Focus Area: ECOSYSTEM AND NATURAL RESOURCE MANAGEMENT
Market Segment: SEAFOOD PROCESSING & DISTRIBUTION

SIC: 311 710
Segment Score: 19

Sample Investments:

- **Private:** New and expanded facilities for refrigeration, processing and canning for local and export markets
- **Private:** Digital tools and blockchain for direct sales to customers, by-passing commodity traders and auction markets
- **Public:** Processing facilities for regional stakeholders to achieve scale, social/enviro goals and industry certifications

1. **Relevance to ADBs Ocean Action Plan?** ***(Score: High=3)***
    a. High relevance to Ocean Action Plan and Ocean Finance Initiative, where seafood value chains are a priority. Investment is needed in Processing & Distribution for seafood to scale and deliver full benefits to the region and sustainability goals.
    b. However, the majority of large-scale processing occurs in industrialised nations of China, Japan and South Korea - as well as on floating platforms. A strategic goal of some DMCs is to bring more of this function home for jobs, quality control, export branding and local consumption.
    c. Activities include: Fish Handling, Refrigeration, Processing, Waste Treatment, Canning, Packaging, Distribution and Sales. As a highly perishable product, seafood requires freezing and a sanitary value chain to customer markets.

2. **Positive Environmental Impacts?** ***(Score: Low=1)***
    a. Facilities are close to the water and urban ecosystems, so waste management is a concern. Value-added and sustainable treatment of fish waste is a business opportunity. But ecosystem and urban contamination by lax waste treatment is a more frequent result of fish processing.
    b. Aquaculture and Mariculture farms are notorious for environmental damage from effluence and disease. Bringing freezing/processing facilities closer to the farms is one way to reduce this upstream environmental damage.
    c. Technology has improved with solutions to all these challenges, especially with circular economy models and waste/recycling operations. Scaling up such practices is the recommended growth path for this segment.

3. **Positive Social Impacts?** ***(Score: Medium=2)***
    a. Poverty: The processing segment generates income for many levels of society. However, labor issues still include poor working conditions, unpaid work and child labor. Greater transparency and certification of supply chains may be part of the solution. But many violations occur hidden from scrutiny.

b. Gender: In developing and developed countries, women comprise the majority of workers in post-harvest, product transformation activities. Similar issues apply as noted in the previous Seafood sectors. Gender progress is advancing more rapidly in processing/distribution connected with Aquaculture and AlgaCulture than Fishing.
c. Covid19: Sanitary conditions in food processing plants are now a high priority. After all, the pandemic started at an exotic local food market. However, economic losses due to covid19 may impede investments in this area. Public investment and subsidies to speed improvement in sanitation and worker health at the processing/distribution level.

4. **Potential for Market Scalability?** ***(Score: High=2)***
    a. Seafood demand, regulatory and certification pressures are increasing the demand for standardized processing equipment and procedures. The global seafood processing equipment market size was valued at USD 1.95 billion in 2017, with projected CAGR of 3% until 2025. Most DMCs will be purchasers not producers of such equipment, which will require capital investment if DMCs are to participate in the Processing segment. While canning/packaging may continue to be the preserve of industrialised nations, equipment for freezing, handling and waste treatment is generally needed at the local level. Meeting the high demand for Aquaculture and AlgaCulture products, especially, requires capital investment in regional processing.
    b. Lighter investment is required on the Distribution segment, where mobile apps and blockchain are disrupting traditional channels. Software and systems that enable direct sales are smart investments, combined with education, to empower local fishermen and aquaculture farms. Overall, potential for scalability is high for all Processing & Distribution activities - with capital investment and workforce education as the enabling conditions.

5. **Capacity for Innovation & Growth?** ***(Score: High=3)***
    a. In DMCs, much of the seafood value chain is executed in traditional fashion: freezing on ice, fileting by hand, sorting waste without re-use, selling in open markets and auction channels, and simple packaging for business customers. In industrialised nations, all of these activities are automated for scale, regulatory and certification requirements.
    b. DMCs can consider which activities may be either automated or upgraded to meet global market and certification requirements, like MSCs Chain of Custody Standard (Marine Stewardship Council).

6. **Benefit from Regional Governance?** ***(Score: Medium=2)***
    a. Similar to the benefits of regional cooperation on Fisheries, DMCs should collaborate to meet the scale requirements of Processing & Distribution. For example, the PNA Tuna franchise could add substantial value by establishing a processing plant, developing its own branding and marketing channels. In short, taking control of more of the downstream parts of the value chain.
    b. For regulatory and certification issues (which are two sides of the same coin), regional governance frameworks bring unity to otherwise fragmented, local

practices that may not meet global standards. Meeting standards requires scale beyond national means, both to establish and maintain certifications.

7. **Opportunity for SMEs?** ***(Score: Medium=2)***
    a. Because of the fragmentation of Processing/Distribution activities, and the growth of the Seafood Sector, there will continue to be many opportunities for SMEs at both local and regional levels. Adding value downstream is easier when the enterprise is closer to the upstream: Sourcing from fisheries and farms. This is the advantage of many DMCs.
    b. SME opportunities are also facilitated by rapid innovations in both processing machinery and digital systems. We score this criteria as Medium rather than High only because much of the IP and physical plants are still owned/located in industrialised nations. With competitive labor pools and the close-to-source advantages, DMC enterprises may make progress in taking some of this business away from developed nations.

8. **Ability to Attract Private Investors?** ***(Score: High=3)***
    a. We score this criteria High for Processing & Distribution because this involves machinery and technologies familiar to private investors. Some processing machinery may be leased, reducing short-term capex whilst scaling production. Digital technologies may be acquired for relatively modest investment that can substantially improve operational efficiency and sales.
    b. Downstream activity is a more familiar area for most investors, unlike fisheries, vessels and even aquaculture farms. Perceived risk is lower, residual value may assist exits, and contributing to the physical asset base of a seafood enterprise is a compelling opportunity in a high growth sector.

REFERENCES: PROCESSING & DISTRIBUTION

We refer again to the resources noted in Chapters 1 and 2, in addition to:

https://www.msc.org/standards-and-certification/chain-of-custody-standard
https://en.wikipedia.org/wiki/Fish_processing
Handling of fish and fish products FAO Fisheries and aquaculture dept. 2011
Precarious Work in the Asian Seafood Value Chain. International Labor Organisation, 2016
Seafood Processing Equipment Market Size, Share & Trends Analysis Report. Forecast 2018-2025. Grandview Research