AquaInvest Platform

WORLD BANK GROUP

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Food and Agriculture Organization of the United Nations

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KWPF
Korea-World Bank Partnership Facility

Overview of the aquaculture sector

*Aquaculture has **strong economic and social impacts**, globally. Growth in the sector has been significant…*

$401bn

Global sales generated in 2018[1]

> 90%

Of seafood produced for human consumption**

10-12%

Of global population earn a living from the sector[2]

~37%

Contribution from coastal aquaculture and mariculture* to total aquaculture

**Great potential for growth*

Notes: 1. Denotes first sale value 2.Translates to income provided to more than 500 million people globally 3. Over the past six decades (1950-2018)
Sources: NOAA (2021); FAO (2016); FAO (2018); FAO (2020)

*Aquaculture has **strong economic and social impacts**, globally. Growth in the sector has been significant.*

Global aquaculture production 122.6 million tonnes valued at **USD 281 billion**

58.5 million people engaged in the primary production sector as full- or part-time workers

About **600 million livelihoods** depend at least partially on fisheries and aquaculture

Women account for 21 percent of those engaged in the primary sector

The international trade of fisheries and aquaculture products generates around **USD 151 billion**, a year

FAO. 2022. The State of World Fisheries and Aquaculture 2022. Towards Blue Transformation. Rome, FAO .

Data from 2020

Objectives and components of the Advisory Services and Analytics (ASA)

OBJECTIVE

*To distill and improve **best practices in aquabusiness development** for **economic, social and environmental sustainability** to inform World Bank Group, development partners, commercial investors and public sector interventions.*

COMPONENTS

1 Investment Climate & Opportunities

National/regional **studies to assess readiness for World Bank/International Finance Corporation (IFC)/other International Financial Institution Investments** related to agribusiness value chains

2 Guidelines for Sustainable Aquabusiness Development

Develop a **comprehensive aquabusiness operations manual** – both marine and freshwater aquaculture

3 Country Cases

The aim of this activity is to take the Aquabusiness Operations Manual (Output 2) and **adapt it to conditions in selected countries to build bankable aquabusiness investments**

*The desire to apply **lessons learned from inland aquaculture into mariculture development** will inform choice of case study countries.*

4 Advisory Services

Provide advisory to private sector clients **to address specific challenges/issues** in preparation for **potential IFC engagement**

5 Study on new markets for seaweed value chains

The aim of this study is to examine both freshwater and mariculture value chains to **identify new markets for a modern and upscaled seaweed industry** and identify **mechanisms to grow operations**

Development challenges to be addressed


Lack of knowledge on sustainable management practices


Post harvest losses and low product quality

Lack of efficient value chains and access to lucrative markets


Weak institutional capacity


Lack of enabling environment for SME investors


Biosecurity and animal diseases


Mitigate threats related to climate change


Lack of coherent guidelines and support for bankable projects


Food Safety/Nutrition

AquaInvest Platform Strategy

Advisory Services and Analytics (ASA): Key examples

Technical Manuals

Sustainable Practice Notes

Trainings/ Workshops/ Webinars

Conferences

Blogs/op-ed

Social Media
(LinkedIn, twitter)

Newsletter
(e.g., AGF weekly Newsletter)

AquaInvest Knowledge Digest

Funding
Problue, Moore Foundation, KWPF

Partners
WB, IFC, WWF, USAID, GEF, FAO

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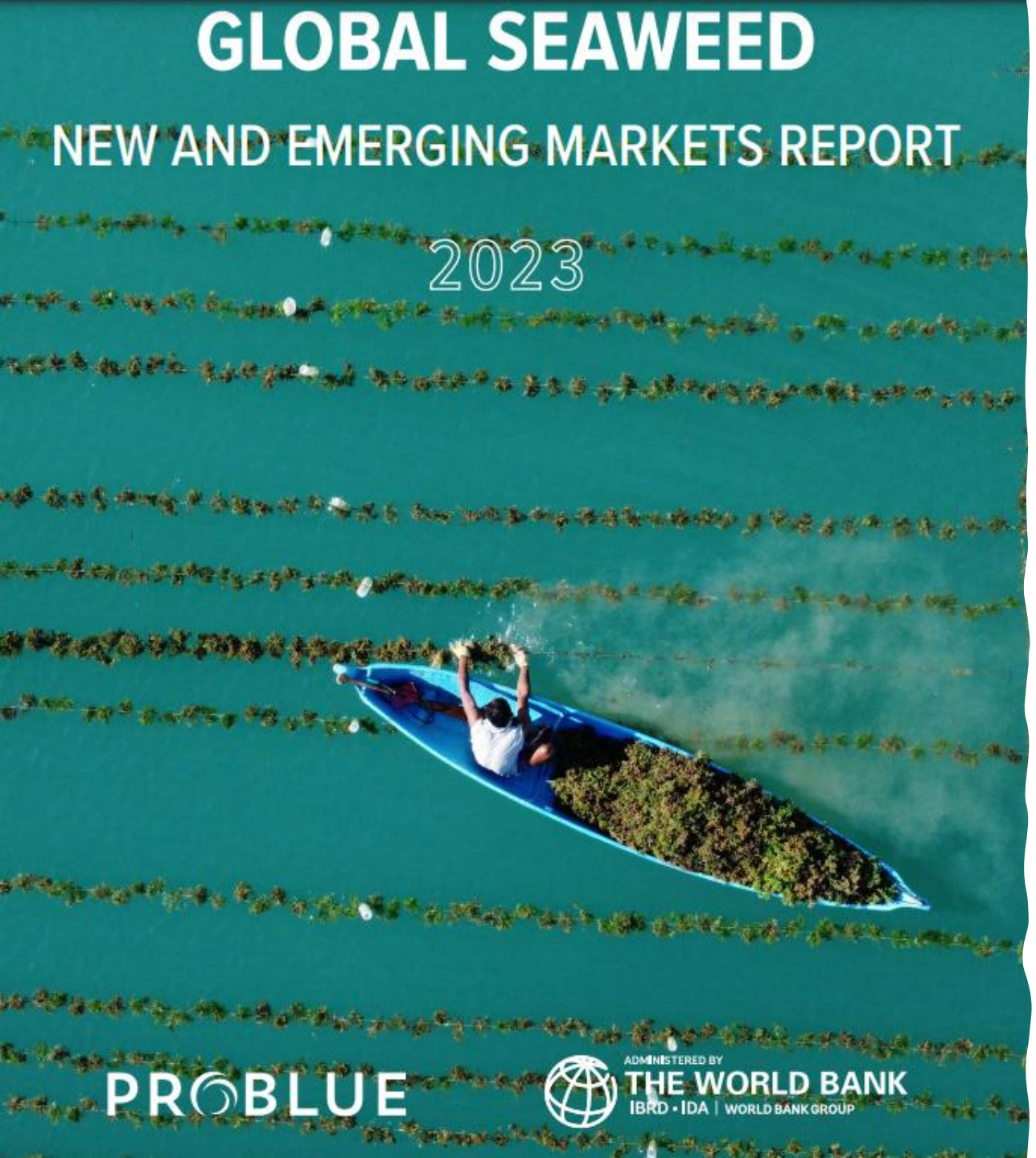
Investment Projects

Private Sector Investment



AquaInvest Platform

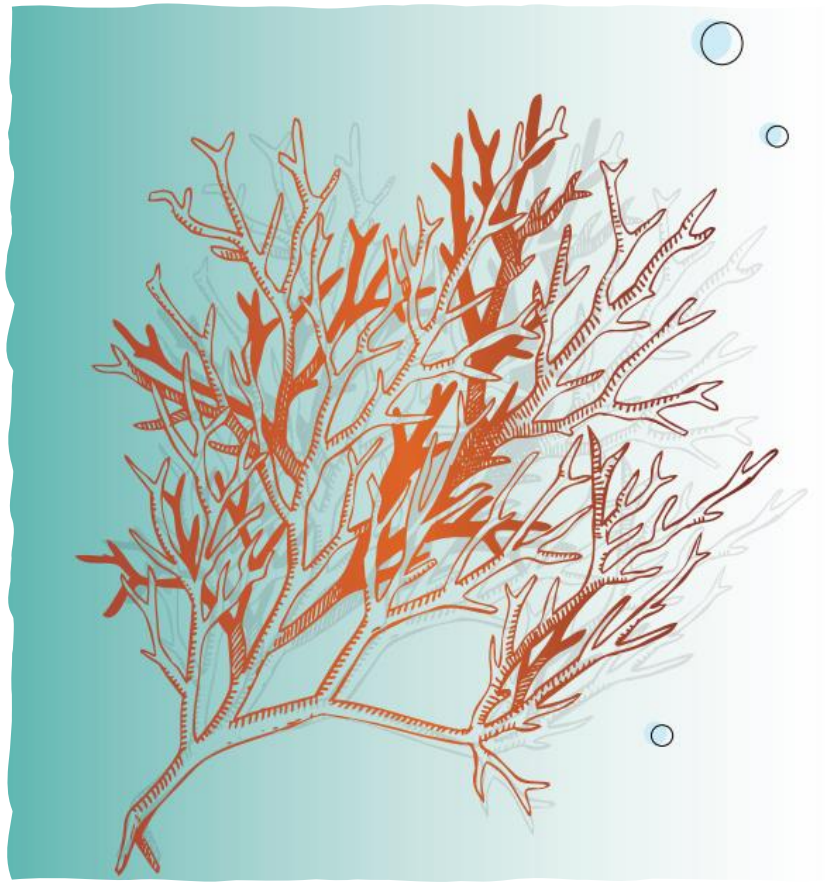
commissioned by The World Bank

URL
https://openknowledge.worldbank.org/handle/10986/40187

Content

1. Aims of the report
2. Relevant context on global seaweed sector
3. Ten new and emerging seaweed applications
4. Key findings of this study
5. Conclusion

Aims of the report

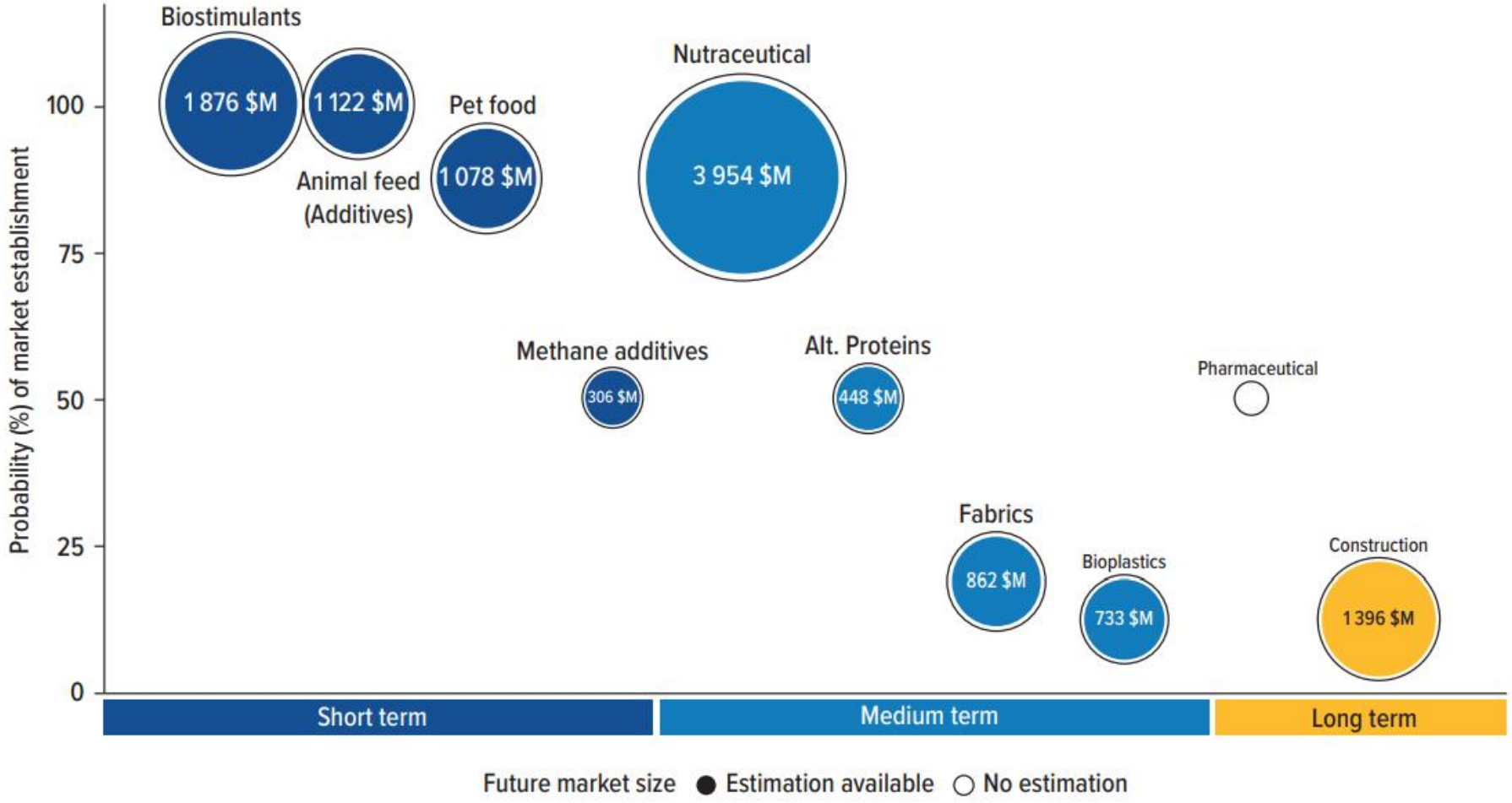


Analyze the **commercial opportunity** for new high-growth market applications to increase scale of seaweed cultivation and **value-added seaweed** processing.

Ensure increased provision of **industrial**, **socioeconomic** and **environmental benefits.**

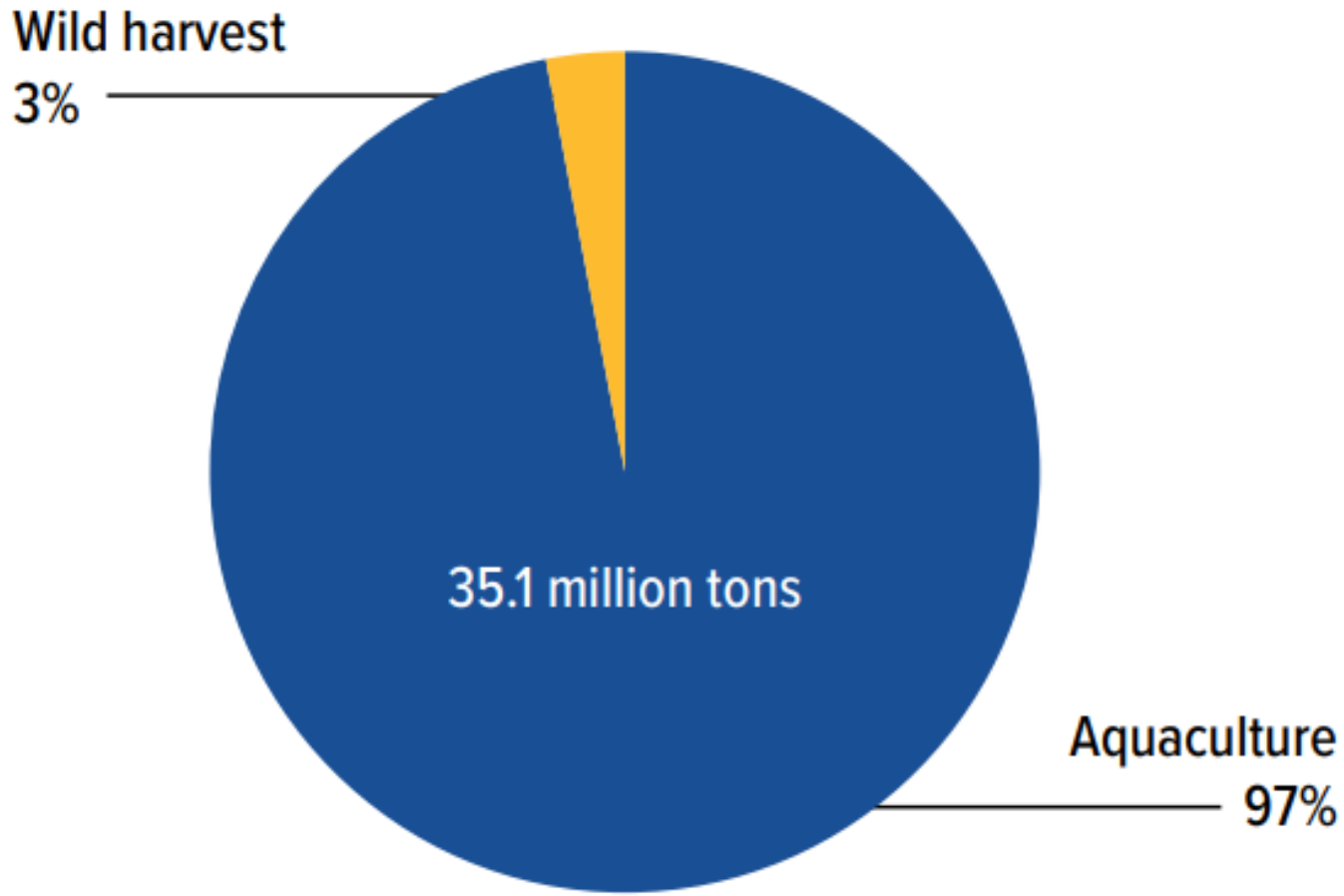
Assess the **technologies** needed to grow more seaweed, extract increasingly valuable compounds, and create ready to scale **quality products** for a range of markets.

This report has identified ten global seaweed markets with the potential to grow by an additional USD 11.8 billion by 2030



The global seaweed sector today

Almost all seaweed supply comes from aquaculture - cultivated in land-based pond and near shore systems



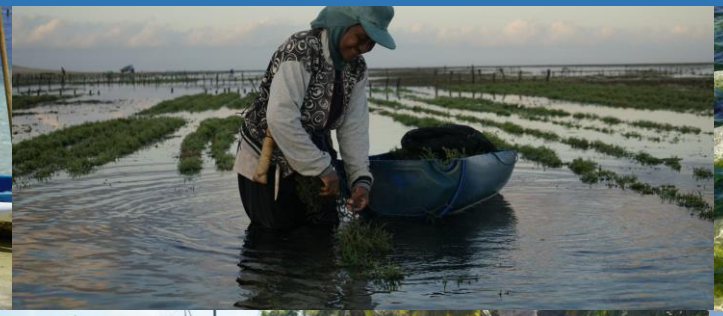
Source: FAO Fisheries and Aquaculture (2022)

98% of farmed seaweed is produced in a handful of countries in East and Southeast Asia

Map: Hatch Innovation Services • Source: in tonnes wet weight and provided by FAO Fisheries and Aquaculture




Seaweed farming is for millions of people the **primary source of livelihood**






..and many more coastal communities could be growing seaweed - and benefit in numerous ways.

95% of the farmed global seaweed production is based on five species groups

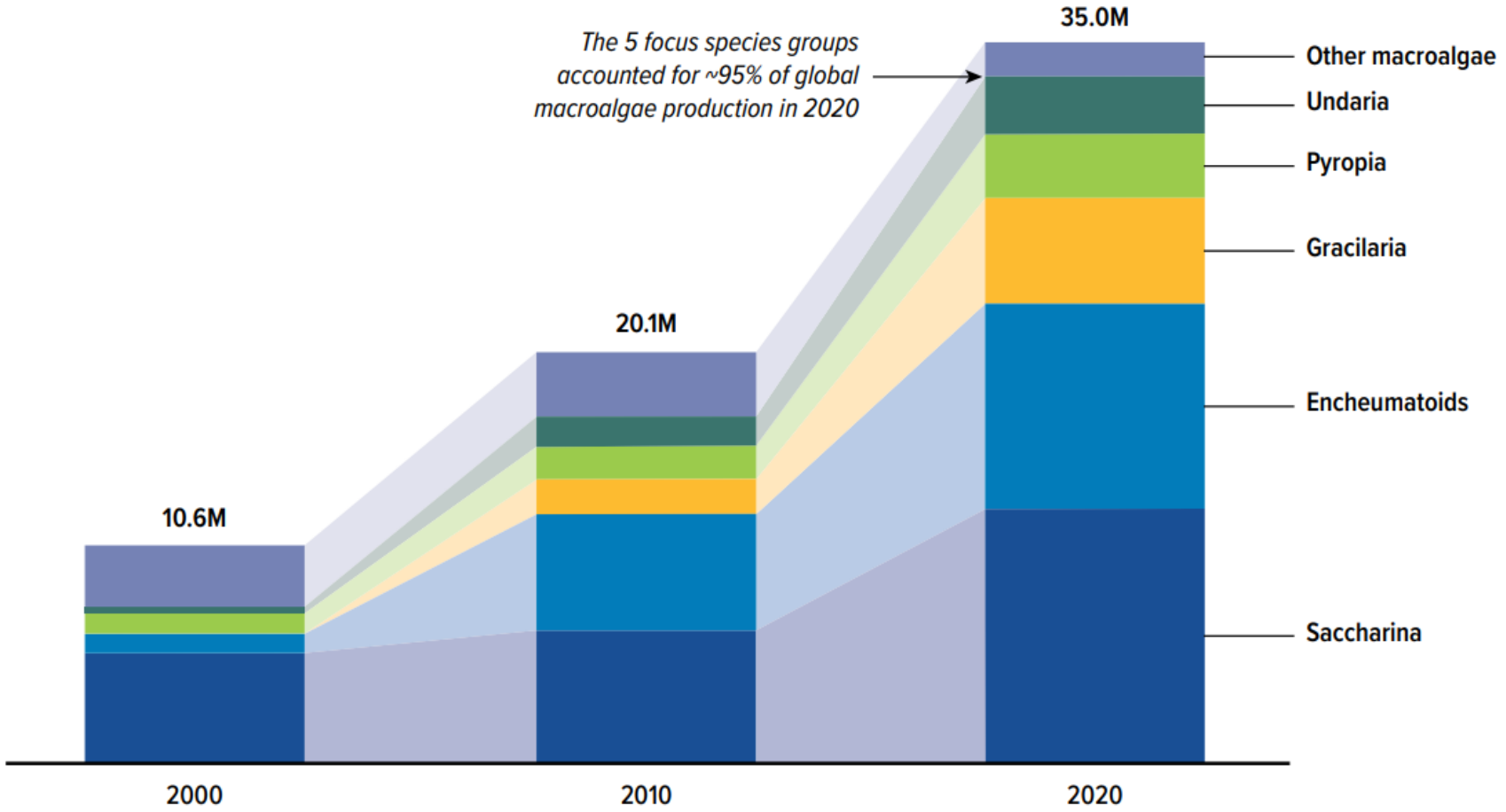
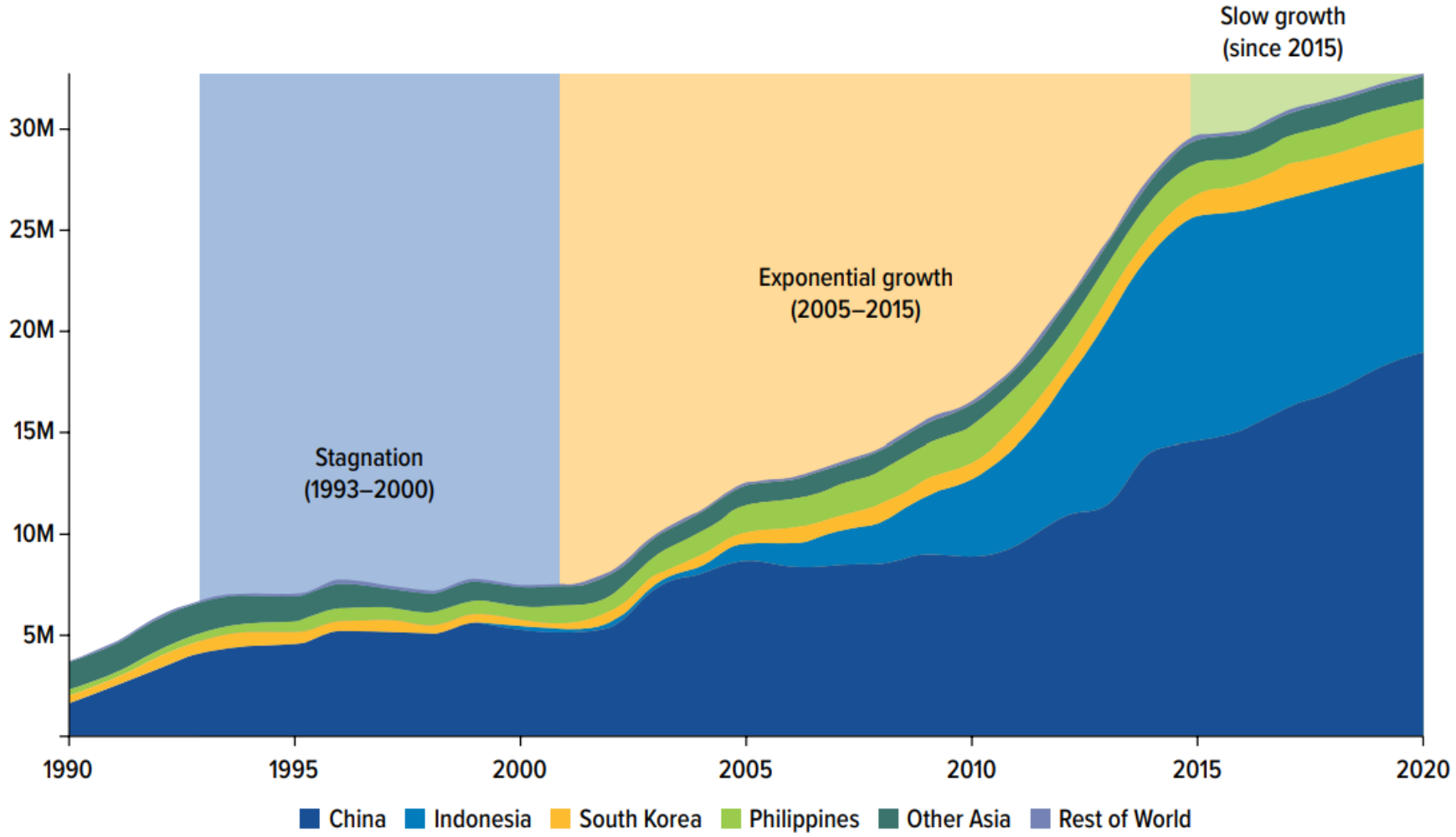


Chart: Hatch Innovation Services Source: FAO Fisheries and Aquaculture Created with Datawrapper

Production in established seaweed regions faces major challenges and is slowing down



Key challenges:

Climate change effects on crops

- Shorter cycles
- Lower yields
- Increased disease
- Extreme weather events

Lack of technology advancement

- Farming in deeper waters
- Automation in farm processes

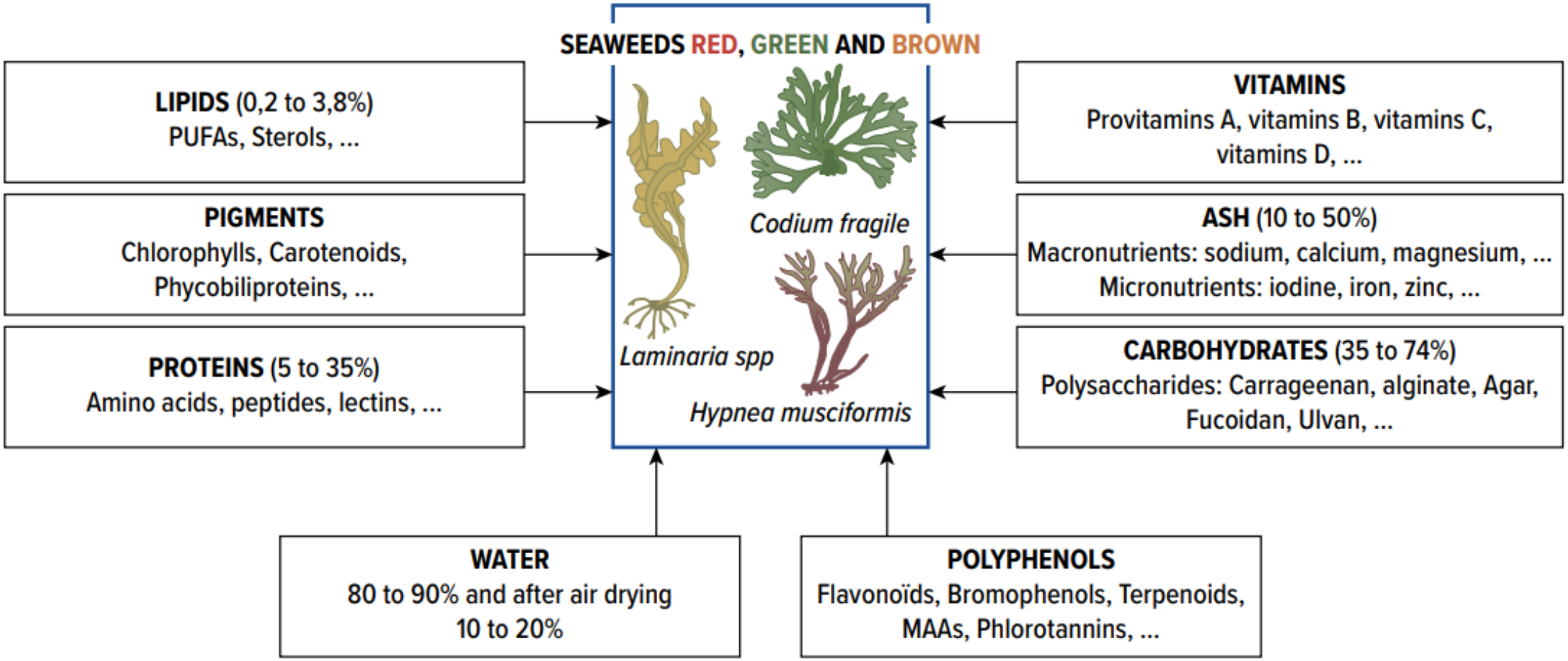
Lack of human capital

- Aging population
- Rural depopulation

Created with Datawrapper Source: FAO (2022)

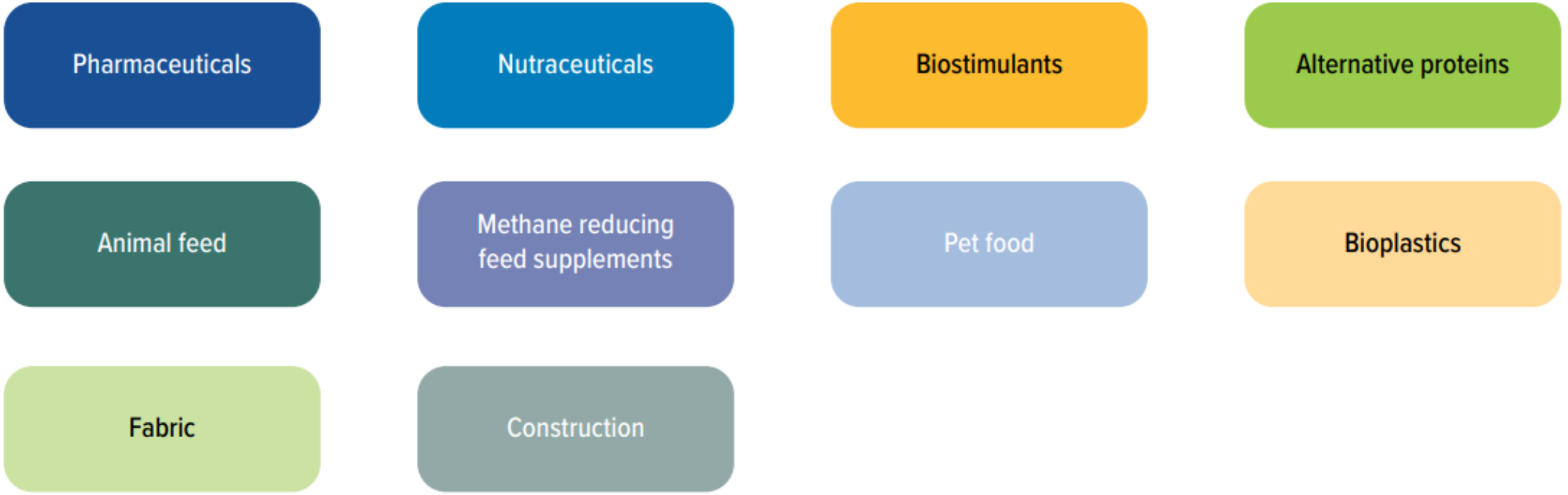
New and Emerging Application of Seaweed

General composition of red, green, and brown seaweed

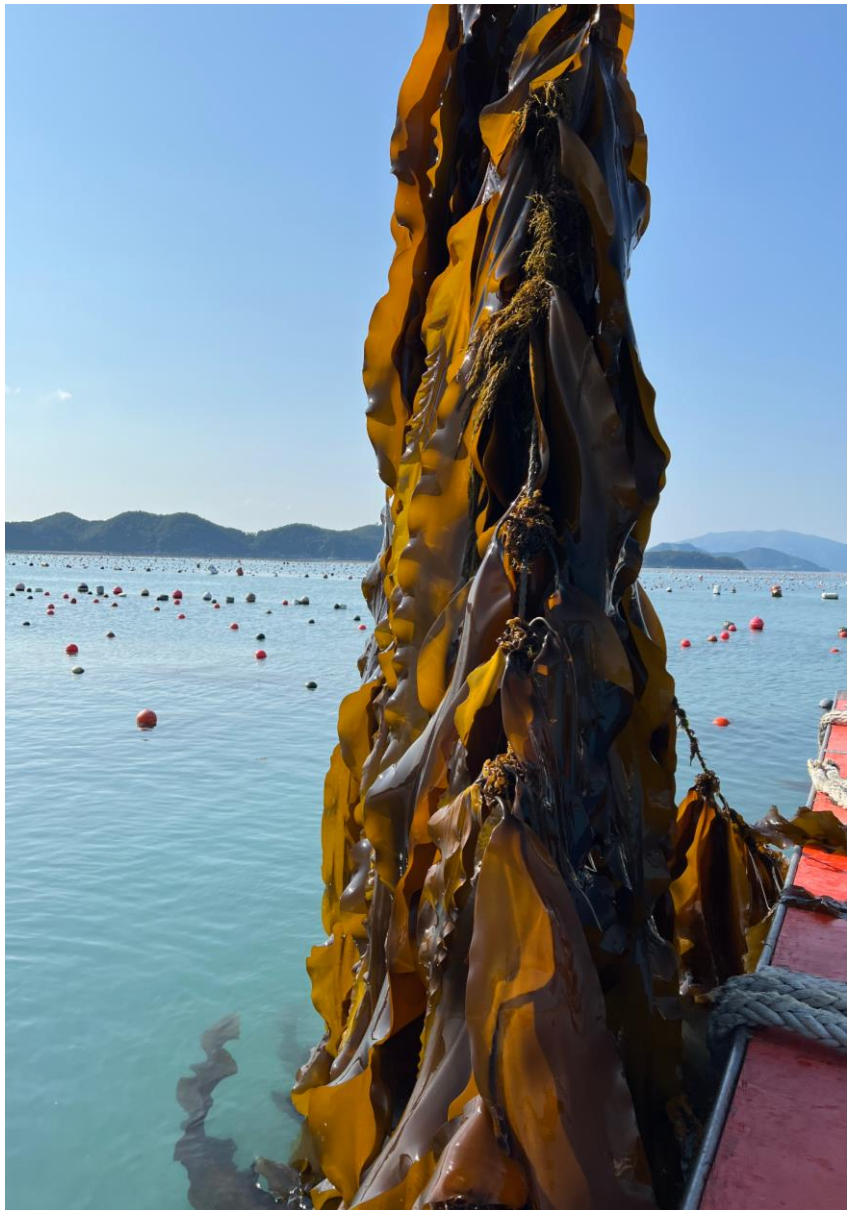


Source: Based on Ito and Hori, 1989; Kim, 2011; Peng et al., 2015.

New and emerging application of seaweed investigated in this report



Key findings of this study



Finding 1: The most promising short-term markets for seaweed (beyond conventional market applications) are **biostimulants, animal feed, pet foods, and methane-reducing additives.**

Finding 2: **Nutritional supplements**, known as nutraceuticals, **alternative proteins**, **bioplastics**, and **fabrics**.

Finding 3: **Pharmaceuticals** and **construction** offer long-term opportunities with significant regulatory challenges.

Finding 4: To fully realize its potential, the industry will need to overcome several key issues, including the **availability of seaweed**, **pricing** challenges, and **regulatory** barriers.

Finding 5: The climate and environment benefits of seaweed farming will help drive growth as interest in **"green" products** continues to increase.

Finding 6: **Ecosystem services** offering environmental benefits can boost **green economic growth** potential.

Conclusion

- The seaweed sector has clear **growth potential** beyond its current markets and can help shape a world free of poverty on a livable planet.
- Enhanced seaweed production and improved value chains can contribute to meeting at least **nine of the 17 U.N. Sustainable Development Goals (SDGs**).
- Seaweed farming in new markets and with new applications can support development**, climate, and nature work to generate value and uplift communities.**
- Seaweed supply constraints affect all new and emerging market applications
- Monetization of seaweed's potential to provide ecosystem services requires **certification and credit schemes, and robust monitoring, reporting and verification (MRV)**.

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PROBLUE

Welcome to AquaInvest Platform: A Knowledge & Learning Platform

The objective of this platform is to share knowledge, tools, and best aquaculture practices among practitioners, policymakers, innovators, researchers, and experts, and to provide periodic updates and inform on current development in aquaculture. The present activity seeks to identify gaps, innovations, opportunities, and new markets for aquaculture industry to scale up and alleviate poverty and improve global environmental resilience.

What's New

PROBLUE Resources and News

AquaInvest Platform Learning Series | World Bank Group: *This learning series promotes the adoption of good practices throughout the aquaculture value chain, encouraging improved*

https://wbg.edcast.com/channel/23627

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AquaInvest Platform Learning Series

Highlights from the WBG Global Seaweed New and Emerging M...

Journey 1h 25m

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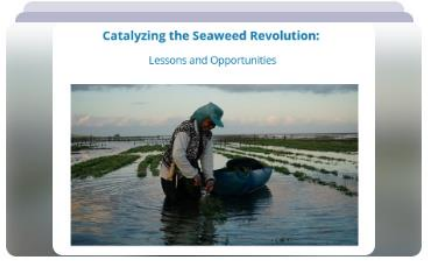
World Bank Guidelines for Sustainable Aquabusiness Develo...

Journey 1h 28m

1 like

Catalyzing the Seaweed Revolution: Lessons and Opportunit...



Journey 1h 30m

2 likes

Catalyzing Green, Resilient and Inclusive Development (GR...

Journey 1h 10m

2 likes

Note: Registration required

Additional slides

Ecosystem Services Provided by Seaweed

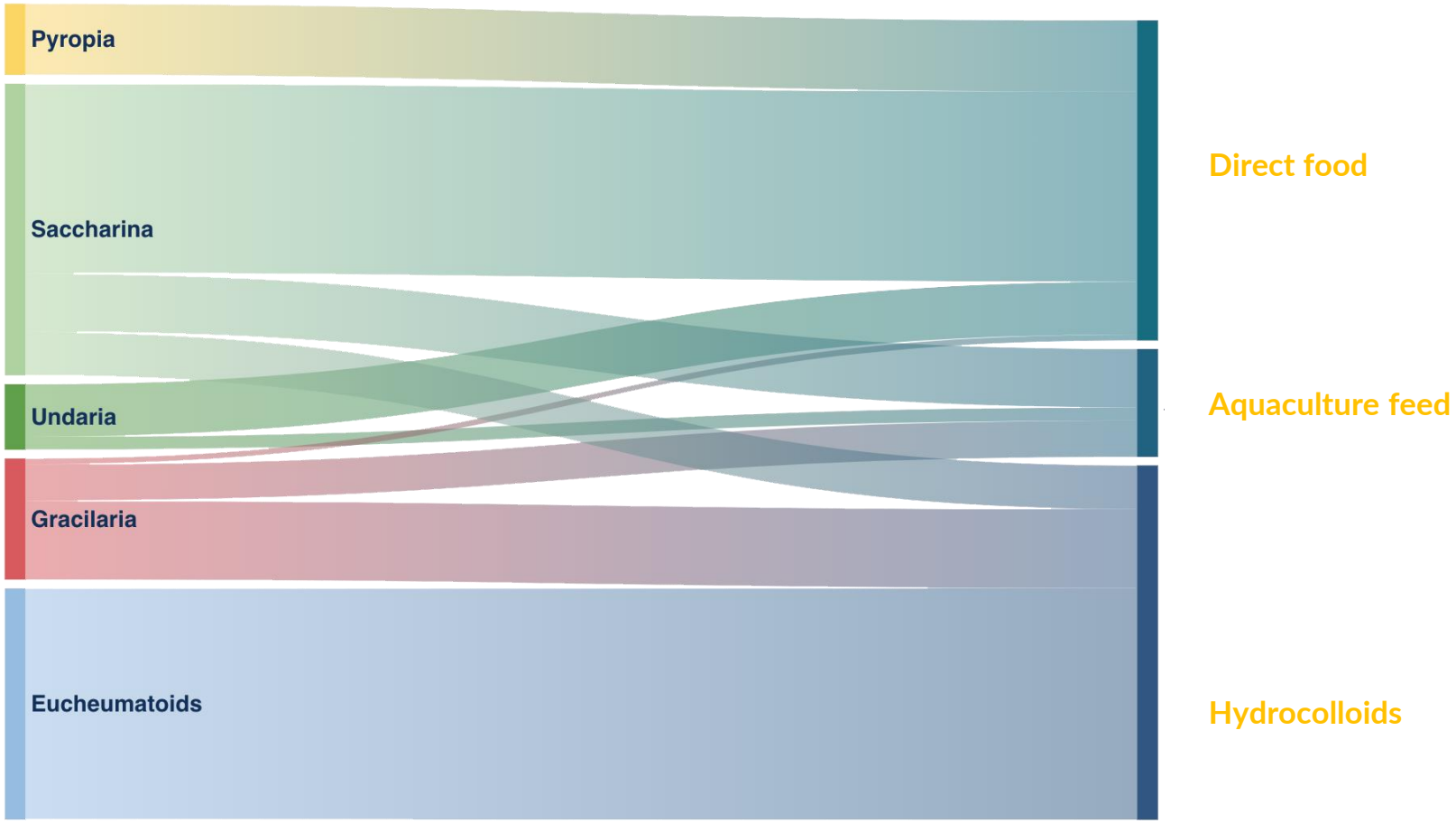
Market development for Ecosystem Services:

Blue Carbon - Internationally recognised credit certifications for blue carbon seaweed projects are likely to be available by 2025.

Bioremediation - Scale-up of land-based bioremediation operations is expected over the next 12 months, while more attention is shifting towards the bioremediation potential of ocean farming and macroalgae-based integrated multi-trophic aquaculture (IMTA).

Biodiversity enhancement - could become one of the more important ecosystem service attributes of seaweed farming and restoration over the next decade.

Current markets absorb most seaweed produced in the established regions



Disclaimer: *This is just on the basis of the field insights - therefore only data from the 6 countries studied - which account for 98% of global farmed seaweed according to FAO 2020 data*

Please write to us:

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URI
https://openknowledge.worldbank.org/handle/10986/40187