PLASTIC WASTE FREE ISLANDS

SAINT LUCIA

BUSINESS PLAN

REUSABLE FOOD CONTAINERS

An initiative supported by Norad managed by IUCN
and co-implemented by Searious Business

ACKNOWLEDGMENTS

IUCN Plastic Waste Free Islands (PWFI) project wishes to thank the various partners from government, private sector and industry, academia and research, civil society and nongovernmental organisations that contributed to this work through their participation in workshops, meetings, field excursions, and related consultations within the country.

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AUTHORSHIP

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REUSABLE FOOD CONTAINERS

BUSINESS PLAN

The **Plastic Waste Free Islands (PWFI) Project** is part of the *Close the Plastic Tap* Program of IUCN. PWFI is a three-year project working in six islands in the Caribbean and Pacific.

Implemented in Fiji, Vanuatu and Samoa in Oceania and Antigua and Barbuda, Saint Lucia and Grenada in the Caribbean, the project seeks to promote island circular economy and to demonstrate effective, quantifiable solutions to addressing plastic leakage from Small Island Developing States (SIDS).

This business plan focusses on the **“Reusable Food Containers”** solution, in the geographic context of Saint Lucia. It demonstrates how the solution can be realized, allowing for the creation of an alternative value chain.

MISSION

WHAT & WHY

What

- Innovating your take away operations through
  - The introduction of reusable food containers
  - Saving resources, money and preventing waste

Why

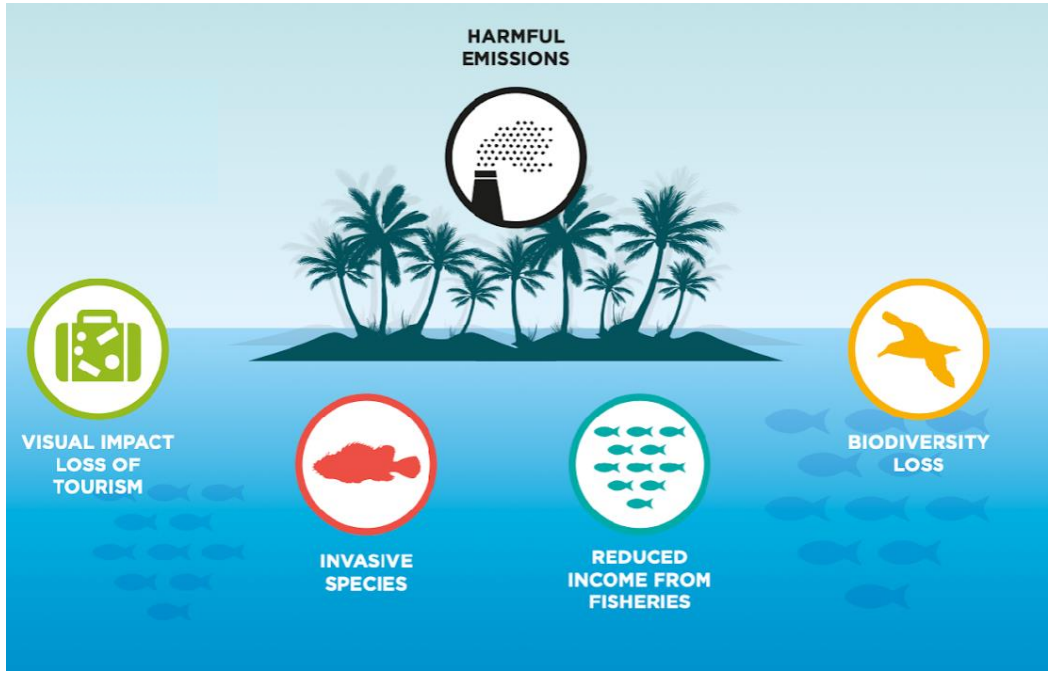
- Import-dependent economy, with limited resource recovery options on-island
- Enhanced customer loyalty
- Business innovation opportunity for
  - Restaurants/cafes/resorts owners and logistics partners owners
  - Income streams: Less import and dependency, more effective use of packaging
  - Job creation: Reuse services create infrastructure and jobs in the community that cannot be outsourced

WHY REUSABLE FOOD CONTAINERS

PLASTIC WASTE GENERATION ON SAINT LUCIA

Plastic Waste Generation: The total amount of plastic waste that is produced on an annual basis, per plastic material type

Plastic Waste Leakage: The amount of unaccounted waste that is calculated by the difference of plastic material imported and plastic waste disposed.



Financial and environmental impacts of plastic leakage

Polymer	Annual Imports 2018–2019 (T/y)	Total waste disposed 2019 (T/y)	Total recycled 2019 (T/y)	Leakage (T/y) – model based estimate (95% credible interval)
PET (1)	1505.92	1437.39	14.07	187 (0–482)
HDPE (2)	584.85	540.66	3.93	70 (0–275)
PVC (3)	86.58	50.59	0.00	37 (0–71)
LDPE (4)	372.55	367.73	0.00	52.4 (0–245)
PP (5)	514.52	426.86	0.00	105 (0–348)
PS (6)	397.31	356.17	0.00	43 (0–224)
Other (7)	2157.43	1891.18	0.00	341 (0–955)
Overall	5619.17	5070.58	18.00	836 (132–1391)

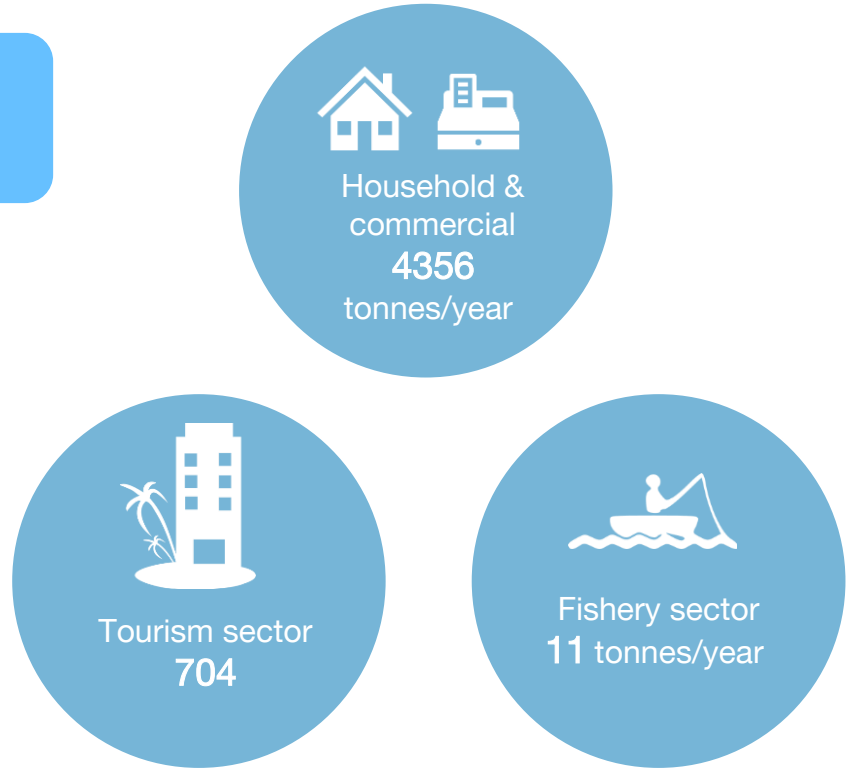
National plastic waste generation & leakage data Saint Lucia with PET and PS in blue.
Source: Final quantification report – Executive summary APWC July 2021

WHY START THIS BUSINESS

CONTEXTUAL ANALYSIS WASTE MANAGEMENT

The contextual analysis of waste management practices summarizes the current situation of waste management on Saint Lucia. It evaluates actions like collection, sorting and recycling, as well as future ambitions.

- No central collection at source or segregation at landfill, no local plastics recyclers landfill, or leakage
  - Except for PET Incentivised collection and export of PET beverage bottles through RePlast Project
- No reuse/refill schemes on Saint Lucia yet, despite considerable economic and environmental potential
- National ambitions/initiatives/pipeline:
  - Incentivised PET bottle return program of PET beverage bottles through RePlast Project (OECS, Unite Caribbean)
  - The Department of Environment is considering introduction of CDL for PET beverage containers
  - SLSWMA purchased 20 pyrolysis machines in 2020 to incinerate household waste
  - Government of Saint Lucia substantially increased funding to SLSWMA
  - Ministry of Sustainable Development ambitions: promoting reuse



5071 tonnes plastic waste generated/year

Source: Quantification report, Executive summary, APWC July 2021

TARGETED MATERIALS

PET, PS, PP AND MATERIAL MIXES – CURRENT VALUE CHAIN

On Saint Lucia, food containers are made from different kinds of materials:

- Mono-material PET/PS/PP
- A combination of different plastic materials

Below, a short description of each material can be found.

Polyethylene terephthalate (PET): A thermoplastic polymer of the polyester family, which is commonly used for beverage bottles and food packaging. PET is easily recyclable.

Polystyrene (PS): A synthetic aromatic hydrocarbon polymer made from the monomer known as styrene. Can be solid or foamed. PS is currently not commercially recyclable.

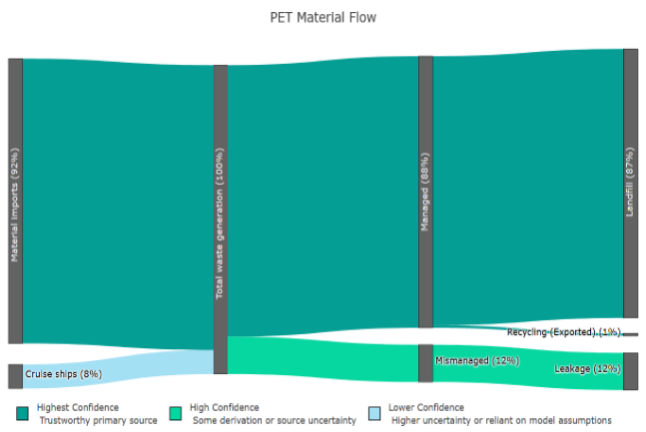
Polypropylene (PP): A thermoplastic polymer used in a variety of applications. PP is sturdy can be used in a flexible or rigid form. PP can potentially be recycled.

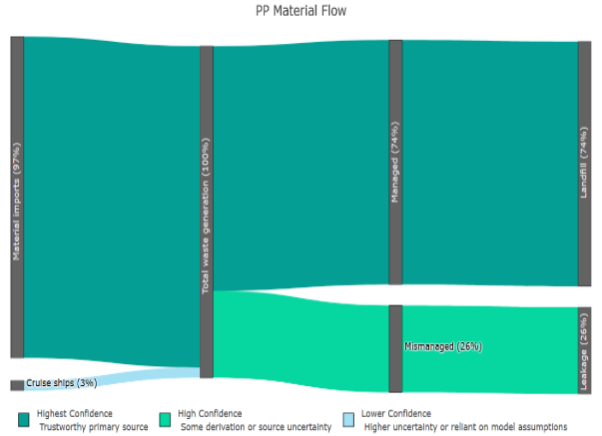
Material mixes: Different polymers, and/or other materials like paper and aluminum, combined through layering, printing, pressing or other combination techniques. Unrecyclable.

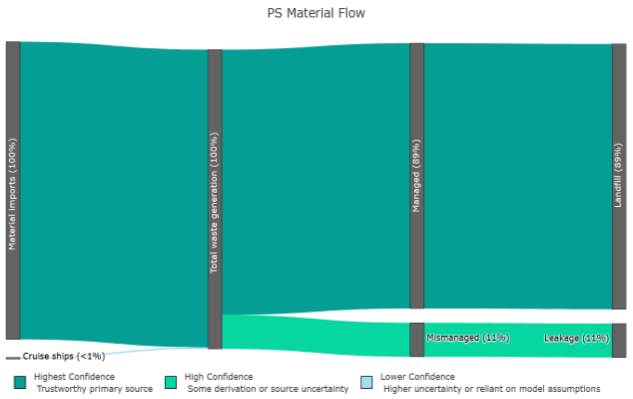
TARGETED MATERIALS

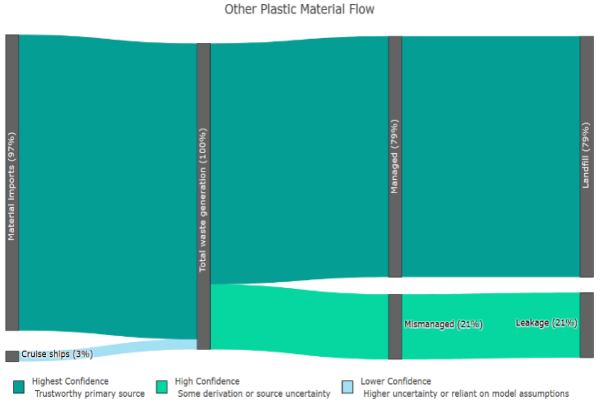
PET, PS, PP AND MATERIAL MIXES – CURRENT VALUE CHAIN

z	Plastic Waste Generation	Household (t/y)	Commercial (t/y)	Tourism (t/y)	Fisheries (t/y)	Total (t/y)
PET 1	single use take away food containers pet single use	4,4	8,0	ND	0,0	12,4
PP 5	single use take away food containers pp single use	5,6	11,9	ND	0,0	17,5
PS 6	food containers eps ps	6,6	6,2	ND	0,0	12,8
HDPE 2	food containers hdpe	14,4	9,8	ND	0,1	24,3
PS 6	styrofoam takeaway food containers single use	15,0	5,4	ND	0,0	20,4
PS 6	food containers ps	17,1	0,3	ND	0,0	17,4
PP 5	food containers pp	18,3	4,3	ND	1,6	24,2
PET 1	food semi rigid containers e g trays pet	20,9	5,1	ND	0,0	26,0
PP 5	food semi rigid containers e g trays pp	46,0	88,7	ND	0,0	134,7
OTHER 7	multi layered containers for	281,1	27,3	ND	0,1	308,5
Total						**598,2**









REUSABLE FOOD CONTAINERS

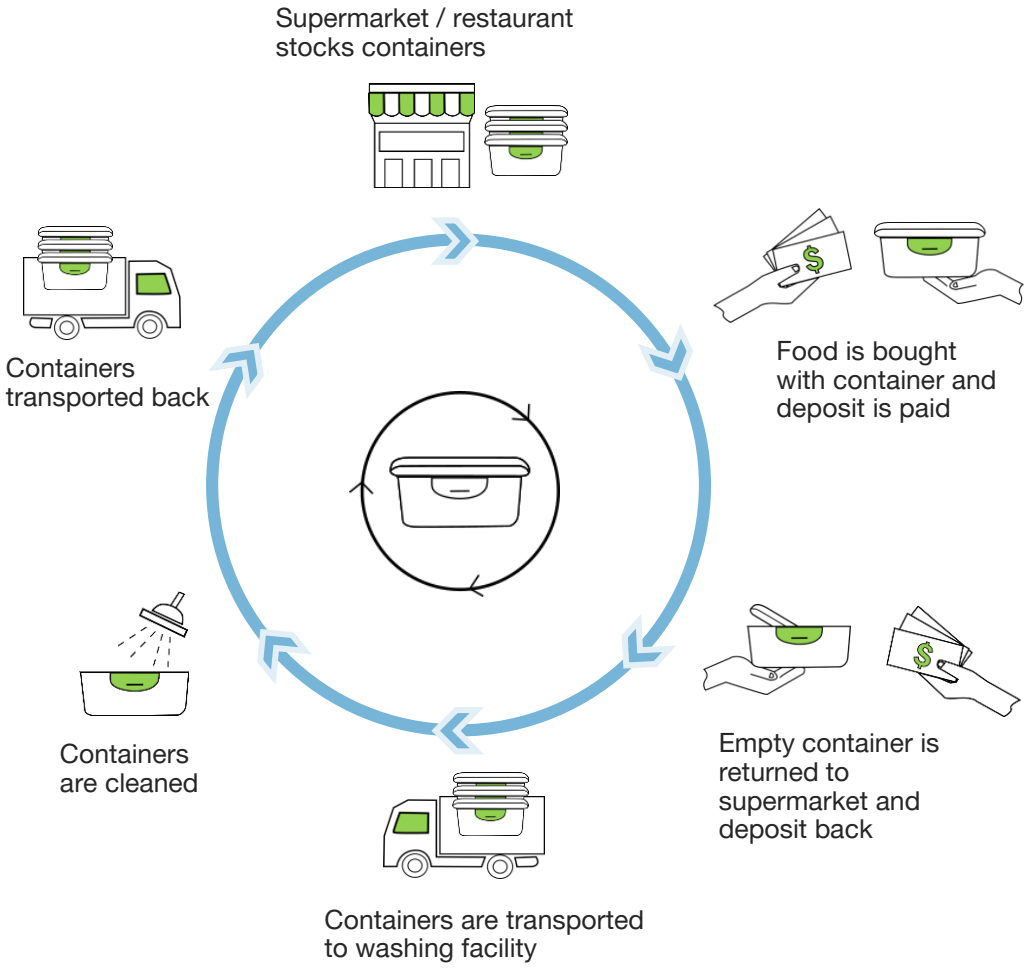
ALTERNATIVE VALUE CHAIN

Concept

Customers avoid single-use plastic by using reusable containers for ready-meals, take-aways and any food in bulk. An incentive such as deposit or voucher encourages the return.
The containers are then professionally cleaned and can be reused up to 500 times.

Target group:
- Hotels & restaurant guests
- Day-trippers
- Yacht owners

Stakeholders:
- Hotels & restaurants
- Supermarkets
- Yachts
- Food containers suppliers
- Logistics companies
- Washing facilities



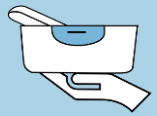
OUTLINE REUSABLE FOOD CONTAINERS

OVERVIEW

RENTAL

- Customers can rent a reusable container for their take-away meal
- Customers have to pay a small deposit, which they receive back when returning the container
- They can take the container out of the store, even though it belongs to the restaurant owner/supermarket
- Hygiene and Safety Standards: Completely safe to use reusables if handled correctly
- Optional: Tracking app for container traceability, accessing consumer data, customer engagement

RETURN

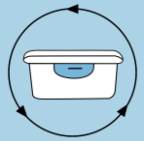


- Customers can drop off their reusable containers at drop off point in restaurant/store (manned/unmanned)
- Customers receive their deposit back (automated with digital app and scanning of QR Code or with staff person)
- Deposit can be received in form of voucher (to be spent in restaurant/store), digital payment or cash
- Important for hygiene and safety: Returned container must be handled separately from any clean dishes

WASHING

- Washing can happen in industrial dishwasher of restaurant/store with the other dishes
- Industrial washing process ensures proper, professional cleaning which is 100% safe and follows hygiene standards
- Optional: External washing through the establishment of a communal washing hub
- Washing hub is most efficient if multiple restaurants/stores use it together (reduced costs)

LOGISTICS



- Additional space required for storage of reusable containers
- Less dependency on the import cycles/purchase of single-use containers
- Reverse logistics only required if system depends on external washing

KEY ENABLING FACTORS: Hygiene standards, standardized design, traceability, high-quality material, reverse logistics

REUSABLE CONTAINER SPECS

RECOMMENDATIONS FOOD CONTAINERS

Containers made from PolyPropylene (PP)

- Can be recycled
- Lightweight
- Nestable
- Not energy intensive production
- Leakage-proof
- Heatable in microwave
- Dishwasher-safe
- BPA/B-free
- Rectangular shape recommended for more effective storage space usability

Why PP?

Compared to reusable alternatives made from stainless steel, glass, and silicon, PP scored better in the following categories: weight, energy use during production, sturdiness, and on the go convenience

FACTSHEET

BENEFITS

Financial benefits 	Environmental benefits 	Social benefits 
Revenues through customer loyalty: USD 126 per month per restaurant	Lower landfill pressure for government. Amount of plastic waste diverted based on reusable concept: 250 kg/year per restaurant	Job creation: Reuse services create infrastructure and jobs in the community that cannot be outsourced (lowers import dependency), especially in delivery models when upscaling
Less dependence on import of plastic materials – less bureaucracy required	Between 50% and 75% reduction of global warming, fossil resource scarcity and terrestrial acidification	Reusing food containers boosts interaction between food places and customers
Lower waste disposal and clean-up costs for government	Marine ecotoxicity reduced by > 80%	Contribution to cleaner island and attractiveness for local population and visitors
	Reduced amount of plastic waste that might leak into the environment: 250 kg/year per restaurant	Human toxicity reduced > 50% compared to landfilling plastics

FACTSHEET

MARKET ANALYSIS, COST OVERVIEW, USP

Major applications and markets

- Primary market: restaurants, take-away places, pool areas of resorts and hotels
- Secondary markets: deli counters of supermarkets
- Major applications: For warm and cold meals, salads, soups and stews, sandwiches and desserts

Volumes to be procured

- Per restaurant, 25 reusable food containers as a starting point (relative to 200 meals/day of an average sized food outlet)
- If more restaurants join, purchase and import can be combined with other entities

Source

- Can be sourced from local or overseas suppliers, e.g. EMSA container from Groupe SEB. The quality needs to be high, for cost-effectiveness and multiple reuses

Costs and capacities

- Revenue: USD 126 per month.
- Collection: marginal costs, customer drops container off
- Transport: not applicable
- Washing: 0.08 USD per container
- Reverse logistics: only applicable if external washing is required

Unique selling points

- Meeting plastic waste reduction targets of food outlets
- Concept allows for high-standard food serving
- Meeting circularity/sustainability targets of governments
- Scalability: High – scheme is easy to copy and scale up
- Marketability:
  - High – reusable containers save costs and have many environmental benefits compared to single-use containers
  - Reusable containers boost customer loyalty
  - Completely circular product, based on high readiness level from key stakeholders
- Risk & compliance: heath and safety compliant local setup

MARKET INTRODUCTION PLAN

FROM PILOT TO MARKET INTRODUCTION

Timeline for key milestones of scheme introduction

PHASE 1 - Reusable food containers milestone (pilot)

- Selecting Container (Assessment of viable options)
  - Material, volume, shape, colour
- Ordering Container & Developing design concept
- Printing design on reusable container
- Stocking reusable container in store

PHASE 2 – Washing milestone (pilot)

- Set up washing line (either in hub, in restaurant or external)
- Organise logistics around washing (transport to facility, training staff

PHASE 3 – Return milestone (pilot)

- Set up return system (e.g. drop off area/drop off box)
- Set up efficient and convenient deposit return system (incorporate in cashier system)

PHASE 4 – Commercial market introduction (out of pilot scope)

- Adjust single-use container purchase
- Set up advanced washing system with other restaurants
- Set up tracking technology (RFID code + return app)

Sales & Communication

- Promotion channels
  - In-store promotion through posters and flyers
  - In-store promotion through staff
  - Make reusable food containers the default setting (customers having to ask to get a single-use one)
  - Posters in community centre and supermarkets close-by
  - Radio advertisement
  - TV advertisement
- Promotion topics
  - The What: Explaining how reuse works in practice
  - The Why: Landfill pressures, ocean pollution, resource scarcity and its impact on Saint Lucia's tourism and fisheries industry, opportunity for strengthening customer loyalty
  - The How: Emphasising local employment and business opportunity, as well as safety and compliance to hygienic standards
  - The Who: mentioning all partners and organisations

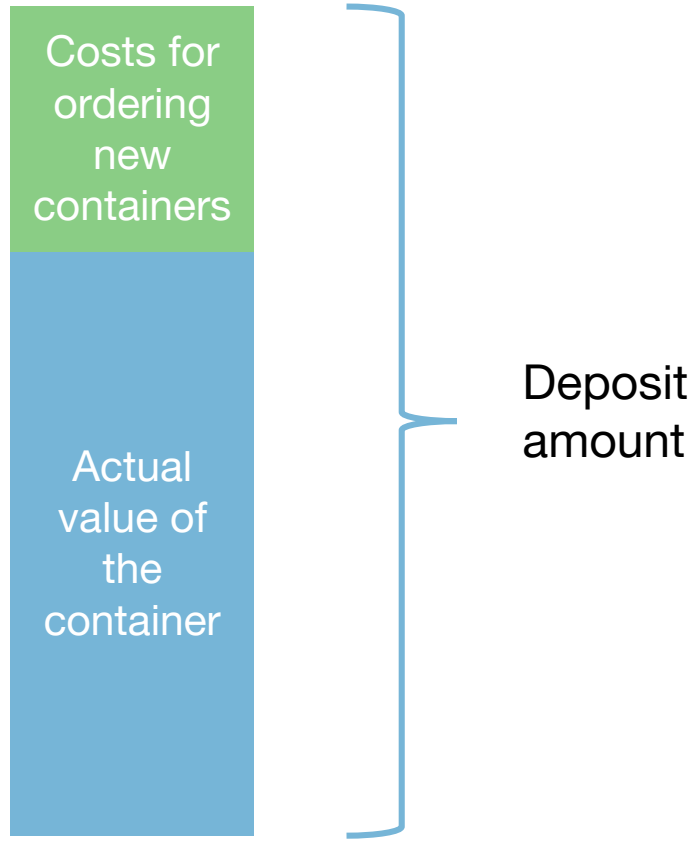
DEPOSIT RANGE

DETERMINING THE RIGHT AMOUNT FOR THE DEPOSIT

- The deposit for the rent of a reusable food container should be somewhat higher than its procurement price in order to avoid losses to the supermarket/restaurant in case the reusable food container is not brought back.

- At the same time, it needs to be low enough to be affordable for the users of the container. The ratio between the rent for the packaging and the actual food should not be higher than 1:2, if possible

    - For example, if a meal costs USD 6, the rent for the reusable container should not be higher than USD 3.



→ Key enabeling factor(s): set reuse packaging as default option; slowly phase out single-use alternatives

FACTSHEET

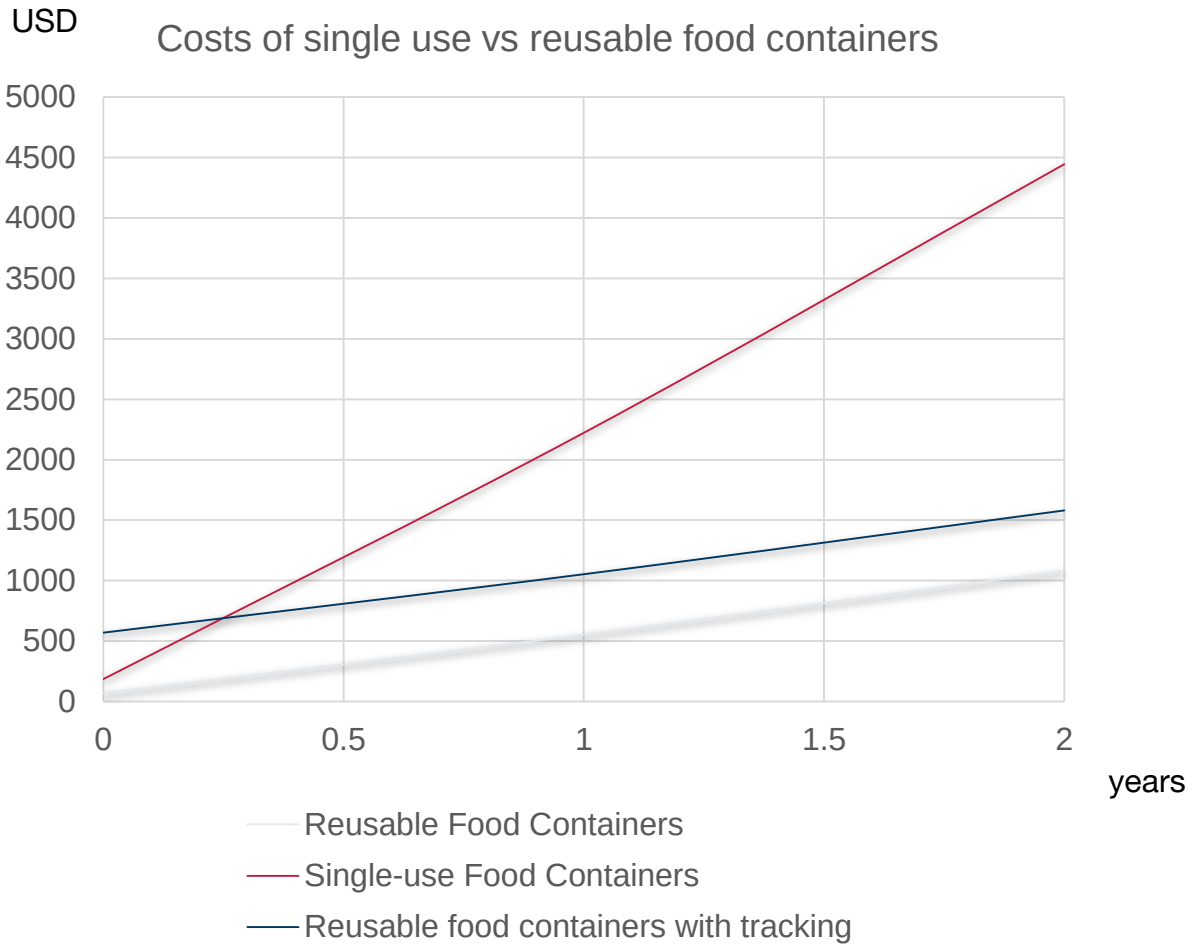
COST BENEFITS ANALYSIS

	REUSABLE CONTAINERS, 25 pcs			REUSABLE CONTAINERS WITH TRACKING, 25 pcs			SINGLE-USE CONTAINERS, 25 pcs		
	Costs (USD)	**Costs (XCD)**	**Details**	**Costs (USD)**	**Costs (XCD)**	**Details**	**Costs (USD)**	**Costs (XCD)**	**Details**
Investment costs									
Purchase of containers	50	135	price per piece: USD 2	50	135	price per piece	2.25	6.075	price per piece: USD 0.09
Purchase for tracking app				500	1350	tailor-made tracking app development, based on USD 10,000, shared through 20 restaurants			
Reoccurring costs									
Costs of additional storage	0.12	0.324	Costs of storage = costs of renting space required for storage/number of containers = USD 3 per 1m^2/25	0.12	0.324	Costs of storage = costs of renting space required for storage/number of containers = USD 3 per 1m^2/25			
Costs for washing [incl. electricity costs]	2	5.4	USD 0,08 per container	2	5.4	USD 0,08 per container			
Additional labour costs washing	16.8	45.36	based on one hour of work per week	16.8	45.36	based on one hour of work per week			
Delivery costs/import costs of SUP items							1.25	3.375	costs per piece: USD 0.05
Additional labour costs unpacking SUP items							16.8	45.36	based on one hour of work per week
Additional labour costs cleaning surrounding area of building from SUP items							16.8	45.36	based on one hour of work per week
Costs of missed customer loyalty opportunities							31.5	85.05	based on 25 returns per week, of which 5% purchase a meal worth USD 6 again
Total costs first month	68.92	186.084		568.92	1536.084		68.6	185.22	
Total costs 12th month	553.052	1493.2404		1053.052	2843.2404		823.2	2222.64	
Total costs 24th month	1081.196	2919.2292		1581.196	4269.2292		1646.4	4445.28	

FINANCIALS

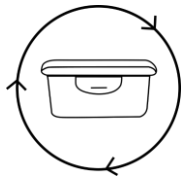
FUNDING & ROI

Summary	
Money Needed to Start	USD 150
Months to Pay Back Investment	2
Full Time Employees Needed	No difference
Revenue Earned Per Month	USD 126.00
Fixed Costs Per Month	USD 68.92



RECOMMENDATIONS

FOR LONG-TERM SUCCESS

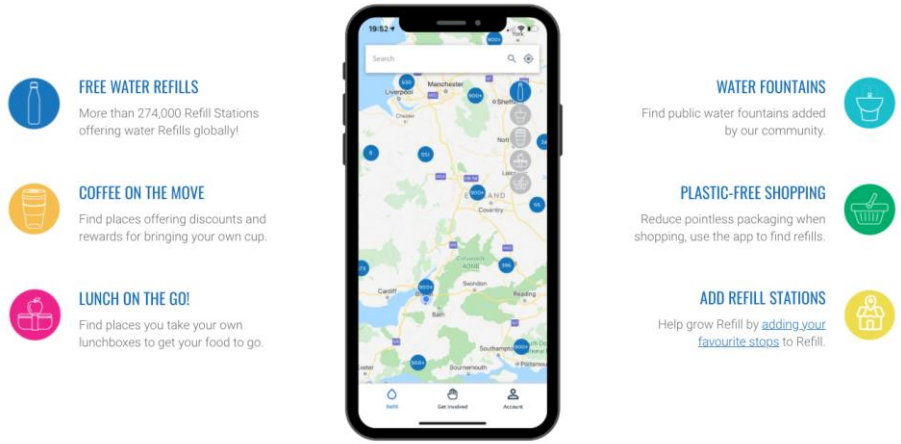


- Reusable food container scheme ideally backed up by a national **campaign on reusing packaging material**
  - Communicates clearly about environmental benefits and cost-savings
  - Could be implemented by the Department for Sustainable Development
  - Important building block for public education for positive attitudes and behaviors
  - Could be backed up by legislation, e.g. mandatory for all restaurants to offer a reusable packaging option (e.g. as in Amendment of the German packaging Act, starting 2023)
- As system grows more popular, and more restaurants join, the **establishment of a washing hub** could be considered
  - Allows restaurants to outsource washing to an external service provider, which may lower costs even more
  - Allows for more job opportunities for entrepreneurs, e.g. pick up and washing service of reusable containers
- Consider increased technology as system scales – **a tracking app**, automated drop off with digital return payment via app
  - Can be co-financed by all participating parties

KEY RESOURCES

GET INSPIRED

- About Standardisation in Reusable Packaging: https://www.resolve.ngo/site-pr3standards.htm
- Reuse Business directory: https://upstreamsolutions.org/reuse-businesses-directory
- KIDV – What requirements must reusable food packaging meet? https://kidv.nl/what-requirements-must-reusable-food-packaging-meet
- Be part of a reuse and refill movement across the island: https://www.citytosea.org.uk/campaign/refill and: https://plasticsmartcities.org/
- Ellen MacArthur Foundation estimates that Reusable packaging offers a USD 10+ billion innovation opportunity that can deliver significant user and business benefits: https://ellenmacarthurfoundation.org/reuse-rethinking-packaging
- Searious Business introduced a similar reuse project in Morocco – in collaboration with local supermarkets, which received the Sustainability Award 2021 in the Best Practice category, from Packaging Europe: https://packagingeurope.com/sustainability-awards-2021-winners-revealed/
- Let's stay in touch and don't hesitate to contact us if you need any help with implementing or upscaling your reusable systems: connect@seariousbusiness.com



Refill app can be used to connect users across the island to places to eat, drink and shop with less waste

FOR MORE INFORMATION

IUCN

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https://www.iucn.org/theme/marine-and-polar/our-work/close-plastic-tap-programme

#ClosethePlasticTap

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