

# **Business case ID Card**



Title: A revolution for the algae market

Name of the company: Ocean Rainforest

**Country:** Faroe Islands

Size of the business: 7 employees (2018) / SME

# **Background**

Ocean Rainforest Sp/F is a limited company located in the Faroe Islands engaged in the production of marine biomass from macroalgae in open ocean cultivation installations. Ocean Rainforst was founded by Ólavur Gregersen and a few partners in 2007 with the goal of developing the production of seaweed. Thanks to its stunning nutritional value, seaweed is considered a "superfood". Not only can it relieve pressure from arable lands as an excellent ingredient of people's diet, but it can also be used as animal feed. Its unique properties and health benefits also make it an important resource in the cosmetics sector. The goal of the initiative was to develop the algae market and have a positive impact on people and the environment. Ólavur Gregersen and his partners managed to combine their knowledge of the unique ocean environment of the Faroe Islands with their strong entrepreneurial spirit, to cultivate seaweed. The company's inbuilt focus on research and innovation enabled them to develop world-class cultivation methods, rapidly making them Europe's leading seaweed cultivator, and a pioneer in the industry.

Today, Ocean Rainforest is the only company in the world with a proven scalable and survivable Macro Algae Cultivation Rig. The name of the company comes from the carbon-negative properties of algae. As more underwater seaweed grows, more CO2 is absorbed. This underwater algae forest can capture more greenhouse gases





than a tropical rainforest, and it sustains the ecosystem of the fjords, hence this name.

The successful company plans on expanding the business activity from about  $\leq 100,000$  to a turnover exceeding  $\leq 1,000,000$  within the next 3 years. In January 2020, the company also launched a pilot project in Santa Barbara, California, in order to develop similar production sites in other places like the US west coast.

## Main activities

The algae forest is the centre of the company's business. Macroalgae are bred in installations offshore without any fertilisers. The seaweed installation - a Macro Algae Cultivation Rig (MACR) - is suited for the harsh conditions of the open ocean. The installation has approximately 25,000 meter of seaweed seed lines in the Faroe Islands, where continuous current and stable sea temperature provide the perfect condition for seaweed farming. The concept had been successfully tested previously in the Faroe and in the last two years Ocean Rainforest has demonstrated the highest cultivation growth rates and harvesting yield known in Europe. Four seaweed types, which are all natural and native to their surrounding environment, are bred on these installations. The algae are then harvested through multiple partial cutting, thus six harvests can be done from the same lines without re-seeding. The algae are then collected, washed with water and dried in a room, ready to be shipped. Customers can order the frozen or dried algae in boxes and can choose the flake size and the quantity. All the packaging activities take place in the processing plant purchased by the company in 2017. The building has capacity for cleaning, packaging, freezing, drying and ensiling, as well as cold and dry storage. A hatchery for seaweed seedlings and a laboratory are also established at the facility. In addition to the buildings, the company owns two boats that are used to harvest the algae.

The business activity, as it is today, is to a large extent built on a series of research projects. Ocean Rainforest is actively participating in EU calls for proposals and is a partner in numerous research and innovation projects on the topic. This helped the company develop its knowledge, technology and expertise faster. The company is very dynamic and actively present at conferences, workshops and advisory boards/groups to disseminate information about the potential behind their business.

The team behind Ocean RainForest is composed by a group of senior technology and business specialists. The rest of the team complements with many years of practical experiences from the aqua and fishery industry. The company also cooperates with leading universities and PhD students who help the company develop and improve their innovations.

### <u>Market</u>

Since 2015, Ocean Rainforest has been selling dried and frozen seaweed in bulk to European producers of seaweed retail products. Ocean Rainforest's business



# **Business case factsheet Ocean Rainforest**



strategy is based on business-to-business marketing in Europe and North America. Today, the business is cultivation and harvesting of seaweed for frozen, dried and ensiled products. Current customers are suppliers of seaweed foods, feeds and cosmetic producers like Unilever, Nestlé, Mondelez and small local providers to food shops & retailers in the UK, The Netherlands, Germany, France and the Nordic Countries. Customers for seaweed liquids are producers of organic fertiliser, cosmetics, seaweed derived food additives and pharmaceuticals. Customers for packaging raw material are research institutions like the Technical University of Dresden and large packaging companies. Communication with customers is a blend of meetings, participation in fairs, newsletter, word of mouth, advertisement and the webpage. Only 1% of the total sales are local.

The control of a large part of the value chain is among Ocean Rainforest's strongest competitive advantages. The company's value chain spans from seeding, offshore cultivation, harvesting and pre-processing into storage stable products for the food, feed and cosmetics markets. The current competition of cultivated seaweed in Europe is very limited, and Ocean Rainforest is regarded by many as one of the most advanced cultivation pioneers within this area. However, there are several companies and projects in Norway, (Seaweed Energy Solution, Algea, Ocean Forest, Hortimare A/S) and Denmark (Hjarnø Havbrug) that work with macroalgae cultivation on a pre-commercial or commercial scale. There are also some companies and initiatives in France, Scotland, Ireland, and the Netherlands. However, most companies involved in this activity are at a start-up phase, characterised by experimental production and do not cultivate in deep water. Ocean Rainforest is currently a leader on the market.

Ocean Rainforest's competitive advantage allowed it to double its revenues in two years, going from  $\leq$ 50.000 in 2016 to  $\leq$ 100.000 in 2018. The company hopes that the development of large-scale macroalgae production sites will incentivise larger industries to divert product development resources towards the use of this new sustainable and healthy raw material. The company is confident about the development of their business activity since the algae market is growing rapidly and the company has the capacity to meet this growing demand.

### Challenges and solutions

The document attesting that the production methods for macro algae on the Faroe islands site did not have negative environmental impact was essential to launch the business but it did not constitute a major challenge since the company easily proved the neutral and even positive impact of deep water macro algae production on water quality.

One of the main challenges was the remoteness of the Faroe Island which made it difficult at first to enter international markets. On-shore loading facilities needed to be strengthened but the company developed efficient loading, processing and shipping activities which helped overcome these challenges.





Another challenge was the development of efficient technologies for the seeding, harvesting, processing and storage of the macroalgae. However, participation in these large Horizon 2020 / Bio-Based Industries Joint Undertaking calls was necessary to complement the company's technological and scientific background and knowledge. Indeed, cooperation with a large number of highly specialised partners allowed them to cross a number of technical barriers very rapidly. Not all application or proposals have been successful, hence the importance of actively responding to EU calls for proposals. These EU projects also gave the company access to major European industrial partners which eventually became their customers.

## **Funding**

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The initial investment was of  $\leq 200,000$ . This investment was a mix of private investments and substantial national, Nordic and EU grants. Funding needed to be secured to finance the initial development costs. The total investment today amounts to more than  $\leq 2$  million, but more investments are needed to move to full industrial scale and secure further technology development. Ocean Rainforest is actively pursuing the EU proposal/application route (soft money) as a pre-cursor for commercially planned investment rounds. Nevertheless, since revenues are increasing, the need for grants becomes less urgent. The company also expects the growing algae market to increase the demand for tools and processes of macro algae breeding which the company is ready to sell to other companies wanting to enter the market. This would be a significant source of revenue for the SME.

### What makes this case innovative?

Several factors make this case innovative. First of all, the cultivation methods used by Ocean Rainforest help sustain the natural ecological balance of the fjords while developing a large-scale eco-friendly business activity. Secondly, the deep-water cultivation solution was the result of the development of tools and processes for production, harvesting and treatment of the macro algae which were key elements for a rapid industrial adaptation of this "new" raw material. For instance, the harvest method in multiple partial cutting was central as it reduced seeding costs and allowed for a more constant and stable harvest of algae. The innovative cultivation technology and techniques were crucial to ensure that the production of macroalgae is stable, sustainable and safe.

Another important factor which makes this business unique is its use of renewable energy sources. In addition, OceanRainforest employs local people and creates short supply chains -thereby contributing to the local economy- while at the same targeting international customers. Very efficient at both the local and the global level, the company has developed its "glocal" activities very rapidly.





#### Lessons learnt

Ocean Rainforest has a "win-win" business model. It is beneficial for the environment, valuable for the local economy and good for the health of consumers. Central in the development of the initiative and of its world-class technology and cultivation methods was the company's active participation in EU calls for proposals and applications for Nordic and EU H2020 grants.

OceanRainforest's advice to future entrepreneurs is to first secure contact to a strong international R & D environment which can support both advanced equipment and process development. They also recommend to secure active participation in relevant Nordic/EU calls for proposals. These two aspects were crucial for the development of the company's own knowledge, technology and expertise.

