



National Circular Economy Framework & Guide for Entrepreneurs for the Maldives

Final report

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Introduction

Circular economy (CE) has been on the rise across the globe due to a growing concern about resource extraction rates and pollution arising from production processes under the linear economic model. The CE is “an industrial system that is restorative or regenerative by intention and design” (EMF 2013). The CE goes beyond recycling and waste reduction as it aims to value waste and keep materials in circulation for as long as possible. It is about extracting higher value from fewer resources by increasing productivity and efficiency, and moving from ownership to access of products, creating a sharing mindset allowing to reduce consumption thanks to increased efficiency of asset use. For island states, the CE is highly relevant due to their vulnerability to climate change and pollution but also due to the reliance of countries on import of most products consumed. The Indian Ocean Commission has therefore secured funding from the World Bank to support the SWIOFish regional project and increase efforts to set up a circular economic model for the supply and production chain to reduce downstream marine pollution. The CE Project’s aim for each AIODIS country is to foster a circular economy and protect the environment and natural assets while aiming for economic growth.

The objective of the report is to present a national policy framework and guidelines for entrepreneurs. Through collaboration with local experts and government officials, local agencies and international foundations, an understanding of the current situation has been established in the review report. Possible approaches and actions have now been identified to move forward. These actions are gathered within the present document. Thanks to incentives and policy adaptations made throughout the past decade, in 2015 the Maldives implemented a national waste management policy with objectives including the introduction and application of the 3R concept and already created the fundamentals to proceed. The introduction of a new waste to energy incineration plant in Vandhoo in the northern region of the country in 2016 and the since 2019 ongoing discussions for a waste-to-energy process in the city of Addu city show efforts to follow up on and advance the progress. Involvement from the private sector as well as awareness campaigns have additionally increased the understanding of the concept of a circular economy and cornerstones have been laid within the society.

The document is divided into two parts. First, it presents a policy framework to foster CE and respective suggested legislative implementations for the Maldives. To facilitate the connection between authorities and policies and the private sector it is important to guarantee a common understanding and the comprehension on how to proceed, with the goal of a circular economy in mind. The second part of this document then presents CE guidelines for entrepreneurs. Implementing a CE goes beyond recycling and waste reduction as it aims to value waste and keep materials in circulation for as long as possible. It encourages extracting higher value from fewer resources by increasing productivity and efficiency. Therefore, to move towards a circular economy it is crucial to involve local businesses and the private sector in order to facilitate the collaboration, implementing respective practices along the path within production, distribution and treatment facilities. The guidelines for entrepreneurs are linked to the policy framework and legislative suggestions made during the first phase. Explanations on how to set up a business in the Maldives with a circularity target, as well as the transition toward more sustainable business practices for established companies will be included and offer step-by-step advice along the way. This will allow to close a gap of informality within different sectors and better involve authorities and businesses in the common quest toward a circular economy.

1. Policy framework

The framework to lay out possible paths moving forward based on the particularities of the Maldives and feedback from local experts participating on this work. Acting upon present circumstances in place legislation will be promoted to develop a circular economy further while aiming to identify additional opportunities to expand the economy and improve aggregate efficiency of materials.

1.1 Establish regulations for the country's Circular Economy

National Policy goal: The government need to Adopt a statement committing to a circular economy and fill the legal gaps. A number of legal texts exist in the country but they are not harmonised to address CE (See Annex 1).

Rationale: There is already an interaction between industry and authorities for common action. The government made its target for a circular economy known but did not offer a clear indication on how to follow through with it. In the 'waste as a resource' sector of the National Strategic Action Plan (2019-2023) there are four actions that are the first steps the Maldivian government is taking towards a circular economy. These include a legal framework to reduce import, use and manufacture of single use plastics, national policy framework on pollution prevention, a framework for extended producer responsibilities and other stewardship programmes and a national recycling strategy.

In the Maldives, the polluter pays principle (PPP) has been implemented within the national environmental policy, and is controlled and monitored by the Ministry of Environment. The ministry currently implements fines under the waste management regulation of 2012 for littering and dumping of waste in public areas, protected areas and vulnerable environments. However, the PPP is not yet entirely picked up throughout the industry and waste management system and the consumer and the industry are responsible for the financial burden of the pollution costs. The Maldives do not yet have in place the Extended Producer Responsibility (EPR) along the supply chain to prevent extensive pollution and reduce the impact on PPP, but the Ministry of Environment is pushing for its implementation. Moreover, both the EPR and PPP are included in the legislation about solid waste management. Despite their existence, they are not developed enough to provide a CE basis and reduce marine pollution. On the other hand, a plan to phase out all single-use plastics on the Maldives by 2023 has been put in place in February 2021 and aims at reducing waste generation and prevent marine littering.

To achieve the above goal, it is suggested that the country adopts a declaration or an umbrella legislation that promotes integration of actors and harmonisation actions towards a CE. Commitment to the CE could be integrated into existing or upcoming blue economy policy of the country.

Specific actions needed: There is a need to adopt specific legislations that are currently missing to foster a CE. A legislation to phase out single use plastic – focused on industry, awareness creation and implementation in different industries – and incentives to the fishery sector are in the works. At a later stage the possible implementation of fines would be helpful. Further a single use plastic and communication plan is passed to bring EPR under law. Further, a pertinent legislative framework to implement the marine spatial planning work is ongoing under the Noo Raajje Programme.

1.2 Educate through awareness and education campaigns

Mobilising actors for the CE: To achieve a CE in the Maldives, it is essential to increase literacy on CE at all levels, especially in key sectors of the blue economy. The concept of CE is still new at the national level as communities, industries and government entities are not fully aware of the benefits of a circular economic model.

Rationale: There are efforts from governmental, civil society and private companies including a recycling strategy and an EPR strategy that will be finalised by the end of 2021. In addition, the single use plastic phaseout plan for the Maldives has come into effect to sensitise population on single use plastic/waste management. Further, a recycling strategy and EPR strategy will be finalised by end of the year 2021.

To achieve the above goal, examples of specific actions needed include:

- Continued workshops in place engaging society at large.
- Build collaboration between large industrial partners and authorities.
- Reintroduce school campaigns to raise awareness within youth.
- Increase interaction with companies to introduce them to circular economic models and make them understand the necessity of it.

Specific actions needed: There is a need to support and replicate existing initiatives and other educational activities in place at the level of governments, businesses and the population. In the Maldives, awareness campaigns about the CE have started recently and can be seen in the sectors of Tourism and Fisheries (see Annex 2).

1.3 Improve material stock management

1.3.1 Collection and sorting system

Optimising Waste value: To improve the waste management processes currently in place, it is recommended to optimise existing collection and sorting systems. This is also acknowledged in the report on marine plastic pollution under the AIODIS project. While waste is collected, it is not done uniformly across the country. Waste sorting procedures are not efficient and do not allow for an elaborate subsequent incineration nor valorisation of waste.

Rationale: Waste is collected seven times a week through curbside collection or household collection depending on the island and municipality. Practices differ across the country because collection and transport of waste is within the responsibility of the municipality. After collection waste streams are sorted into different materials such as metal, paper & cardboard and bio waste. In some islands source segregation happens, however there are islands where no segregation at all is done. The waste is collected and segregated at island level and organic waste is managed at the island waste management centres. The remaining inorganic waste, including the recyclable and combustible waste, is transferred to the nearest regional waste management facility.

From the above it is then necessary to increase collection points, improve sorting procedures and introduce a treatment site that allows for waste valorisation and sustainable practices that go beyond incineration in the long term.

Specific actions needed: An important step in this process is to support existing companies doing collection and sorting and replicate nationally. Currently utility companies exist that responsibly collect and sort waste (see annex 3) and offer upscale opportunities going forward. Additionally, a clear waste management structure should be put in place to allocate the responsibilities along the treatment process.

1.3.2 Waste treatment facility

Improving efficiency of waste treatment sites: Addressing processes at waste treatment facilities represent a key step towards achieving circularity. To do so, the country needs to increase efficiency of current facilities and introduce more sustainable sites like landfill with gas congestion, incineration with energy recovery, waste sorting and cleaning sites and recycling stations. Existing facilities do not allow valorisation of waste and do not achieve their goals of reducing waste. Hence efforts to increase waste valorisation and efficient management at incineration sites need to be ongoing.

Rationale: The government has started discussion to improve current landfill sites. Options to upgrade incineration plants, sorting and recycling plants are being evaluated by the authorities but no consents have been found. At present there is one treatment facility at R. Vandhoo. In addition, Addu waste treatment facility will cover three civil atolls (Gn, GDh, GA, S) and works are ongoing and incinerator works are contracted out. Efforts to implement source segregation, increased waste collection, reduce littering and introduction recycling are being undertaken.

In northern facility region bio-degradable waste is source segregated at the island level and inorganic waste are taken to the facility for treatment, where combustible waste is incinerated.

To achieve circularity, existing solutions include implementing high efficiency recycling and biogas creation and improving sustainability on incineration plants on the two islands of H. Dh Kulhudhuffushi and in Fuvahmulah. Assessing energy recovery, sorting and waste valorisation practices within these plants is also deemed helpful.

Specific actions needed: For the Maldives options should surround supporting and upscaling existing companies treating waste with circular motives that have existing waste valorisation processes (see annex 3).

1.3.3 Dumping and littering

Reducing pollution through improved waste management: For the country's blue and circular economy, reducing waste and related pollution at all levels and especially in the ocean is paramount. There is currently an important level of industrial pollution and accumulation of waste from littering in cities and on beaches.

Rationale: In the Maldives, anti-dumping and littering legislation are in place but need to be enforced more thoroughly through existing fining systems that lack application. A body of control is in place and operated by the public sector and responsible for monitoring company waste streams but is facing similar issues than the fining systems regarding enforcement. Industrial dumpsters are supervised by the Department of Waste Management and pollution control as well as the Environmental Protection Agency.

It then becomes obvious that the country needs to better monitor industrial waste and establish fines, introduce material use understanding across sectors such as manufacturing, tourism, fisheries.

Specific actions needed: For the Maldives, the solution lies within supporting existing programs for industrial waste monitoring and a subsequent penalty system that is enforced on the entirety of the system to manage large industrial waste flows.

1.4 Restore and better manage the use of natural flow

Managing natural resources: To achieve sustainable use of natural resources within a CE, the Maldives need to upscale and further support existing initiatives. They should aim at regenerating natural flows especially in the blue economy sectors such as fisheries, tourism, oil and gas exploration and bioprospection. A project co-funded by the World Bank to build a sewerage system to avoid untreated sewage water running into the ocean are initiatives that show ongoing efforts in that regard.

There is currently a low level of environmental protection of natural resources with 557 square kilometres (less than one percent) of ecosystems of the overall 1 million square kilometres of their EEZ and coastal ecosystems being protected. Another 39 coastal ecosystems are being restricted through measures for harvesting water and natural resources are protected from detrimental fishing gears (E.g.: chemical, explosives, large scale nets). Despite existing environmental texts to protect ecosystems and biodiversity and growing conscience of the issue, high levels of biomass are extracted through, among others, fisheries.

Available solutions include increasing protection of EEZ through MPAs, reinforcing monitoring of existing MPAs and areas-based management, and increasing restoration activities while also introducing financial reprimands against offenders.

Rationale: There are agencies in place responsible for the monitoring of natural resources such as fish stocks, forest abundance, wildlife preservation and water pollution. As a follow up on existing monitoring efforts of natural resources, there are limited controlling efforts like implementation of resource use permits.

Specific actions needed in the Maldives: A first step could be to improve existing monitoring practices and capabilities while preventing ongoing harmful practices through fines. Building better knowledge on the use of natural resources will provide evidence for future resource extraction rate decision-making. To address regeneration of natural flows, a parallel step is to support and upscale existing activities such as fishery closures, mangrove restoration, locally-managed marine areas and MPAs.

In this regard, much work has already been conducted by the Ministry of Environment and the Ministry of Fisheries, Marine Resources and Agriculture, where areas of ecological and biological interest have been protected with one of the key goals being regeneration of stocks and stimulating the spill-over effect. Furthermore, the marine spatial planning work underway through the Noo Raajje Programme aims to protect a significant percentage of the Maldivian EEZ, thereby considerably expanding the existing MPA network.

1.5 Incentivise businesses

Putting businesses at the centre of the CE: Increasing the involvement of businesses and entrepreneurs is a stepping stone towards achieving circular and blue economic activities. Businesses and entrepreneurs are not aware of the opportunity the CE presents while those already involved in CE related activities are not well supported.

Rationale: The public sector is aware of private sector initiatives and efforts toward a circular economy but does not monitor circular business practices. Nevertheless, the government policy initiatives include circular economy within businesses by supporting them financially through tax reductions.

The existing governmental monitoring of business practices and the understanding of circular efforts allows there to be a certain degree of grouping of companies according to equipment and material use to encourage a closed loop or industrial collaboration called symbiosis.

These records are mainly maintained by Maldives Customs Services and approvals are given by Ministry of Environment.

To promote the adoption or transition to a CE business, the government needs to provide structural and financial support to businesses including through:

- The creation of a circular economy office within one or several of the government departments
- The creation of company grouping according to business activity, material use, equipment requirements and proximity to improve material use and infrastructural efficiency while reducing supply chain and waste treatment costs by sharing them among a group of firms
- Undertaking a dialogue with industry to create valorisation of waste materials
- Introducing tax relief system such as 3-5 year starting period complete tax free or reduced
- Cutting repair and refurbish value added tax to encourage reuse businesses

Specific actions needed: In the Maldives, there is a need for initiatives such as subsidies, aides, tax reductions and operative advice to incentivize businesses to adopt circular models.

2. Guide for entrepreneurs

To implement a circular economic model within businesses and across sectors through synergies both governmental and private sector efforts are required to create the right environment. Since private sector actors are able to decide and act quickly, companies can be the driving power toward a local circular economy. Businesses are currently in the position where they can drive the change by taking initiative and transition toward circular economic practices and influence governmental decisions on the matter to follow accordingly.

In order to engage businesses in efforts to achieve a circular economy it is necessary to provide them with guidelines on how to set up and transition toward a circular production cycle. Through consultation of local experts, consultants and governmental officials this document pinpoints to existing good practices as well as barriers and opportunities for a circular economy. Feasible solutions and possible stakeholders to become involved in the process have been identified and the guidelines are designed to create discussion across sectors to form synergies and break the linear economic model. Identifying and pointing out possible company collaborations as well as step-by-step guidelines for sustainability seeking businesses are starting points towards the final goal of protecting maritime resources and reducing ocean pollution.

The guidelines can help start-ups as well as existing companies to establish business models that allow for more efficient resource management while phasing out waste creation and thereby counteract maritime pollution at its source. The guidelines offer upcoming entrepreneurs administrative advice to set up their business and identify the main modalities of implementation for a circular economy. For existing businesses, the guidelines include step-by-step council on how to transition toward sustainable production and system processes that are associated with a circular economy. The guidelines conclude with in-depth solution proposals and opportunities for companies to pick up upon and implement in their ongoing quest for sustainable processes. Based on the content of this document companies will be able to make relevant progress leading to improved resource management, reduced waste generation and diminished maritime pollution for island states.

2.1 Creating a new CE business

2.1.1 Establish the mission, vision and objectives of the company

The company's mission must embody its essence and reason for being. The vision comes as the way the company is envisioned in the mid-long term. Objectives of the company derive from the founders' goals (personal and professional motivations) and should tackle environmental and social challenges and satisfy customer needs.

For a CE business, these three elements should refer to one of the CE principles: (1) preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows, (2) optimise resource yields by circulating products, components, and materials at the highest utility at all times in both technical and biological cycles, and (3) foster system effectiveness by revealing and designing out negative externalities (P3)

In the Maldives, the fishery, agriculture, manufacturing, construction and tourism sectors have been identified as key sectors. They offer the most impactful and far-reaching opportunities to **reduce maritime and land pollution and introduce circularity** within the economy on the islands of the Maldives.

2.1.2 Identify key stakeholders and customer segments

This step involves identifying and prioritising those stakeholders that will play a significant role in achieving the objectives of the project. Stakeholders include the team (co-founders and employees), partners, beneficiaries (beneficiaries are those who benefit from the value your project generates) and customers. Customers are at the core of the business model as they buy the services or products. As for the local community, the project's main impact in society has to be intrinsically linked to the local community and cover a local demand that is to be met. Another task is to develop a sound understanding of the potential customer base (customer identification and profiling) and the existing market around it (market assessment).

To promote a CE in the Maldives, it is essential at this stage to include stakeholders like governments, civil society organisations promoting CE and institutions like the Ellen MacArthur Foundation. To identify key stakeholders, entrepreneurs should target main suppliers, intermediaries, processing associates as well as customers and public partners of interest. In the above identified sectors of fishery, agriculture, manufacturing, construction and tourism some key stakeholders are essential (refer to Annex 4).

2.1.3 Develop the value proposition

CE businesses create environmental value by tackling circularity and environmental challenges (that key driver for their existence) through its business solutions and operations, and social value by empowering their stakeholders (including employees, suppliers, communities and future generations) and meeting the needs of their customers.

To achieve this, it is suggested to create strong collaboration across the board and involve customers and stakeholders in the process of designing and delivering the value proposition (co-creation).

In the Maldives, the issue(s) of marine pollution, excess waste generation and lack of locally accessible material inputs represent key challenges that will be a good potential value proposition.

2.1.4 Identify the modalities of implementation

2.1.4.1 *Key activities and resources*

Key activities define what we must do in order to define and offer a value proposition to a specific customer segment. They include problem-solving (such as consulting or counselling), production (manufacturing etc), platform/network/sale, and supply chain management. Activities within CE businesses should include those proposed in the different business models (in section 4 of this guideline)

Key resources represent all the elements and aspects that are essential for making the business work properly. They include human resources, physical assets, intellectual resources, financial resources and natural resources. For the latter, a special focus should be on the use of recycled materials, sustainable or renewable resources as input materials.

Entrepreneurs also need to consider incoming legislative changes such as laws on waste management and the plan to phase out single use plastics. At this stage it can also be helpful to enquire for possible governmental support like tax reduction and investment subsidies as incentives for the use of recycled and sustainable materials as well as renewable resources as input materials.

2.1.4.2 *Customer relationships and channels*

Different types of relationships can be established with customers such as personal assistance, self-service, automatic service, community based or co-creation.

To properly establish the different types of relations with customers, doing a customer journey map of the particular segment of customers can be useful. A map is an oriented graph that describes a user's journey by representing the different touchpoints that characterise his/her interaction with the service or product.

You will also have to distinguish between the way (channels) to get the customer's attention and how to establish and maintain a close relationship with them. Channels include all means of communication and distribution to reach customers and deliver a value proposition to them.

For CE businesses, it is possible to explore existing initiatives towards sharing economies, introduce take-back options for customers to return products and help materials stay within the company while exploiting options to continue to interact with customers.

2.1.4.3 *Cost structure*

It is important to carefully classify costs (fixed and variable costs) so that the business can analyse and improve its performance.

Within a CE, it is useful to explore potential costs linked to niche CE areas and identify cost savings arising from CE practices such as equipment sharing, recycled material purchases or supply and transport costs from abroad.

2.1.4.4 *Revenue streams*

The business must have an accurate idea of the importance of each revenue stream and which one best matches a particular customer segment and channel. Streams might include asset sale, usage fees, subscription fees, licensing etc.

2.1.5 Test the product or service

Before fully implementing the modalities above, the entrepreneur needs to test key variables:

- Problems and needs identified should be tested by talking to experts in the field or by interviewing key stakeholders.
- Participation of key stakeholders should be verified through diverse types of consultations and meetings on the business objectives where multiple stakeholders can provide a good measure of their willingness to engage.
- Customer segments should be validated through focus groups, interviews, debate or conversations to check their needs, aspirations, gains and pains, etc. Focus groups, interviews, debates, and conversations could be used including on social media.
- Value proposition needs to be tested by building a prototype at small-scale or semi functional versions of the services/products. Here, participants' reaction to the test might include satisfaction level, feedback, and curiosity/ demand for more.

Once hypotheses on the different variables have been tested and validated, the service/product has to be scaled up from prototype to the optimal market size where viability is attained.

To test the circular product or service, there are currently no existing platforms for entrepreneurs and green products which can be mobilised to help with the process.

2.1.6 Mobilise tools for implementation

When the business model is validated, implementation of the modalities presented above can be facilitated by various tools. **First** is establishing a financial plan with income statements, balance sheets and cashflow projections, and a funding plan identifying traditional investors and banks as well as other funding mechanisms such as crowdfunding, financial cooperatives, micro-credits, ethical banks. **Second** is having a legal management plan to choose the best-fitting legal form according to the needs and business model. **Third** is setting a roadmap to foresee the progress of the business from year 0 to the medium and long-term. **Fourth** is to have an operation and management plan which dictates how operations are performed and managed by staff and by assigning roles and responsibilities and setting a schedule. Tools used need to be adapted according to the CE business model adopted.

To find the appropriate tools, entrepreneurs can refer to existing governmental departments and companies that provide assistance to businesses such as SME financing scheme by the Ministry of Economic Development and small-scale business loans offered to start-up companies by the Bank of Maldives. However, there are no such departments solely for circular or green products.

2.1.7 Measure impacts and improve

Effectively measuring environmental and social impacts is essential to CE businesses. In addition to measuring how the business is doing regarding the achievement of objectives and mission, environmental indicators are needed to assess environmental performance. Environmental indicators such as water consumption, material use, waste generated per service or product, or other CE related indicators are suggested to be used in order to assess current performances. Constantly improving the business is key to achieve the circular economic objectives as it is a process that requires ongoing efforts to improve efficiency. Common areas of improvement include levels of participation of stakeholders, communication and marketing to incentivize customers, improve environmental performance, ensure green procurement and increase environmental awareness amongst the public.

2.2 Transitioning to a CE business

2.2.1 Map your impact and set priorities

Learn how to bring together an internal “sustainability team” to set objectives, define targets, review your environmental impact and decide on priorities. In this process, you need to evaluate impacts regarding natural flow use and material stock management. Relevant fields and key aspects to take into consideration in the Maldives could be biodiversity protection, marine pollution, waste generation, waste collection and sorting.

2.2.2 Choose indicators and understand data needs

Identify indicators that are important for your business and learn about what data should be collected to help drive continuous improvement. To assess the circularity of your business, you can use CE related indicators such as: use of renewable energy; greenhouse gas intensity; energy intensity, intensity of your residuals; releases into the air and water.

2.2.3 Measure inputs used in production

Identify how materials and components used into your production processes influence environmental performance. Businesses can also measure CE related performance including: material consumption, resource extraction, renewable energy consumption, waste generation, import of inputs, non-renewable materials, restricted substances, recycled or reused materials. Businesses can check the availability of recyclable materials and monitor availability of waste materials/recycled materials as inputs into production process.

2.2.4 Assess the operations of your facility

Consider the impact and efficiency of the operations in your facility. Residual waste generation and excess material that can be phased out and managed more efficiently going forward (e.g. water consumption, energy intensity, greenhouse gas generation, emissions to air and water, waste generated). Efforts to improve production and material use efficiency toward circularity while reducing waste creation must be ongoing.

2.2.5 Evaluate your products

Identify factors such as energy consumption in use, recyclability and use of hazardous substances that help determine how sustainable your end product is. Businesses can use CE related indicators such as: recycled/reused content of your products, recyclability of your products, renewable materials used in your products, Non-renewable materials used in your products, restricted substances contained in your products, energy consumption in using your products, greenhouse gas emissions from the use of your products. You can also evaluate the possible incentives to recycle and engage customers to return products and possibly keep materials in cycle.

2.2.6 Understand your results

Learn to read and interpret your indicators and understand trends in your performance. Businesses can focus on CE related indicators that align with business models suggested.

Here businesses can make use of governmental offices and agencies or private sector companies that specialised in assisting businesses evaluate their performances. Examples in the Maldives include the NGO Parley that helps assess the ability and efforts to store plastic bottles.

2.2.7 Take action to improve your performance

Choose opportunities to improve your performance and create action plans to implement them. CE businesses should focus on CE related indicators that align with business models suggested, and stay up to date with new arising sustainable opportunities and drive ongoing progress by pinpointing areas of improvement or non-circular practices.

2.3 Circular Business models for entrepreneurs

2.3.1. Circular design

This CE model relies on the following elements:

- Circular **product design**: use recyclable materials for goods and packaging that allow for a circular system and **local supplies** at a maximum
- Product/service design and provision: **access over ownership** and product service systems
- **Local** supplies and local demand for service/good
- **Economy of functionality** (rent resources rather than buy and own them)

There are no known existing companies that operate based on an entirely circular design (Annex 5).

2.3.2. Optimal material and resource use

- **Understand value** of waste materials and engage in opportunities from materials
- **Buy recycled materials** and reduce input material costs
- **Target recyclable and sustainable materials** and pioneer in industrial waste valorisation
- **Introduce Industrial symbiosis**; internalise a maximum of production steps within the company on the same site to reduce transport costs. This also helps with waste creation as all accrues on the same site, making recycling or reusing easier since larger amounts hold more potential
- **Redefine retail**; skip retailers by directly interacting with consumers. Simplifies recycling practices, understanding of consumer behaviour and increases revenue
- **Inspect daily practices** to identify non-sustainable production practices such as use of single use plastics, equipment and garment
- **Adopt a closed-loop process**; use residual outputs and by-products as input for other production processes
- **Set up internal target rates** to increase recycling rates and encourage sorting to improve employee understanding of a circular economy and its benefits

There are no existing companies that optimised resource use by functioning solely with renewable and recycled materials as input (Annex 5).

2.3.3. Value recovery

- **Reuse and recycle**: Introduce ways to keep waste materials within the company and the production cycle; Increase material use efficiency
- **Repair and recondition**: produce goods and services to last (quality over quantity) and provide service to repair and refurbish products and services

- **Remake** products that did not meet standards and were considered waste
- **Consumer awareness:** inform customers of recycling and repair opportunities to incentivize closed-loop material use while explaining competitive advantage of your service/product compared to non-circular business models

Since there is no green certificate issued by the government there is no registry maintained on the businesses that carry out value recovery aspects. Therefore, the public sector is not aware of any existing companies that maximise the utility and value of some of their materials within their production cycle and reach higher production process efficiency leading to a minimized waste creation (Annex).

2.3.4 Collaborative economy

- **Group businesses** that use similar materials to share transport supply costs and open channels to trade materials between firms
- **Foster cooperation;** exchange good practices and learning experiences between companies to accelerate transition toward circularity
- **Introduce a sharing economy:** collaborate with other businesses to build expensive infrastructure or purchase equipment to improve efficiency of usage (ex; cooling units, trucks, sorting site, ...)

The government has no knowledge of existing companies that operate on the basis of a collaborative economy and exploit any potential side products and collateral uses that accrue during their production. Additionally, equipment and material sharing are maximised through excessive industrial networking (Annex 5).

3. Annexes

Annex 1: Type of policies and laws towards circular economy

Renewable Flow Management	Environmental protection/ Biodiversity Conservation	✓	Law No. 4/93 on Environmental Protection and Preservation Act of Maldives (1993) Regulation on the Protection and Conservation of Environment in the Tourism Industry (2006)
	Fisheries management	✓	Law No. 4/93 on Fisheries Act of the Maldives The following legally recognised Fishery Management Plans have been published, which aim to sustainably manage the resources that fall under their purview: 1. Tuna Fishery Management Plan 2. Grouper Fishery Management Plan 3. Reef Fishery Management Plan 4. Billfish Fishery Management Plan 5. Marine Aquarium Fishery Management Plan 6. Sea cucumber Fishery Management Plan 7. Lobster Fishery Management Plan Diamondback Squid Fishery Management Plan
	Forestry management	X	
	Protected Areas	✓	Protected Areas Regulation (No. 2018/R-78) (2018)
	Water management	✓	National Water and Sewerage Policy (2017)
	Renewable Energy	X	
	Stock Management	General waste management	✓
Material specific waste management		✓	A national waste management policy (2015) with objectives including the introduction and application of the 3R concept
Recycling		✓	Malé 3R Declaration
Plastic Bag Ban/ Phase out		✓	Single Use Plastic Phase-out policy for 2020-2023

Annex 2: Existing awareness raising initiatives and campaigns towards CE

Initiative name	Description of activity	CE aspect addressed	Link / Contact
Parley AIR	reduce plastic use, boost recycling, and support the creation of new materials and methods	Waste reduction, increase recycling and reduced pollution	https://www.maldives.parley.tv/

Annex 3: Examples of companies doing CE related activities in waste management

CE aspect	Company	Description of activity	Link / Contact
Collection	Promise Project	Collection and capture of plastic waste to avoid marine pollution	Maldives PROMISE (projectpromise.eu)
Clean Environment Programme	Regional waste management system	https://www.govserv.org/XX/Unknown/381185578964060/Maldives-Clean-Environment-Project	
Sorting	N/A	N/A	N/A
Treatment	N/A	N/A	N/A
Recycling and disposal	Parley Maldives	Transforming plastic bottles into shoes and clothes through Parley recycling plants	https://www.parley.tv/updates/parleymaldives

Annex 4: Key sectors to foster CE and related stakeholders and supporting platforms

Key sector	Identified key stakeholders	Relevance of the stakeholder
Fisheries	Large scale fish processing companies such as MIFCO, Ensis, Horizon Fisheries, Big Fish, Cyprea Marine...etc	Relevant due to potential for using fish parts which are otherwise thrown out as waste, to be used to produce fish meal and other such byproducts
Tourism	N/A	N/A
Manufacturing	N/A	N/A
Construction	N/A	N/A
Agriculture	N/A	N/A

Annex 5: Key examples of companies operating under CE business models

Business model	Company	Activity	Website link or Contact
Circular design	N/A	N/A	N/A
Optimal material and resource use	Kangyang seawater desalination	Desalinates seawater offering fresh water for domestic consumption	Maldives desalination plant project 100 m3 per day - Kangyang seawater desalination equipment Co.,ltd (kysearo.com)
Value recovery	Parley Maldives	Transforming plastic bottles into shoes and clothes through Parley recycling plants	https://www.parley.tv/updates/parleymaldives
Collaborative economy	N/A	N/A	N/A