

An aerial photograph of a vibrant turquoise lagoon in the Maldives. The water is crystal clear, revealing the sandy bottom and patches of dark coral reefs. A small motorboat with several people is visible on the left side of the frame. The sky above is a deep blue with scattered white clouds. The text 'Maldives Matter Project' is overlaid in a large, white, sans-serif font, centered in the upper half of the image. There are faint, abstract, light blue shapes behind the text.

# Maldives Matter Project

## RESILIENT ISLAND

Growing a fruitful future





## CONTACT US

[WWW.RESILIENTISLAND.COM](http://WWW.RESILIENTISLAND.COM)

[INFO@RESILIENTISLAND.COM](mailto:INFO@RESILIENTISLAND.COM)

MAKKERSSTRAAT 3  
3111 AL SCHIEDAM  
THE NETHERLANDS

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# OUR TEAM



**MELCHIOR BOS**

Co-founder / Legal and Finance

Projects that go further than just a standard solution intrigue Melchior. Attention to detail and combining multiple aspects are what keep Melchior busy. During his many dives all across the globe, including the Maldives, he experienced first-hand the problematic and dire conditions. Working on this integral solution project is therefore in line with what he stands for.



**STAN VAN STRALEN**

Co-founder / Tecnical Parties

Stan always had the desire to add something positive to this world, which is why after being confronted with the dire situation of the Maldives during our field trip in 2017 it left him motivated to continue were the study project ended. The situation on the Maldives shows the devious way materials are handled but also gave an opportunity to rethink this.



**SEBASTIAAN BROUWER**

Co-founder / Chairman

During his life, Sebastiaan has traveled in more than fifty countries, visited hundreds of foreign cities, and did more than 30 long-distant hikes through nature. He saw the urge and need for a change in the world. During his study of Architectural Engineering, he aimed to make a theoretical change and now his drive is to implement this in a practical way as a project leader.



**THOMAS EDES**

Co-founder / Maldivian Parties

Thomas is eager to have a positive impact on the world. It's not always that such a beautiful and clear opportunity arises. Here Thomas can put to work what he has learned in his education and learn much more in the process. Therefore working on the Maldives Matter Project, is a no-brainer for him.



**TRANG PHAN**

Co-founder / Design and Marketing

Trang felt immediately engaged with this project because of her interest in circularity and the environmentally -conscious lifestyle. After visiting the Maldives and meeting the locals, it became clear that tackling a real problem like climate change and at the same time changing the social awareness is the challenge that has given great opportunities that without a doubt need to be seized.

## EXECUTIVE BOARD 2019-2020



**VERA BAERVELDT**

Socio-cultural Implementor



**KELLY WONG**

Brand Strategist



**CARMEN JANSEN OP DE HAAR**

Horticultural Researcher



**CARLIJN GEERSE**

Greenhouse Technician

## ADVISORY BOARD



**AISHATH AZFA**

Social Implementation



**AMIT PARULEKAR**

Business and Finance



**RAYMOND PIJPERS**

Strategy



**REMCO BEEKMAN**

Legal Affairs



**ROB BAAN**

Horticultural Expertise



# MEET OUR PARTNERS



## VAN DER HOEVEN HORTICULTURAL PROJECTS

A renowned greenhouse builder that realized projects all over the world. Capable of delivering high-end horticultural projects for almost all climate types. They are contributing towards the project by in-kind technical support. So far, we closely worked together and their endorsement was given through a letter of recommendation.



## HOOGENDOORN GROWTH MANAGEMENT

One of our technical partners is a leading horticultural company. Hoogendoorn is active in 58 countries over the world and is specialized in sustainable automation solutions for the coordination of all processes and systems in horticultural organizations.



## LETS GROW.COM

Letsgrow.com is a specialist in registering and analyzing cultivation data. The overview of data allows one to instantly see the circumstances which lead to successful crops. This way a Maldivian grower can better control its environment and output.



## THE VAN DER KNAAP GROUP

Van der Knaap Group is a Dutch family company with production facilities all over the world. They develop sustainable, high-quality substrates and services in partnership with their customers.



## NGO LIVE&LEARN - ENVIRONMENTAL EDUCATION

The NGO Live&Learn - Environmental Education has the goal to educate, mobilize communities, and facilitate supportive partnerships to foster a greater understanding of sustainability. They strive towards a sustainable future.

## PREVIOUS COLLABORATIONS



Resilient Island has very close relations with Delft University of Technology and UNDP Maldives. The project has its roots in these two organizations.

Wageningen University and Research contributed to the project in a consult on the project. A team of six master students sat for more than two months full time on the project.

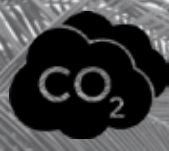


# THE PROBLEM



## IMPORT DEPENDENCY

Like all Small Island Developing States, the Maldives import a huge percentage of its food consumption. A staggering 95%. Besides this, they also rely heavily on imported fossil fuels. Resulting in a large outgoing cashflow.



## HIGH CO<sub>2</sub> EMISSION

The import of vegetables to the Maldives, over 13 million kilos on a yearly basis, generates a lot of CO<sub>2</sub>. Limiting the number of imported vegetables will diminish this pollution significantly.



## FOOD QUALITY LOSS AND SPOILAGE

Goods are not chilled at all transfer locations and have a limited lifespan since they are 7-14 days old upon arrival at the resort. This results in high spoilage and quality loss.

# OUR VISION



***“ We believe that the Small Island Development States should be fully self-sufficient and be able to grow towards their own clean, fruitful, and sustainable future. “***

We aim to implement circular economies regarding food and waste streams in the world's most isolated regions: the Small Island Developing States. By realizing local and sustainable food production, generating renewable energy, creating circular food and waste streams, up-cycling materials, conducting a knowledge transfer, and enhancing the local economy by providing jobs, we try to bring more independence.





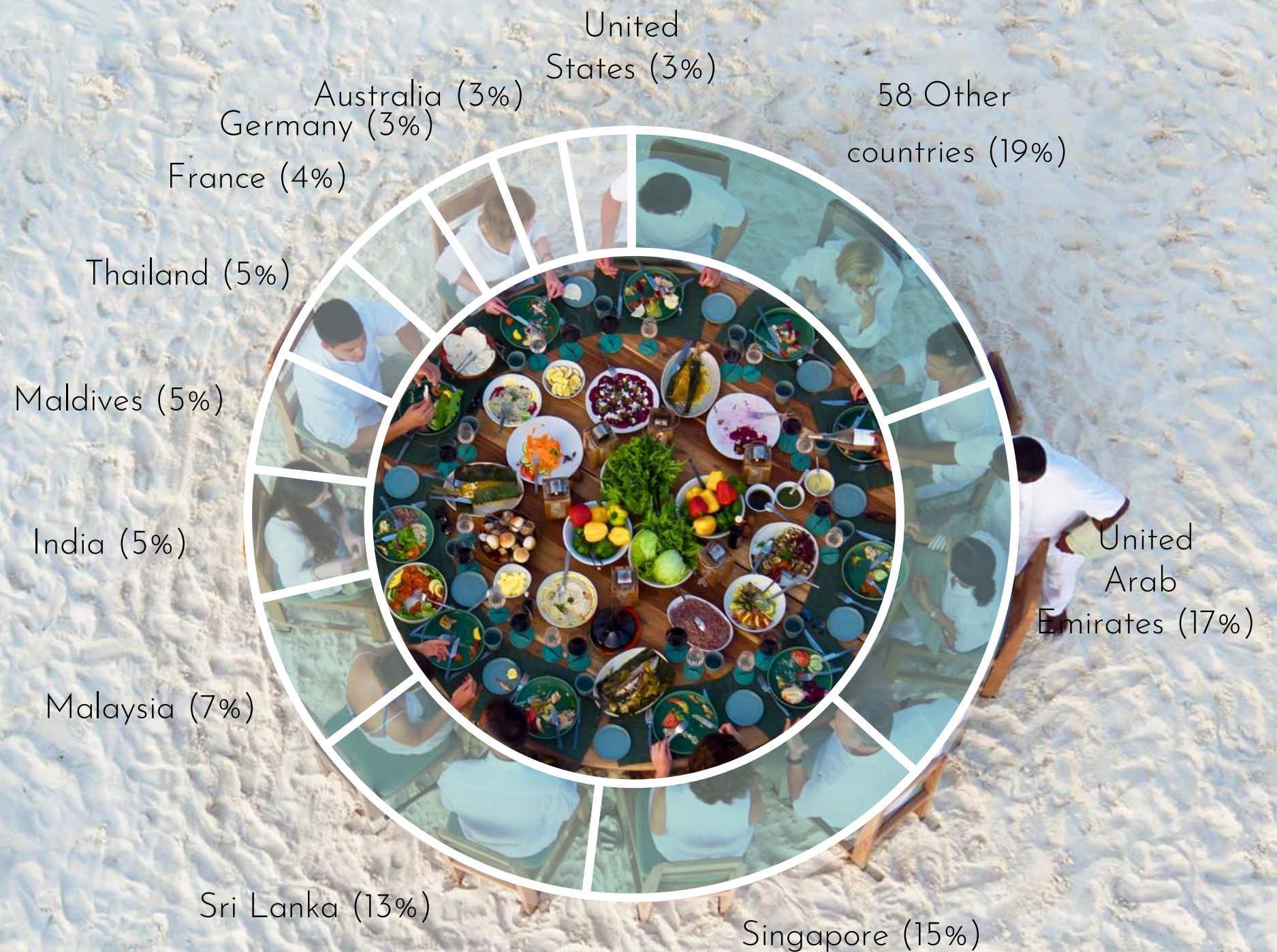
# FOOD SOURCES

The Maldives are largely dependent on food imports to cater to the growing population, expatriate community, and the large number of tourists visiting the country. Shockingly, 100 percent of rice, flour, and sugar are imported [2].

The world bank shows that the Maldives can cater a value of 5% of their food sources, as seen in the visual [3].

The UAE, Singapore, and Sri Lanka are, value-wise, the three main importers for this Island nation. India is also one of the main importers, quantity-wise. That being said, Maldives' imported food comes from all over the world, ranging from Australia to Germany, and from India to the United States [4].

It makes you think, doesn't it?





# THE MALDIVES

## FUTURE LEADER OF SUSTAINABLE TOURISM

The Maldives is ready for the biggest agricultural project: the Maldives Matter Project.

From all the island states we choose the Maldives as our pilot location. Why? Because this country has the most potential in succeeding.

It has an enormous drive to become a world leader in sustainable tourism. 1.4 million tourists visit the Maldives every year. This number is growing.

Besides the 130 resorts, dozens of hotels and the ever-growing amount of guesthouses have a high demand for fresh, sustainable locally grown produce. The drive to become sustainable is high. With one goal on the horizon: becoming the world's showcase in sustainable tourism.

Due to its extremely isolated

location, the drive to become circular is high. We share the same vision as the motto of the Maldivian Association of Tourism Industry, namely to become the world leader in sustainable tourism


Our network on the Maldives is very big. UNDP deputies, atoll presidents, Maldivian celebrities, the European Ambassador, Ministry of Agriculture, and Environment, and many more.

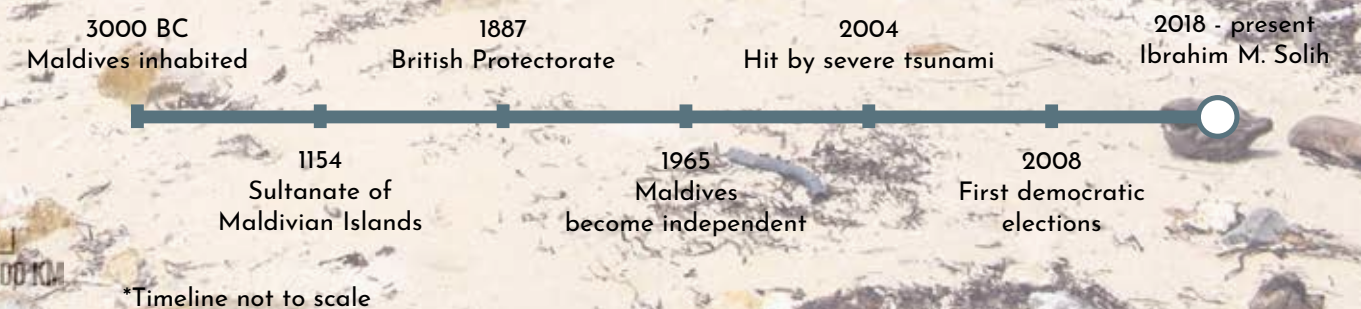
Resilient Island is ready to start the biggest agricultural project in the Maldives.

**“FOOD SECURITY AND ADEQUATE NUTRITION FOR ALL IS WHERE SUSTAINABLE DEVELOPMENT STARTS.”**

*José Graziano da Silva, FAO General Director*

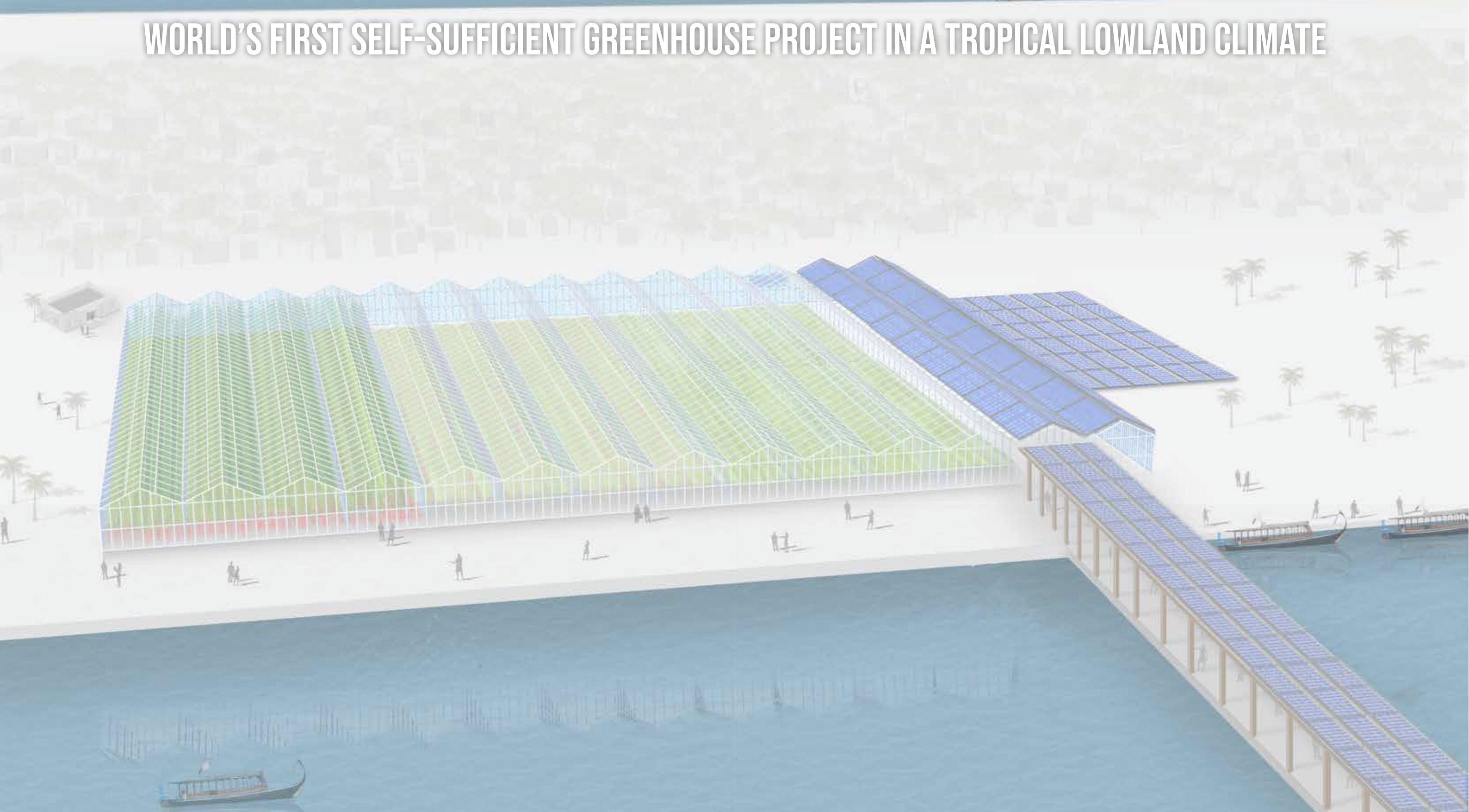
### FAST FACTS MALDIVES

-  430.000 inhabitants
-  1194 islands
-  Capital: Malé
-  196 inhabited
-  Dhivehi
-  130 resorts islands
-  30% of GDP from tourism
-  1.4 million tourist annually





# WORLD'S FIRST SELF-SUFFICIENT GREENHOUSE PROJECT IN A TROPICAL LOWLAND CLIMATE





# GREENHOUSES

The future solution to feed the world's population. Anywhere in the world.

A greenhouse is a controlled environment where you can monitor the amount of water, temperature, climate, sunlight, nutrients, and ventilation. This way it is possible to grow vegetables and fruits anywhere on the planet on a commercial scale.

The yield rate of a greenhouse in comparison to an open field is way higher. Resulting in less surface space needed for the same amount of output.

The Netherlands is a world leader in vegetable production in greenhouses, it has top-notch technologies to produce vegetables of the highest quality. These technologies will allow MMP to provide the resorts with high quality, fresh produce by implementing Dutch horticulture knowledge and exporting the knowledge and technology to the Maldives. This is possible through endorsement and cooperation by several leading Dutch horticulture companies.

The Netherlands has 2.300 hectares (23.000.000 m<sup>2</sup>) of greenhouses and is the second biggest exporter of vegetables in the world.

# WORLD'S FIRST SELF-SUFFICIENT GREENHOUSE IN A TROPICAL LOWLAND

The Maldives Matter Project will create sustainable and local food production methods tailored to the Maldivian tourism industry. This results in a reduced need for the import of these food products, thereby also reducing the strain on the fragile Maldivian environment.

## LOCAL FOOD PRODUCTION



Instead of exporting food, let's export technology! Local production has many benefits when it comes to resiliency. Keep on reading if you want to know what the gains are.

### shorter supply chain

Transportation emissions and packaging waste will be reduced substantially while tackling the problems of deteriorated crop-quality and consistency.

## SELF-SUFFICIENCY



To make the greenhouse work self-sufficiently existing techniques are applied to generate sustainable electricity and water. However, the combination of these techniques in a remote area makes the greenhouse project a first of its kind. When the greenhouse works fully self-sufficient, it will contribute highly to the resiliency of this project.

## COMMUNITY



### Raising Independence by knowledge transfer and creating employment opportunities

The greenhouse does not compete with local farmers, but instead, Resilient Island desires to help them broaden their knowledge by setting up an education program together with the Maldivian Ministry of Fisheries, Marine Resources and Agriculture, and the local NGO Live & Learn. An independent community is what we perceive as resilient.

## Fully Self-sufficient



A containerized desalination plant has the potential to produce up to **100 m<sup>3</sup> fresh water per day** of which 82 m<sup>3</sup> is currently needed.



The energy needed for the greenhouse will be generated with **5500 m<sup>2</sup> solar panels** that will produce 3000 kWh per day.



A **pad-fan system** cools the greenhouse through sea water that gets pumped through a 'pad' and a fan that blows out the evaporative cooler air.



# SUSTAINABLE DEVELOPMENT GOALS

## WHO WILL GAIN?

### PEOPLE



MMP strives to improve the resiliency of the Maldives and to empower the local communities. The latter is supported by our belief that the people of the SIDS deserve their own clean, fruitful, and sustainable future. Hence, Resilient Island offers opportunities for the locals by:

**Providing 20 direct jobs and several spillover jobs.**

The intention of Resilient Island is to employ Maldivians for the greenhouse, thus providing the island with job opportunities. This means directly contributing to an estimated 20 jobs in and around the greenhouse facility and indirectly creating several more in related facilities and fields.

**Raising independence of the local community through knowledge transfer.**

The greenhouse does not compete with local farmers, but instead, Resilient Island desires to help them broaden their knowledge. Dutch horticulture expertise is imported in the Maldives which enables a new sector to develop. To stimulate this, MMP will set up an education program to educate people to work in a greenhouse and on open-air agriculture. We work together with the Maldivian Ministry of Fisheries, Marine Resources and Agriculture, technical partners Hoogendoorn and Let's Grow and the local NGO Live & Learn.



### PLANET



Resilient Island perceives the SIDS, including the Maldives, as vulnerable isolated places in the world that are directly facing climate change such as sea-level rise. We take this climate crisis seriously and therefore the MMP aims to contribute to a sustainable future for these islands by:

**Reducing food transport distance: from > 1000 km to <100 km**

The MMP greenhouse reduces greenhouse gas emissions by cutting transport distances while it also greatly improves the food quality that results in a decrease in food spoilage.

**Replacing unsustainable food packaging.**

Crops will be shipped in reusable crates instead of single-use styrofoam boxes. Thus, MMP will provide the resorts with a sustainable alternative for packaging to their current products.

**Generating renewable and clean energy.**

The greenhouse will use power that is collected from solar energy on facilities of the greenhouse, these solar installations are also installed by Resilient Island. Moreover, the biodigester, later implemented in the project, is a fundamental facility that turns organic waste into energy and CO<sub>2</sub> input for the greenhouse.



### PROFIT



We want to support responsible travelers in the world. Especially since the tourism industry is of great importance for the country's gross domestic product. Since MMP aims to be self-sufficient, we believe that the project's sustainability goes beyond the environmental aspect. It needs to be sustainable in every way, so this means not being dependent on external funding and subsidies.

**Economic growth.**

Since MMP produce will compete with imported products, outgoing cash flows can be converted into the country. In other words, money gets injected into the local economy.

**Enhancing innovative capacity.**

MMP wants to have an exemplary role in the topic of innovation. This is something that Resilient Island achieves by pioneering and sharing our local knowledge on technology with the world.





# WHAT WILL WE PRODUCE?

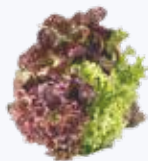
Inquiries of current imported produce and interviews with 12% of the Maldivian tourism industry showed a high demand for soft fruits and leafy vegetables. Besides that, the market research underlines the importance of high-quality produce, high consistency, and the benefit of a varied range of products to sell. Therefore, we will produce:



**Lollo bianco lettuce**  
yearly yield 200.000 kg



**Tomatoes**  
yearly yield 140.000 kg



**SalatRIO lettuce\***  
yearly yield 200.000 kg  
(\*butter-lettuce, green oak leaf and red oak leaf lettuce combined)

With future demand in mind, we plan to expand our production with strawberries, blueberries, bell-peppers, and cresses.



## RESILIENT ISLAND BRAND

The vegetables and fruits will be sold as part of our sustainable brand, Resilient Island. This brand will grow out to be a well-known brand by the entire Maldives. This is visible through packaging, transport vessels and dhonis and media channels from Resilient Island, involved investors, and most importantly resorts.

# WHY BECOME CUSTOMER?

## HIGH QUALITY

The vegetables and fruits are produced in a controlled environment. This way we can set the climate conditions, temperature, ventilation speed, lighting, and water supply in the most perfect way for each crop.

This way, and because of vital nutrients and little to no use of pesticides, we produce crops of the highest quality available.

1.

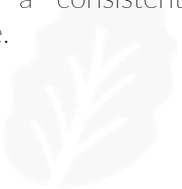


## CONSISTENCY

The temperatures and climate conditions change over a year. Inside a greenhouse, it doesn't.

This makes it possible to produce every day, year-round! This way we can promise our customers a consistent delivery scheme.

2.



## FRESH

The crops are produced in the Maldives. After harvesting the crops the produce will be shipped directly to our customers. No need to freeze or process it, delivered in two days from farm to fork.

3.



## EDUCATION

The introduction of agri- and horticulture education on the Maldives, giving the local community new employment and education opportunities. MMP not only transfers techniques but also knowledge.

4.



## MORE SUSTAINABLE

We create a **more sustainable supply chain**:

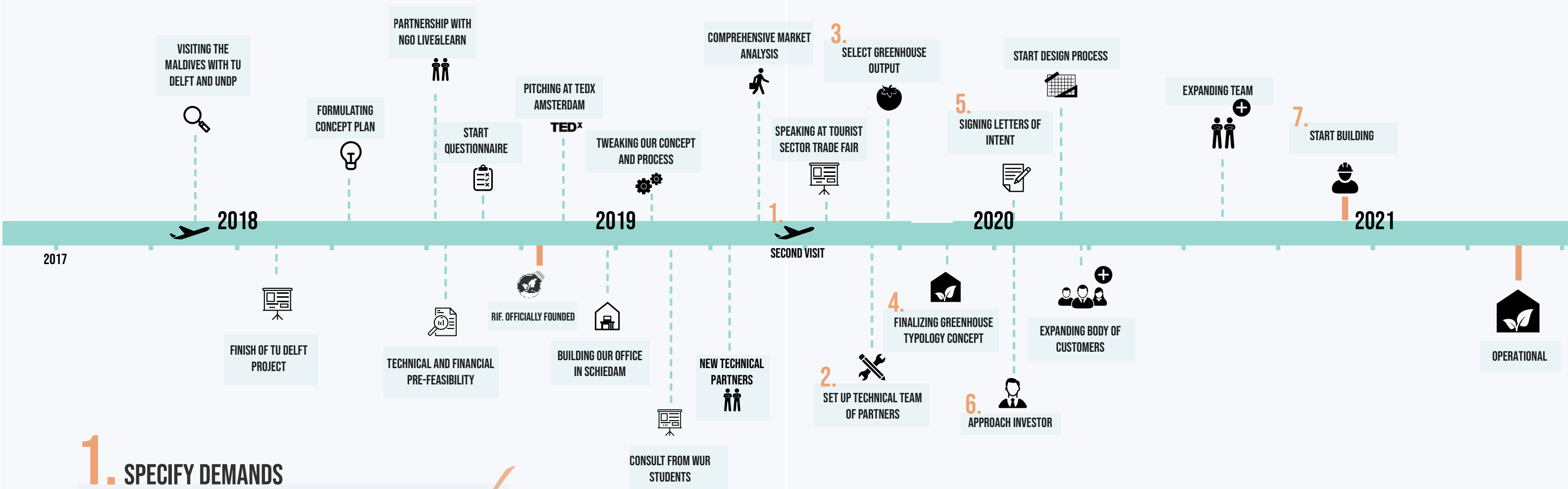
- Less waste due to reusability of packaging
- 90% shorter travel distances resulting in a great reduction of CO<sub>2</sub> emissions
- Production that can be adaptive to demand (flexibility)

5.





# TIMELINE



## 1. SPECIFY DEMANDS

During our business trip, we conducted in-depth interviews to get an insight into the exact demands.

## 2. EXPAND OUR TECHNICAL TEAM

The team will be expanded to get every expertises on board. This way we are able to face all challenges.

## 3. SELECT OUTPUT OF GREENHOUSE

After analyzing the data, the output is selected.

## 4. FINALIZE GREENHOUSE DESIGN

Now it is time to put words into action by designing the greenhouse complex.

## 5. OBTAIN LETTERS OF INTENT

Around January the team is going back to the Maldives. We will select a couple of resorts as Launching Clients.

## 6. APPROACH INVESTORS

At the same time, investors will be approached. The investor has to have a sustainable philosophy.

## 7. BUILD

Together with all our partners we will design and realize the Maldivian greenhouse.



THANK YOU

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**INFO@RESILIENTISLAND.COM**  
**WWW.RESILIENTISLAND.COM**