Blue Economy; a powerful and persuasive new concept for sustainable development based on economic activities associated with the ocean

Dr Stefan Kraan

The Seaweed Company

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BLUE ECONOMY

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

Renewable Energy

Sustainable marine energy can play a vital role in social and economic development.

Fisheries

Marine fisheries contribute more than US$270 billion annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

Maritime Transport

Over 80% of international goods traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

Tourism

Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than 41 million visitors per year.

Climate Change

The impacts of climate change on oceans—rising sea-levels, costal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, oceans are an important carbon sink and help mitigate climate change.

Waste Management

80% of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.

To learn about other aspects of the blue economy, visit www.worldbank.org/oceans

WORLD BANK GROUP

Blue Economy

The value of the Blue Economy and the emerging ocean-innovation market is gaining recognition.

According to a 2020 report commissioned by the High Level Panel for a Sustainable Ocean Economy (the Ocean Panel):

*'**The investment return on the sustainable ocean economy over the next 30 years is 500%** and every 1$ invested in sustainable ocean solutions returns at least 5$ in global benefits'*

With over three billion people reliant on a healthy ocean for their livelihoods and more than 350 million jobs in ocean-based sectors, the cost of not doing so would be catastrophic

The Blue Economy Opportunity

Why is the Blue Economy important

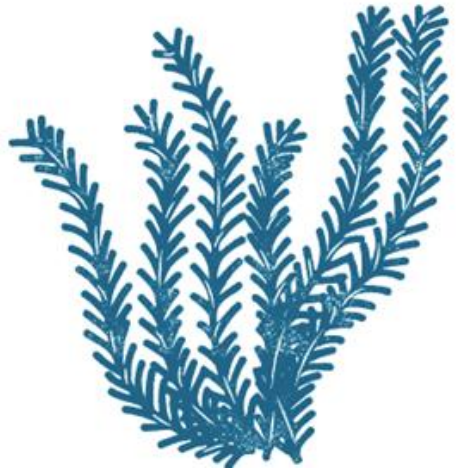
Oceans make up 70% of the Earth's surface and whilst the ocean impact space is an exciting emerging market, oceans remain one of the least-understood ecosystems on Earth.

Science shows their immense value in fighting climate change through carbon sequestration, climate regulation, preserving biodiversity and providing vital ecosystem services.

Seaweed

The seaweed company is working with Seaweed farmers across the EU and South East Asia. Big interest from VC and Private Sector. Multiple potential revenue streams.

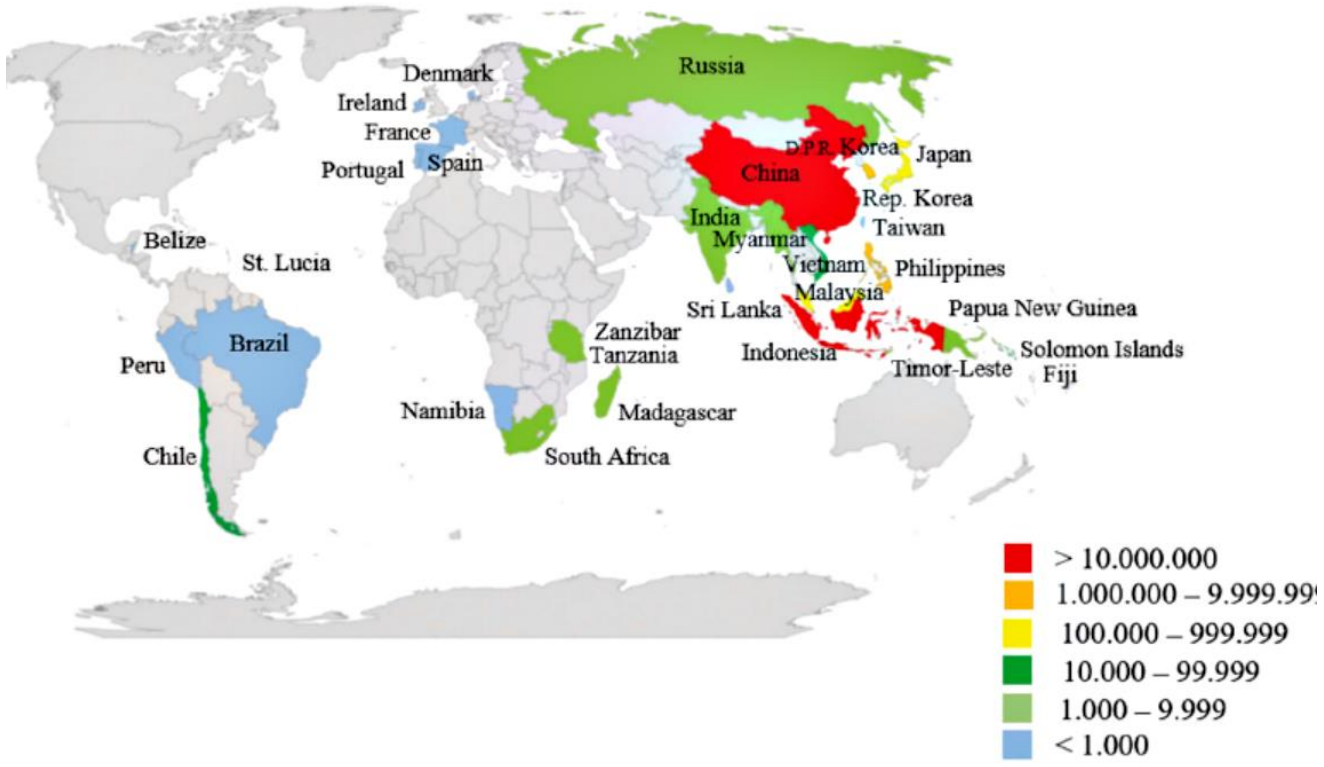
According to Seaweed For Europe, the market could scale to **$9.3bn by 2030** and create over **115,000 jobs.**



The challenges we have identified faced by our Seaweed ventures include:

- access to finance/commercial scalability;
- proven and solidified revenue streams;
- production and supply chain disruptions;
- upfront capital expenditure;
- regulatory issues (licensing etc.); scientific rigour, especially in relation to carbon capture.

Current status (Phyconometrics)



Seaweed Cultivation at a global scale (Buschmann et al., 2017)

The global commodity-based seaweed industry; 34 million tons worth 18 billion dollars

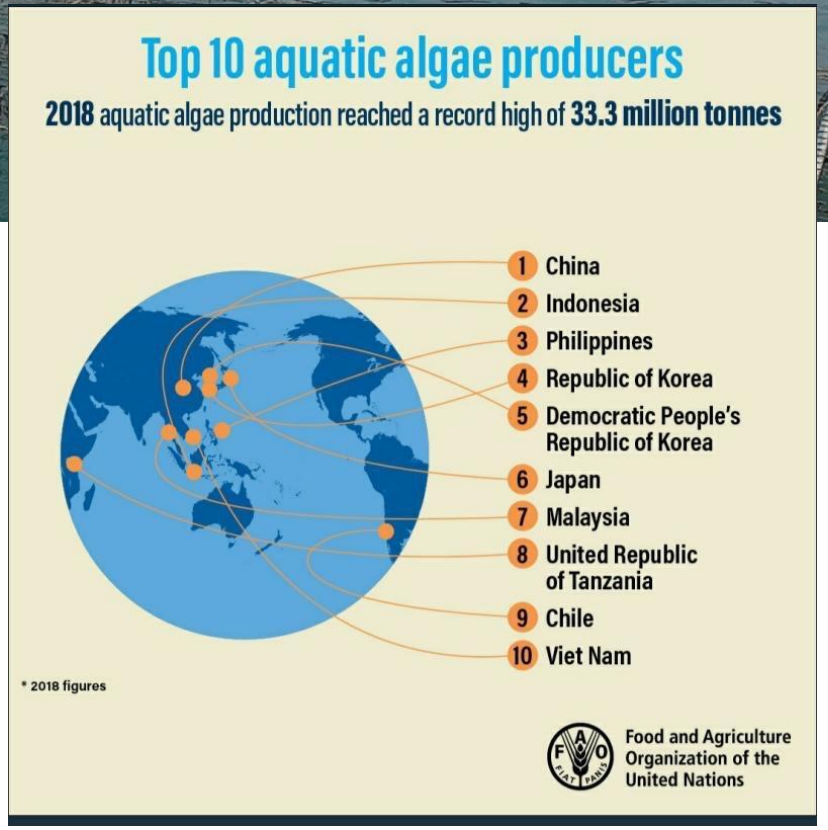
Increases steadily with about 6-8% per year

97 % cultivated (about 1 million tonnes wild harvest)

CAGR (2022-2028) 10.8%

Seaweed cultivation

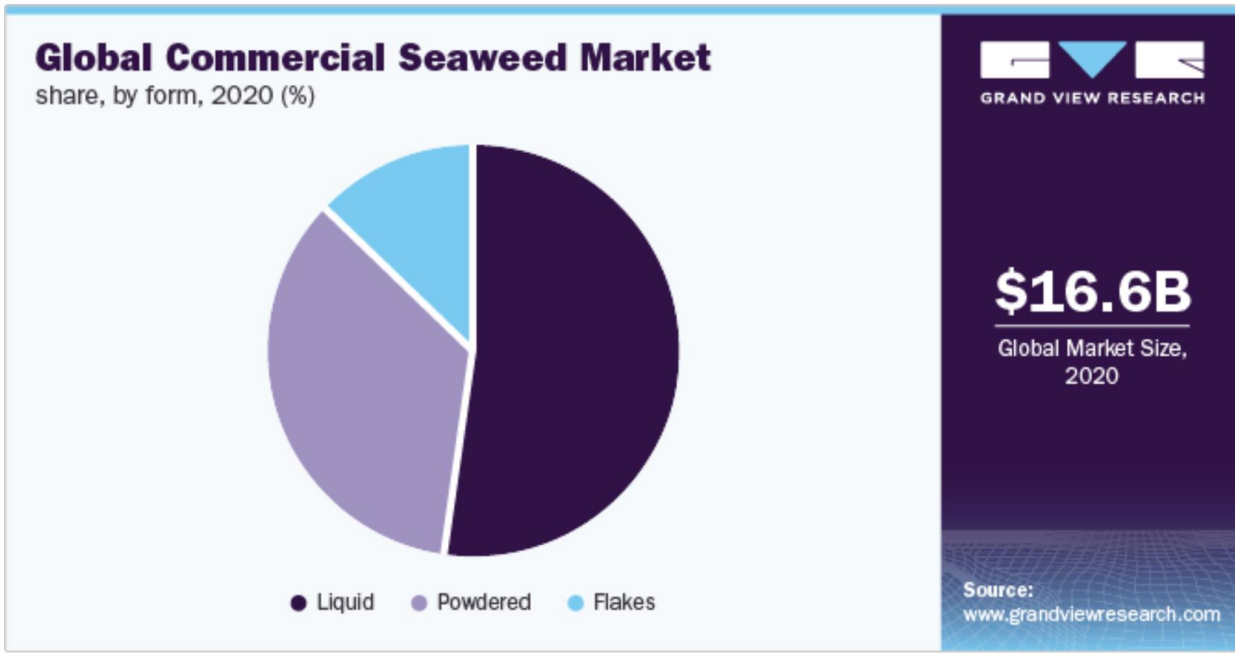
34 million tonnes , $ 7 billion RDS, 99% in Asia.



Market size

Base Year:	2020
Market Size in 2020:	43,342.4 Million (USD)
Forecast Period:	2021 to 2027
Forecast Period 2021 to 2027 CAGR:	9.6%
2027 Value Projection:	95,867.4 Million (USD)

Market size value in 2021	USD 18.4 billion
Revenue forecast in 2028	USD 37.8 billion
Growth Rate	CAGR of 10.8% from 2021 to 2028



Seaweeds can address the societal problems that we currently have

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Tapping into several global mega trends

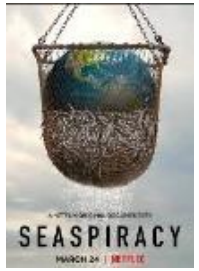
Human & consumer awareness

Sustainable consumption & production

Climate mitigation

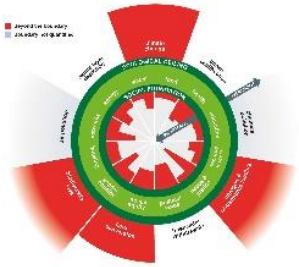
Health & wellbeing

Environmental restorative



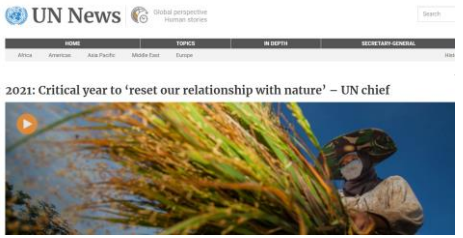
NETFLIX

Governments, policy



Climate

EU Green deal



Transform our relationship with nature

Circular economics

Blue economy

Entrepreneurs, businesses & investors

Seaweed = key global input for the future

Authentic, purpose driven businesses

Investments in impact, sustainable, regenerative businesses

Act now to make exponential impact

Positive environmental and social impact

Nature positive - regenerative

Big investments into seaweeds

Drive systemic transitions

1. Seaweed will be one of the global inputs that humanity will utilize for sustainable consumption & production

2. Only a sustainable, traceable, equitable and commercially sound supply chain of seaweeds will enable sustainable growth and bring valuable benefits to us all

3. Only regenerative, nature positive businesses will be here to stay

SEAWEED INSIDE
The Seaweed Company
APPROVED
READY TO MAKE IMPACT

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND

Kelly Slater - BLOOM Foam Traction

Kelly Slater and his BLOOM FOAM surfboard raction pad by Firewire.

Merrell Dogfish Head - Bloom Collab

Merrell Dogfish Head Collab - Limited Editio Shoe with BLOOM insoles and midsole!

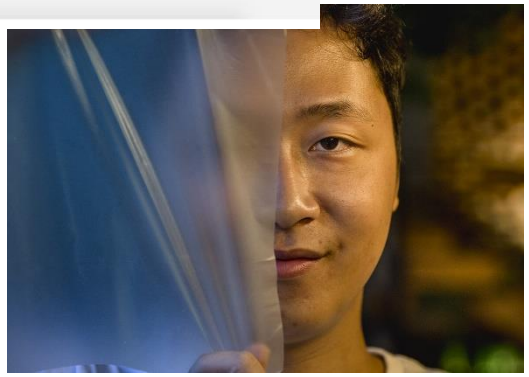
Blue Green México

Bricks for house construction

Sustainable Biomaterials from seaweed

- Bricks for houses Mexico
- Sneakers
- Chipboard
- Plastics

Seaweed Plastic Opportunity



- National Geographic: 8.3 billion metric tons of plastic 6.3 billion metric tons have become plastic waste.
- And of those 6.3 billion metric tons of plastic waste, only nine percent has been recycled.
- That means 79 percent of all the world's plastic ends up in landfills and ultimately, the oceans.

Blue Farming® - products to accelerate regenerative agriculture

Regenerative agriculture,

- Less fertilizer (5-7 kg CO2 / kg fertilizer)
- Less pesticides
- Increased soil CO_2 absorption (13 ton/ha)
- Higher Feed Conversion Rate (3-10%)
- Less methane / nitrate emissions

Blue Health® - products to strengthen human health & wellbeing

moi sea
care of the sea

The Seaweed Company

SeaMeat™

A unique seaweed blend that can replace 40% meat for impactful & tasty hamburgers, sausages and meatballs without increasing their price

Positive climate impact (per 100 g burger)

Impact Category	Unit	SeaMeat Burger	Normal Burger	Difference
Aquatic Eutrophication Potential [1]	g PO4 - eq	9	15	**6 g**
Global Warming Potential [2]	kg CO2 - eq	18	31	**13 kg**
Land Occupation [3]	m2.y	37	62	**25 m2**
Water Consumption [4]	liters	510	850	**340 liter**

Positive effect seaweed on meat products

- Improves water and fat binding properties of meat matrix
- Firmer and more chewy structure
- Improved nutritional profile

[1] Avoided manure emissions, less fertilizer/pesticides in water
[2] Less manure, methane, nitrate, electricity butcher
[3] Less grazing land, cropland
[4] Less irrigation cropland

Positive impact seaweed on oceans

- No land, fresh water or fertilizer needed
- Absorbs CO2, N and P
- Deacidifies oceans
- Improves marine biodiversity

Great feedback from taste panels

- *"juicy!"*
- *"a nice bite"*
- *"same taste but better"*

Possible (health) claims

- Reduction salt (-35%)
- Introducing fibre (2,09 g / per 100 g)
- Reduced saturated fat content (-51%)
- Source of iodine [5] (~700% ADH)

Improved NutriScore

From D to B (A)

[5] Iodine content ~ 28 µg/g wet weight

Easy to integrate in recipe

- Soak SeaMeat blend for 20 minutes (1:5 ratio)
- Blanche for 2 minutes
- Chop to desired size
- Mix & blend with meat at 40/60 ratio
- Follow regular recipe from here

Parity price as current meat products

- €8 / kg rehydrated SeaMeat blend
- (€40 / kg dehydrated blend)

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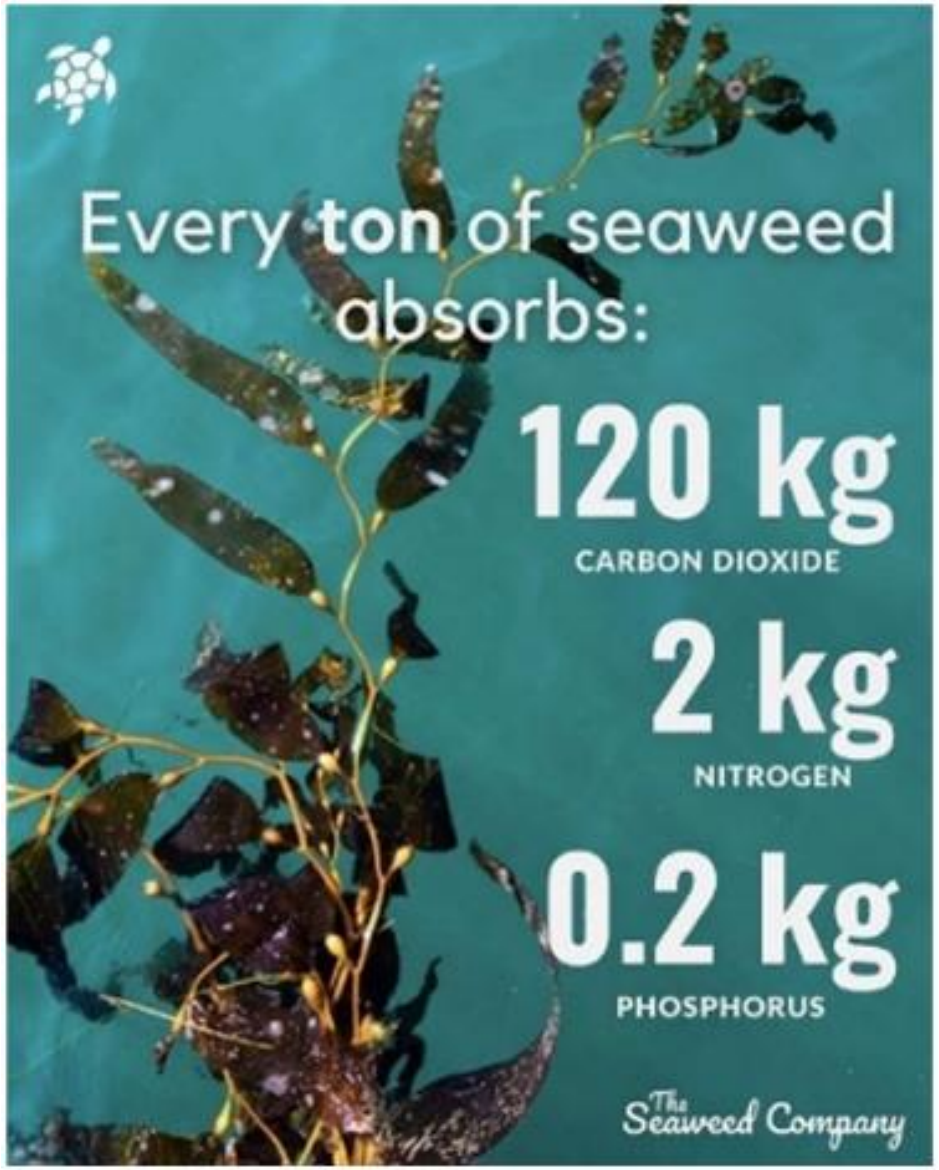
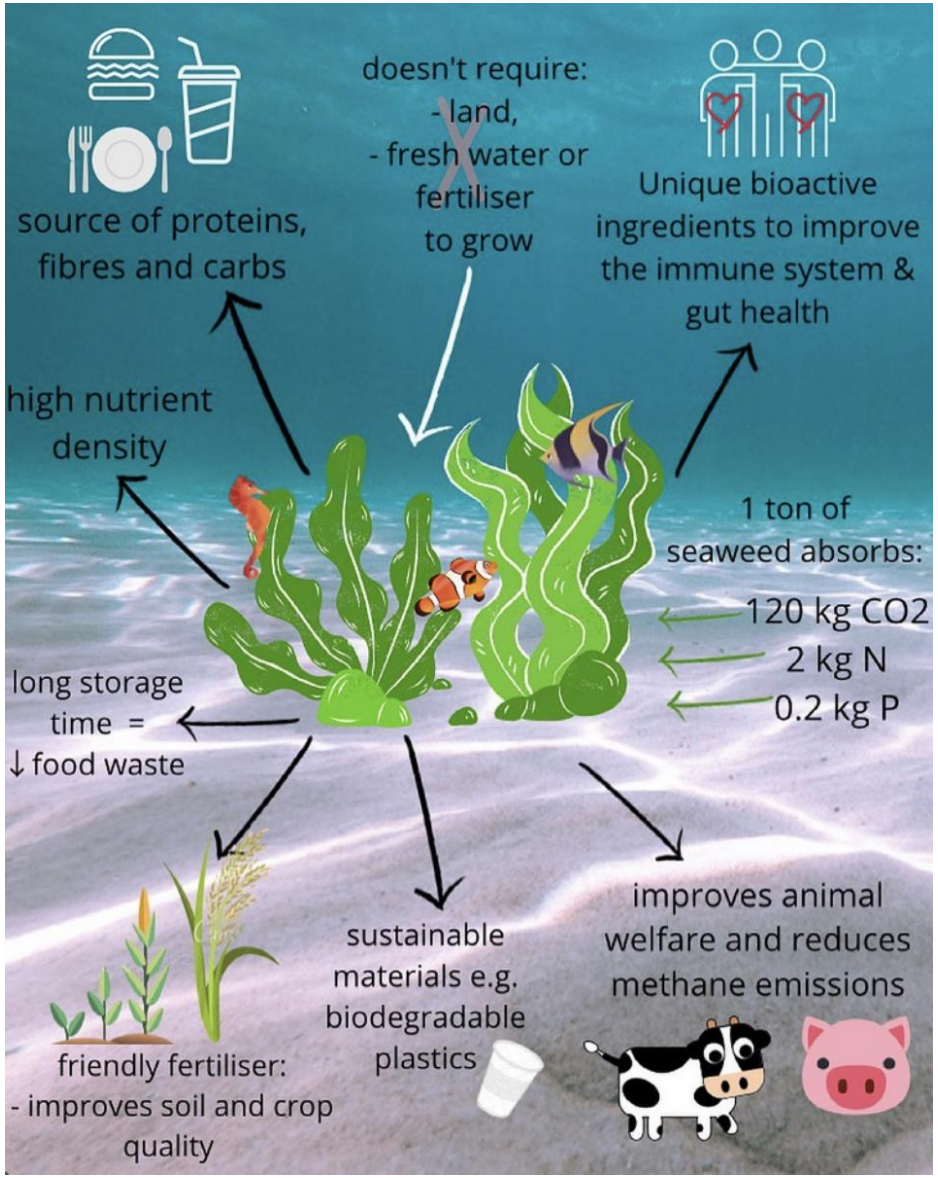
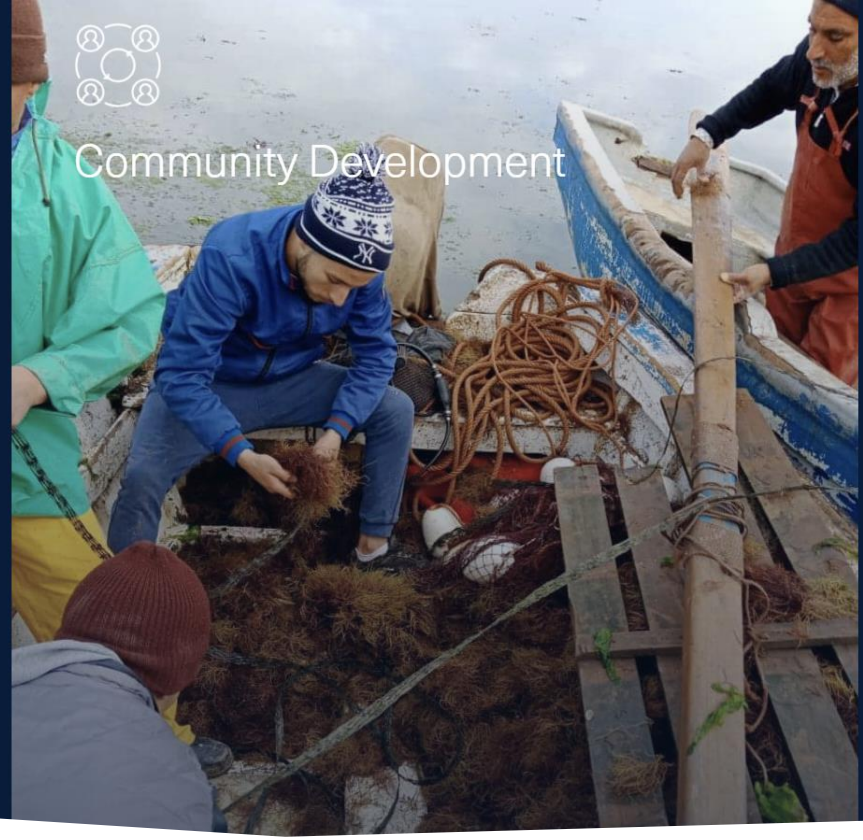

Every ton of seaweed absorbs:
120 kg
CARBON DIOXIDE
2 kg
NITROGEN
0.2 kg
PHOSPHORUS
The Seaweed Company


source of proteins, fibres and carbs
doesn't require:
- land,
- fresh water or fertiliser
to grow
Unique bioactive ingredients to improve the immune system & gut health
high nutrient density
1 ton of seaweed absorbs:
120 kg CO2
2 kg N
0.2 kg P
long storage time =
↓ food waste
friendly fertiliser:
- improves soil and crop quality
sustainable materials e.g. biodegradable plastics
improves animal welfare and reduces methane emissions



Cultivating large areas inshore /near shore

- CO2 take up through seawater plus de-acidification oceans (coral reefs)
- P& N recycling, (run off from land or other aquaculture activities)
- High in Potassium and other important minerals
- Excellent source for fertiliser, animal feed and valued added materials and bioactives
- Circular economy and nutrient recycling
- Social impact coastal rural areas

Current Gaps

- Lack of support, awareness about blue economy investment opportunities;
- Absence of direct support from corporates and private sector for blue economy ventures, when compared to other industry areas (FinTech, Healthcare, Gaming);
- Blue Carbon Markets, needs major work to scale projects to become investment ready; and
- Huge Funding Gap

Opportunities

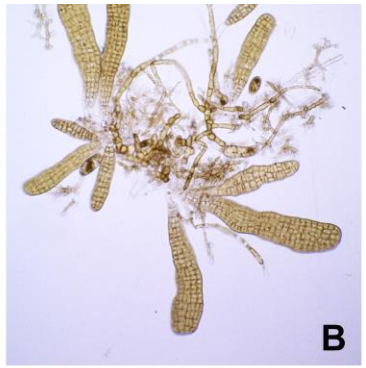
- Increased momentum, especially around seaweed and bioplastics;
- Regulatory changes, TNFD, Climate and Biodiversity laws, Nature Positive;
- Requirement for Flexible Financing and Patient Capital, to overcome initial barriers and help ventures scale; and
- Ocean offers so many innovative opportunities to address SDGs.

The Seaweed Company BV

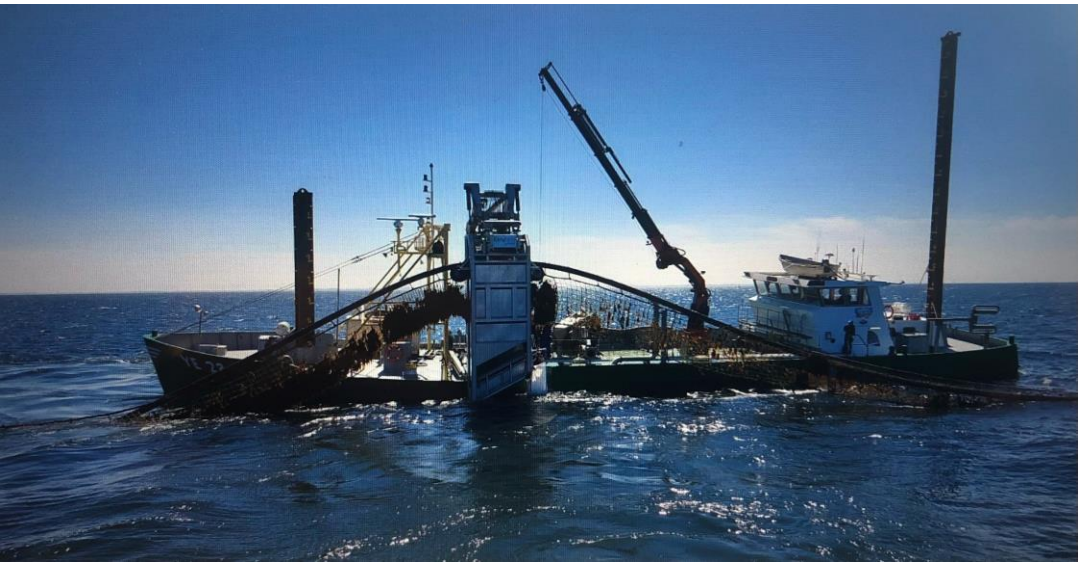
Ireland, Netherlands, Morocco and India

Innovation

- Automated seeder, long lines and nets . Deployment.
- Automated harvester for long lines and nets

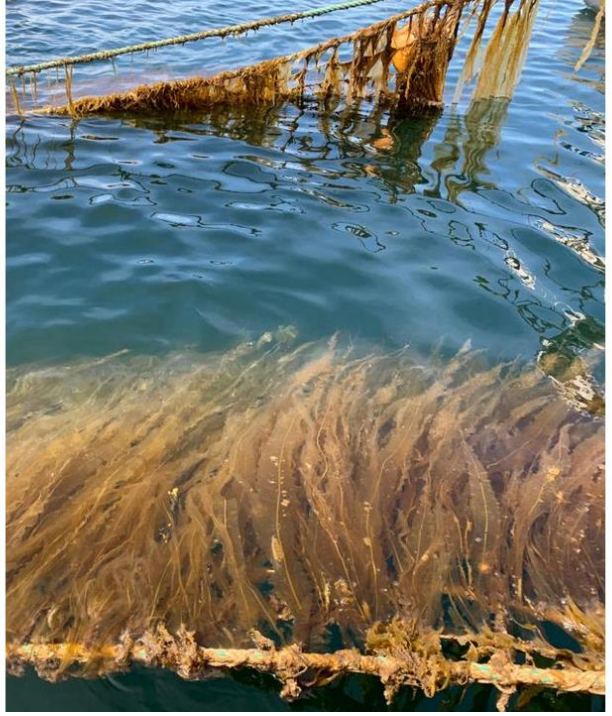


Off shore cultivation North Sea (near wind farm)




B


Ireland

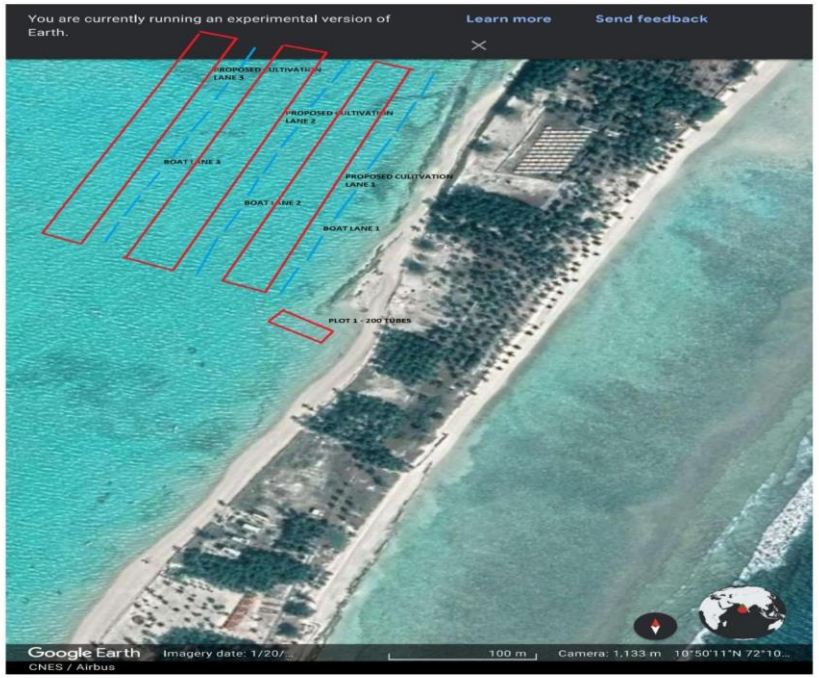



C


Netherlands

Morocco

India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PROPOSED CULTIVATION LANE 3
PROPOSED CULTIVATION LANE 2
PROPOSED CULTIVATION LANE 1
BOAT LANE 3
BOAT LANE 2
BOAT LANE 1
PLOT 1 - 200 TUBES
Google Earth
Imagery date: 1/20/...
100 m
Camera: 1,133 m 10°50'11"N 72°10...
CNES / Airbus


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THANK YOU

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