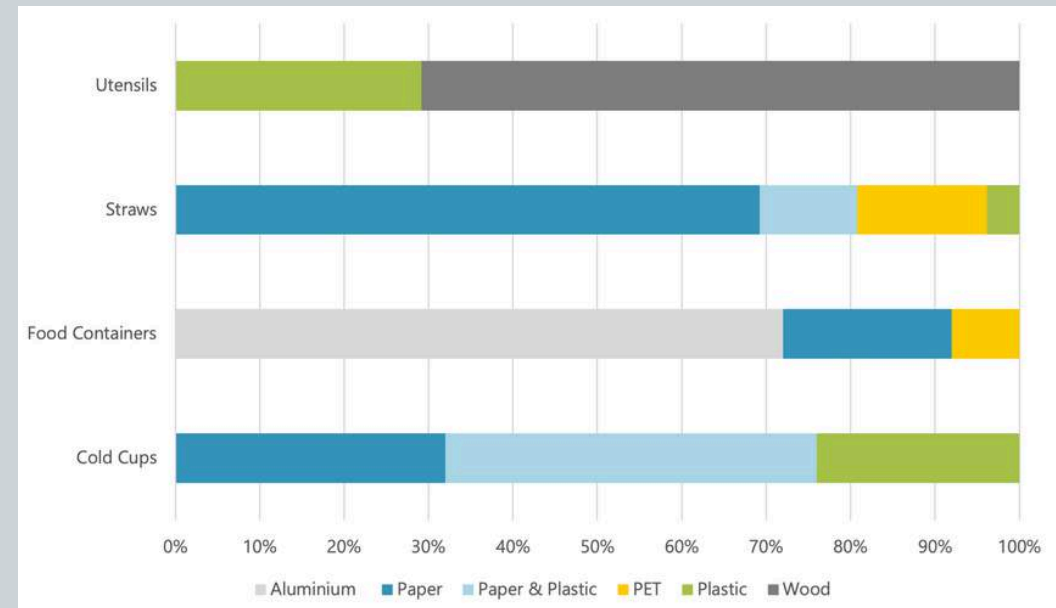
Findings:

In stores, most chips and candy were packaged in a multi-layer or film plastic, which is not recyclable and can easily escape the waste stream. Multi-material canisters (e.g., Pringles) for chips are a combination of paper, metal, and plastic and are not recyclable (39%). Convenience beverage products were packaged in PET, aluminium, and glass, which are recyclable, but the highest quantity was in aseptic cartons (e.g. Tetra Pak). Aseptic cartons contain less plastic but are not easily recyclable. In restaurants, to-go ware reflected the implementation of the single-use plastics phase-out plan – surveys showed a relatively high percentage of wood utensils (41%), paper straws (70%), and aluminium or paper food containers (82%). Cold cups were primarily paper, often lined with plastic. The higher percentage of alternatives to plastic is likely due to the single-use plastic phase-out plan, but many of the available alternatives are still single-use.

Opportunities:

- Reduction is key to limiting the amount of waste that needs to be managed. Swapping single-use plastics for other materials that are also single-use will not reduce overall waste generation.
- Compostable materials, including compostable plastics, are not widely available; these should not be emphasised as an alternative unless composting infrastructure becomes available.
- Chips in multi-material canisters could be converted to paper-only canisters such as those available in Europe.
- The impact of the single-use plastics phase-out plan will expand as stores and vendors use up their current inventory of plastic.
- Recyclable polymers are already in use for some products, like beverages and laundry detergent, though infrastructure for recycling is limited.
- The single-use plastic phase-out plan also offers an opportunity to explore reuse systems. Reusable alternatives to single-use plastic, such as cup return systems, could be promoted.

Figure 1: Material breakdown of to-go items surveyed in the Maldives.



USE

Methods:

The field team surveyed the home and personal care products aisles and noted any observations of alternatives to single-use plastic packaging, including alternative materials or reusable alternatives. The type of bag offered was also surveyed in the 27 stores included in the assessment.

Findings:

59% of the stores surveyed offered some kind of alternative to single-use plastic. Alternatives to single-use plastic cost about 48% more compared to their single-use plastic versions. Out of 28 alternatives to single-use plastics that were identified in stores, only 2 were reusable products. 26% of stores offered bags made from non-woven plastic and typically cost 3.3 MVR. 37% of stores offered reusable bags for sale, typically made of cloth.

Opportunities:

- Access to filtered drinking water and refill stations with controls for taste quality could be expanded, allowing for more reuse of water bottles.
- More focus on reuse and refill could offer more affordable local solutions.
- The availability of reusable bags of more durable materials like cloth could be expanded.
- There is an opportunity to increase the availability of reusable products available to community members in stores.
- Alternatives are more expensive than single-use plastics. An economy of scale for vendors could reduce costs.

COLLECTION

Methods:

Existing sources were reviewed to summarise current processes, supplemented with information from stakeholder interviews.

Findings:

The Waste Management Corporation (WAMCO) oversees waste collection in the greater Male' region. Tourists generate waste at a higher rate than Maldivian residents. Segregation for recycling is limited, and waste leakage may occur during transport between islands.

Opportunities:

- Challenges remain with collection and transport between islands. There is an opportunity for innovation in logistics, baling, and transport of recyclables and waste. For example, if materials were homogenised and sorted, multiple collection and aggregation points may become more economical and logistically possible.
- A supplemental tourist tax could offset the cost of waste management.

END OF CYCLE

Methods:

Existing sources were reviewed to summarise current processes, supplemented with information from stakeholder interviews.

Findings:

Logistics and economics make recycling a significant challenge in the Maldives. Thilafushi, the main island for waste disposal in the Malé region, has stopped open burning, but this practice is common on the outer islands.

Opportunities:

- While lack of land availability and weather conditions are a challenge, commercial composting on the islands would provide an opportunity to reduce waste going to the ocean or being burned.
- There is a risk that the proposed new incineration system could discourage reduction and recycling.
- Increased awareness of human health issues of open burning & plastics may promote new management options.

LEAKAGE

Methods:

Transects of litter along roadsides were conducted in 27 locations, stratified by population activity.

Findings:

Maldives litter density ranged from 0.23 items/m² to 14.2 items/m², with an average of 2.92 items/m². This is lower than other South Asia cities, which typically range from 0.5 items/m² to 15 items/m², with an average of around 4.5 items/m². Cigarettes were the top litter item across all three population count areas. Plastic food wrappers were second in terms of abundance.

Opportunities:

- Recyclable items, like plastic bottles and aluminium cans are relatively high in the litter counts. Giving recyclables more value (through a deposit-return scheme or other policies) could facilitate more collection and reduce leakage.
- There is an opportunity to increase awareness of microplastics in the environment, fish, and potential human health impacts to motivate changes to plastics use and management.
- Increased awareness of cigarette butts' plastic composition and associated toxicity, as well as the availability of infrastructure like butt receptacles, could address cigarette butt leakage.

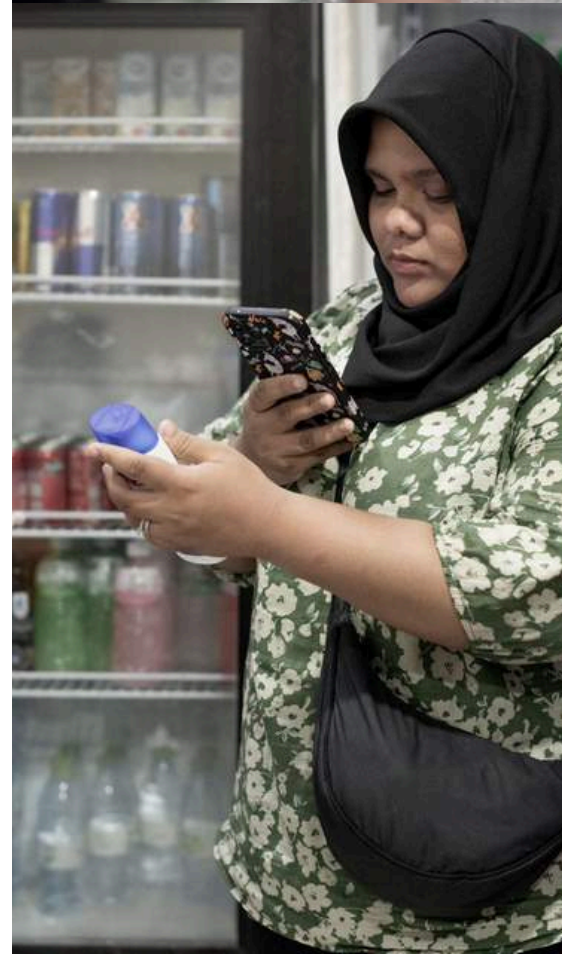
INSIGHTS



The recent SUP phase-out plan makes this a particularly interesting time to study plastic pollution in the Maldives. The SUP phase-out plan prohibits SUP to-go food ware including plastic drinking straws; Styrofoam lunch boxes; single-use plastic plates, cups, cutlery, and stirrers; and plastic cups below 250ml.

In 27 restaurants surveyed as part of the CAP, the impact of the SUP phase-out plan was evident. Most businesses have switched from SUP to-go food ware to other single-use products made of materials like wood, bamboo, paper, or aluminium. Some reusable options were present for in-restaurant dining, but generally, reusable alternatives were limited and reuse systems could be added as part of the expansion of the SUP phase-out plan. Unlike single-use, reuse systems would reduce not just plastic usage but overall waste generation, especially important if future iterations of the SUP phase-out plan include new products.

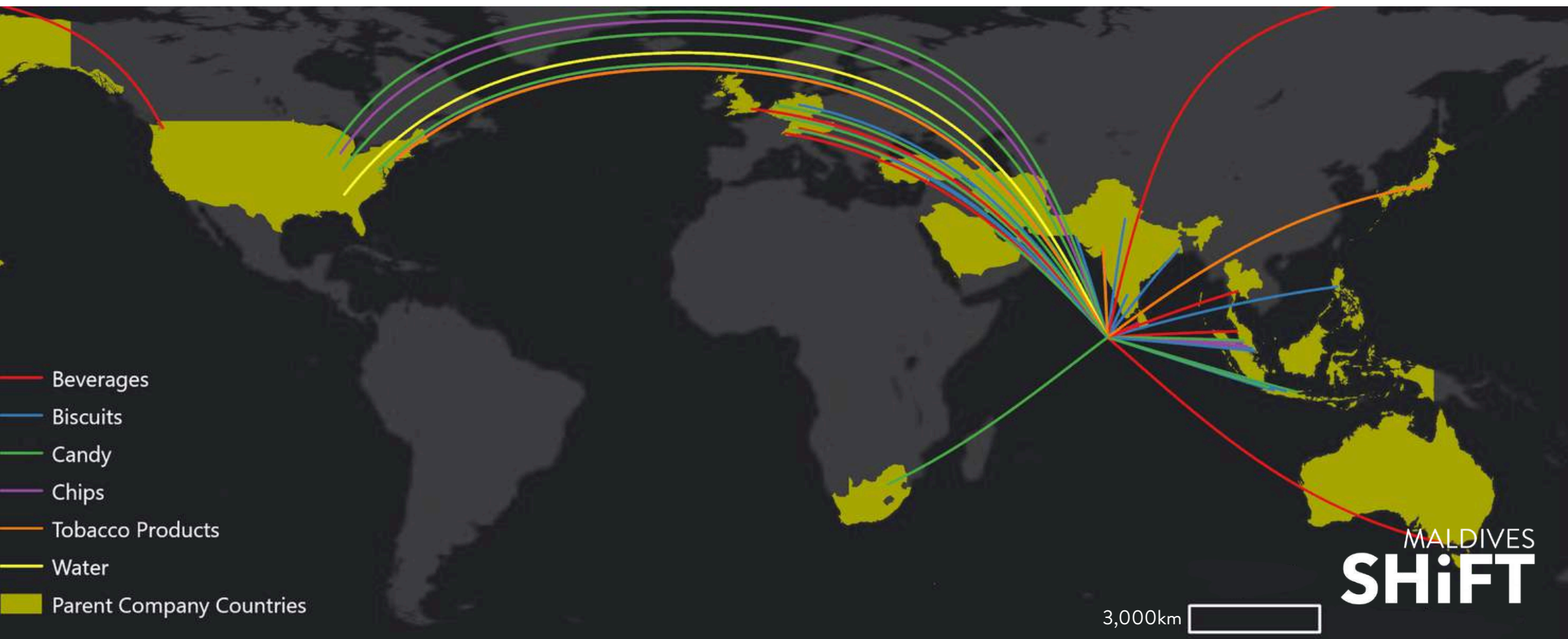
Stakeholder interviews indicate that there is a need for better access and more support for businesses to source suitable alternatives to banned items in the SUP phase-out plan, as well as for additional education and outreach to increase community awareness of the purpose of the policy.



In store surveys of 120 brands of fast-moving consumer goods, 95% of the products entering the Maldives are imported. This is both a challenge and an opportunity, in terms of control of plastics and packaging. International companies are profiting from selling products in the Maldives without contributing to the management of the associated waste. Extended producer responsibility (EPR) is an opportunity to share the costs of waste management with producers and is especially salient in the context of current international negotiations around plastic pollution, namely the United Nations Environment Programme (UNEP) Intergovernmental Negotiating Committee (INC) on an international legally binding instrument on plastic pollution. Negotiations present an opportunity to advocate for EPR in small island nations with limited leverage.

One of the few products produced locally is bottled water – PET bottle preforms are imported and filled (after blow moulding) in the Maldives. Stakeholders in the interviewees mentioned concerns about the perceived safety and taste of tap water. In-home water filtration as well as reusable glass bottles leveraging existing filling infrastructure could deliver drinking water to residents with less plastic waste generation.

Figure 2: World Map displaying parent company locations for top convenience items in the Maldives.



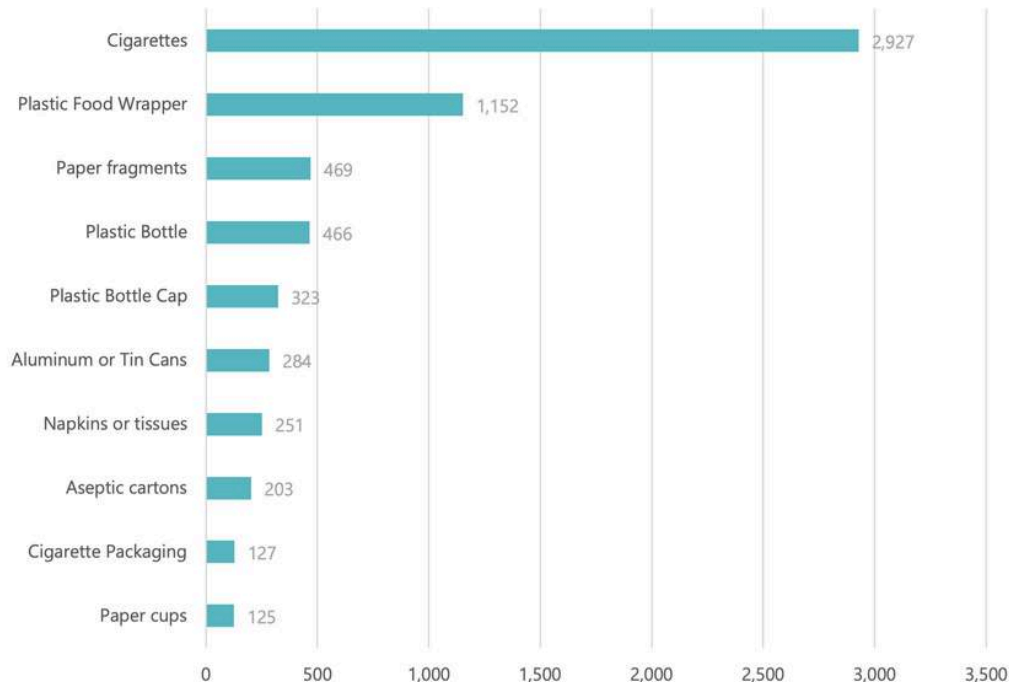
Recycling systems are limited in the Maldives, due to the logistical and economic challenges presented by the geography of the scattered islands and the limited quantity of recyclables generated. In 27 randomised litter transects conducted in the greater Malé area, plastic bottles and aluminium cans, both of which are highly recyclable, were in the top 10 most prevalent litter items by count identified in the surveys. While expanding recycling efficiency may decrease the presence of these items in the litter, the operational obstacles of collection and the cost of international shipping for processing are significant obstacles to recycling in the Maldives. Achieving an economy of scale to lower costs is difficult with limited waste generation coupled with limited storage space available in the Maldives.



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Figure 3: Top 10 litter items observed across all sites by count.





Initial results identified by the CAP were presented in an action-focused stakeholder meeting in October 2023. Seventy-five participants from NGOs, government, industry, academia, and international experts were invited to discuss and express their opinions on the findings, additional data, and opportunities to tackle plastic pollution.



Participants in the workshop identified the following solutions as most important and most likely in the Maldives: expand access to in-home water filters and water refill stations; develop more support for businesses to identify SUP-free alternatives available for import; expand the Single-Use Plastic Phase Out Plan to include more items to be banned for import; establish reuse systems with vendors (such as glass bottles being returned to producers); and increase education and awareness campaigns.



Despite the significant challenges in the Maldivian context, stakeholders are engaged in and enthusiastic about finding new ways to reduce plastic pollution and protect their local environment.



This is a summary of the full report. Any questions or inquiries please contact info@expedition.com

