



INDONESIA'S AQUACULTURE INDUSTRY

Key Sectors for Future Growth

Ipsos Business Consulting

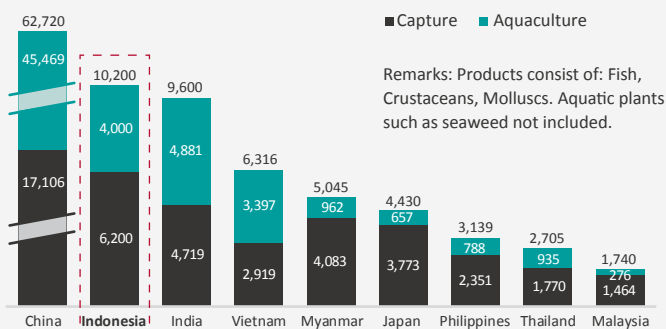
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INTRODUCTION

Indonesia is an archipelago consisting of 17,000 islands, with a coastline of about 81,000 km. Coupled with a warm tropical climate all year around, the potential for aquaculture is vast. Even as the country only utilizes 7.38% of its total potential area for aquaculture, it already ranks among the most productive countries in aquaculture production. As Figure 1 shows, Indonesia's output in 2014 trailed only behind China and was slightly ahead of India. This is all the more remarkable considering that more than 80% of Indonesia's fishery enterprises in 2014 were still traditional household enterprises and fishermen, utilizing minimal technology. Thus, with the right transfer of knowledge and technology of best aquaculture practices, Indonesia is very well positioned to consolidate its standing as one of the top aquaculture nations in the world. This represents corresponding growth opportunities for corporations who can help facilitate the modernization of Indonesia's fisheries.

Figure 1. Top Asian Nations in 2014 Fisheries Production ('000 Tons)

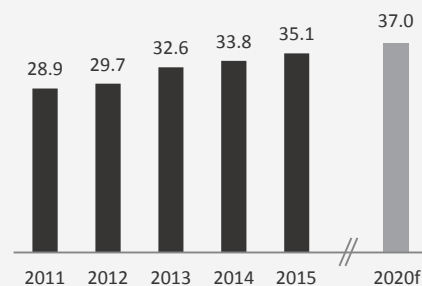


Source: OECD-FAO Agricultural Outlook

The main growth driver for Indonesia's fisheries is the fact that key commodities such as fish and shrimp continue to enjoy strong demand domestically and abroad respectively. The main domestic factor is the fact that the archipelago nation of more than 250 million people is a major consumer of fish. Fish consumption per capita was estimated at 33.76 kg / year in 2014.

This figure is similar to fish consumption in Thailand and Vietnam in 2014 which are 29.04 kg / year and 35.24 kg / year respectively. As Figure 2 shows, fish consumption volume has been steadily increasing from 2011 to 2014 at 5.35% per annum. Even so, it is expected that the growth trend will slow down to 1.06% from 2015 – 2020 as domestic demand per capita reaches saturation.

Figure 2. Indonesia's Fish Consumption per capita (kg/year)



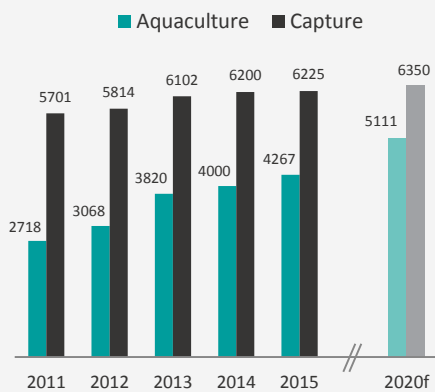
Source: OECD-FAO Agricultural Outlook

Similarly, worldwide demand for fish and fishery products has also steadily increased over the years. It is estimated that by 2020 world demand for seafood will reach 183 million tons from 158 million tons in 2011. The increase can be attributed to the growing population's basic need for protein. Additionally, growing affluence has shifted consumer behavior towards consumption of healthier source of protein such as seafood. Hence, strong demand from both domestic and foreign markets will continue to fuel the growth of the nation's fishery industry. Ipsos Business Consulting expects that Indonesia's fishery sector will experience strong growth over 2015 – 2020 period, increasing production output from 10.5 millions tons in 2015 to 11.5 million tons in 2020. Hence, both upstream and downstream supporting industries will stand to benefit from the industry's growth. In the next sections we will highlight the prospects for growth in the fishery industry.

CAPTURE FISHERIES

Even though capture fisheries have traditionally been the main contributor of fish and seafood, as Figure 3 shows capture fisheries' recent growth has been considerably slower compared to aquaculture. Aquaculture has experienced strong growth of 13.7% CAGR over 2011 – 2014 period while capture fisheries grew at 2.8% over the same period. In fact, it is estimated that aquaculture growth will continue to outpace capture fisheries into 2020. From 2015 to 2020, aquaculture is estimated to grow at 3.7% CAGR while capture fisheries' growth will essentially stagnate at 0.4% over a similar period. With global demand for seafood not slowing down, production from aquaculture is hence expected to take on a significantly greater role compared to capture fisheries in the future.

Figure 3. Capture vs Aquaculture Production ('000 Tons)



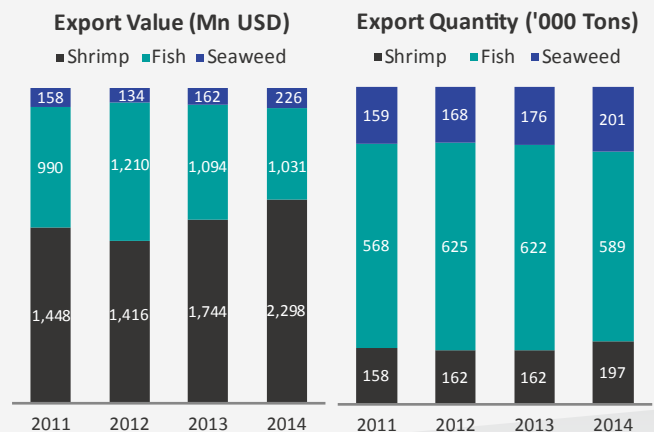
Source: OECD-FAO Agricultural Outlook



AQUACULTURE

With regards to aquaculture one of the main species of interest in Indonesia is shrimp of which vannamei is the dominantly farmed species. As Figure 4 shows, shrimp generates the highest revenue on a per kg basis among key commodities that are produced in significant quantities. Introduction of vannamei has revitalized the industry and bolstered shrimp's position as Indonesia's main fishery export commodity by value. It is estimated that as of 2011 shrimp contributes around USD 1.5 billions in exports compared to around 1 billion and 0.2 billion for fish and seaweed exports respectively. Additionally, shrimp export value has also exhibited the most rapid growth overall, growing at 16.6% CAGR in 2011 – 2014 period while fish and seaweed has grown at 1.4% and 12.8% CAGR in similar time period. With its combination of highest export value and fastest growth rate among main aquaculture commodities, shrimp aquaculture could prove to be attractive to companies looking to bolster growth.

Figure 4. Fisheries Production Volumes and Values of Key Commodities

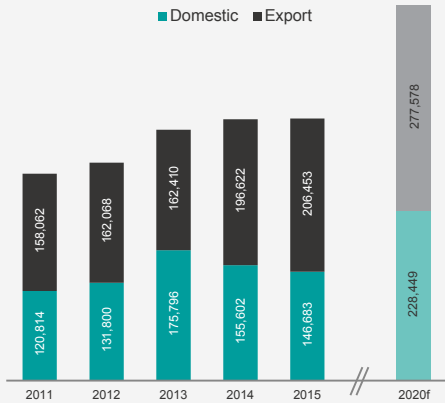


Source: Trademap, Ipsos BC Analysis



SHRIMP

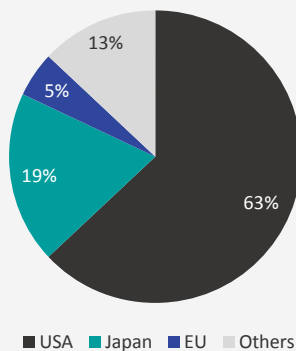
Figure 5. Indonesia shrimp production volumes and market segmentation (Tons)



Source: Ipsos BC

As Figure 5 shows, Indonesia's shrimp industry has continued to see higher demand from the export market compared to the domestic market. From 2011 – 2015, export market grew at CAGR of 6.9% compared to 5.0% for the domestic market. Domestic demand for shrimp is relatively lower compared to fish as shrimp is still considered an expensive source of protein for most households. This means that Indonesia is estimated to consume only around 40% of its shrimp production volume. As figure 6 shows, majority of shrimp production was allocated for exports to major markets such as USA, Japan and EU.

Figure 6. Indonesia shrimp export quantity share by country (%) in 2014

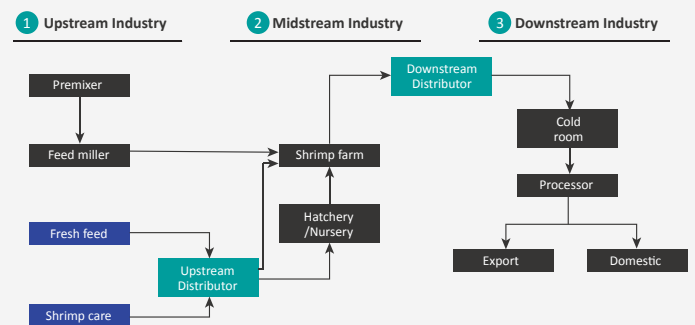


Source: Trademap

Due to relatively weaker domestic market, the shrimp industry is highly sensitive to global shrimp production volumes. Even with rising competition from countries such as India and the recovery of Early Mortality Syndrome (EMS) afflicted countries such as Thailand, Ipsos Business Consulting estimates that export market for Indonesia's shrimp will continue to exhibit healthy growth of 6% per annum for the 2016 – 2020 period.

Global shrimp production volume has significantly increased since the outbreak of EMS in Thailand back in early 2012 with a resulting increase in supply pressuring ex farm shrimp prices. In fact, ex farm price for vannamei size 50 has already decreased from IDR 80.000/kg in 2014 to IDR 65.000/kg in 2015, or a reduction of 18% within a one year period. Even so, profit margins for intensive vannamei shrimp farming are still estimated to be significantly higher than other species, ranging between 30 – 60% margins for successful harvests as compared to 15% for catfish farming. Such healthy potential margins should be a sign of encouragement to companies looking to market new products and services to the industry. Additionally, the expansion of the shrimp aquaculture industry should help to bolster the growth of supporting industries as well. In the next sections we will highlight the key dynamics of the major upstream industries that are highlighted in the value chain in Figure 7.

Figure 7. Shrimp Industry Value Chain

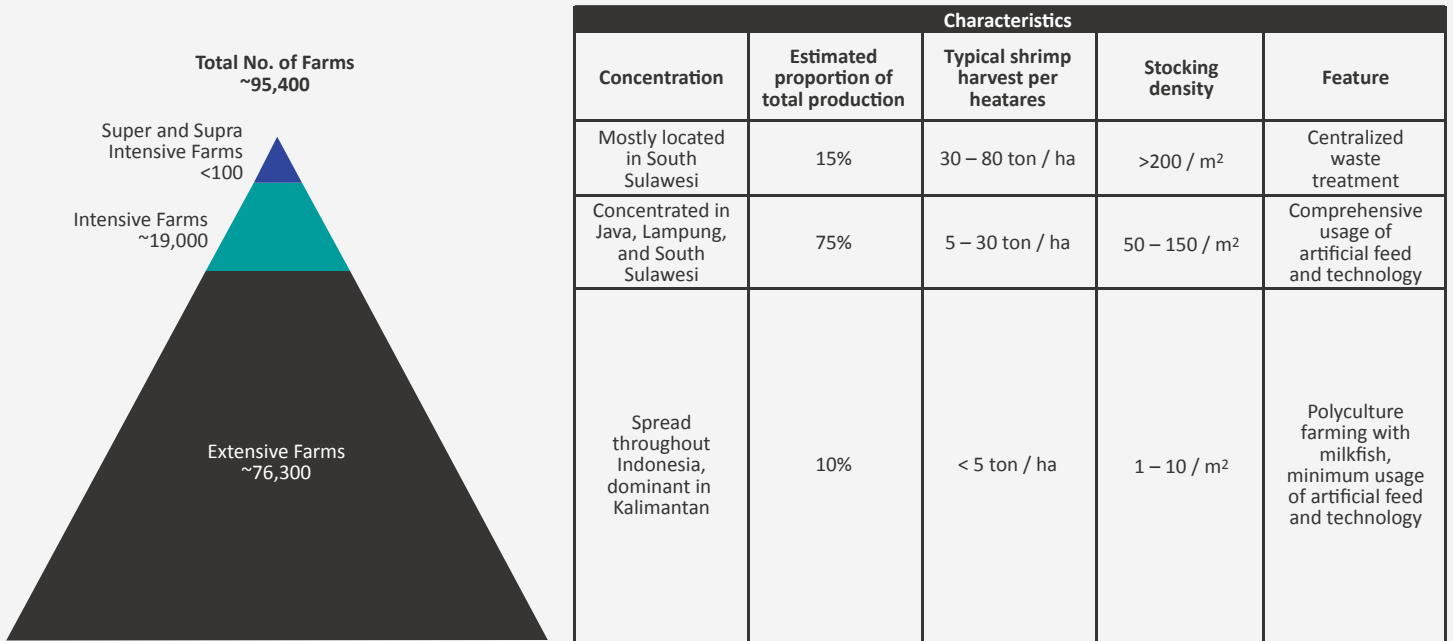


Source: Ipsos BC



EQUIPMENT

Figure 8. Shrimp farm distribution and characteristics in Indonesia



Source: Indonesia Department of Fisheries(KKP), Ipsos BC

As shown in Figure 8, around 80% of Indonesia shrimp aquaculture entities still practice traditional or extensive farming practices as of 2014. This reflects the general trend in Indonesia’s aquaculture industry whereby most practitioners are still artisanal fishermen and farmers. In order to remain competitive in face of increasing global pressures, Indonesia’s aquaculture will have to adopt more modern equipment and production techniques. However, the majority of aquaculture players consist of household enterprises, which may not have the necessary capital and skillsets to modernize their farming techniques. Furthermore, these household enterprises operate on less than 1 hectare of land on average, making implementation of advanced machinery uneconomical. Thus collaborations between private sector and government to provide financial and technical assistance to these farmers could be beneficial, helping accelerate modernization and boosting efficiencies in Indonesia’s aquaculture sector.

Modernizing traditional farmers is a challenging task that goes beyond just providing them with the latest equipment and knowledge on best practices. Not only do farms need comprehensive renovation in terms of pond sizes and biosecurity, workers also need to be trained to provide the additional care that intensive farming requires. In order to assist farmers, the government embarked on revitalization programs to restore stagnant farms in Central Java region in 2012 before expanding nationwide to cover Java, Sulawesi, Sumatra, and West Nusa Tenggara.

Government also provided support such as free training, consultation, equipment, subsidized feed and larvae in order to help shrimp farmers get back on their feet. Even so, government support mainly targeted traditional and semi intensive farmers who individually have limited impact on overall national production. Hence, such efforts need to be continuously sustained and encompass larger number of farmers in order to create a lasting positive impact on national shrimp production.

The mixed results from government efforts in modernizing farming in Indonesia highlights the complexity of dealing with farming communities in Indonesia. Therefore, incoming investors would be wise to engage with experienced partners to better understand industry dynamics prior to entering the market. In the next sections, we will highlight the key growth sectors within the shrimp farming industry.

SHRIMP FEED

Figure 9. Shrimp Feed Production Volume ('000 Tons)



Source: Indonesia Feed Mill Association (GPMT), Ipsos BC

One of the main beneficiaries from the growth of aquaculture production, especially shrimp aquaculture, has been the feed millers. As Figure 9 shows, shrimp feed production volume has exhibited strong growth of 8.0% CAGR over 2011 – 2015 period. With the planned government expansion of the shrimp aquaculture industry in regions such as Nusa Tenggara Timur and Sulawesi, coupled with the absence of EMS outbreaks in Indonesia, shrimp feed market volume is set to grow at an even more rapid pace of 8.9% CAGR heading into the 2015 – 2020 period. Even though the growth figures look enticing, there are certain challenges that industry players must overcome in order to fully exploit the industry's growth.

First of all, animal feed is a highly concentrated industry with only a handful of players controlling the majority of the market. In fact, Ipsos Business Consulting estimates that the top 5 animal feed producers control over 80% of the market, with remaining the 20% heavily fragmented between medium to small sized producers. This enables the large producers to benefit from economies of scale. Mass production volumes also enable them to have greater bargaining power with suppliers. Additionally, large established feed millers such as Charoen Pokphand (CP), CJ Feed, and Gold Coin enjoy higher quality perception among consumers compared to other lesser known brands. As feed quality is of utmost importance to aquaculture, farmers are generally reluctant to switch to new-to-market feed brands. Thus, incoming players looking to gain significant market share face a tough competitive environment.

Between these established brands, however, the difference in quality perception is minimal amongst farmers. In fact, established feed millers do not win on lower pricing or superior quality but compete on their level of after sales service. In order to win and retain customers, feed millers are slowly transitioning from just providing commodity products to bundling their products with added technical support.

For instance, CP provides weekly laboratory technician visits to measure the water quality in customer farms in addition to regular visits from their sales representatives. CP is also, upon request, able to assign a head technician to manage operations of customers' farms. These technicians do not only manage farm operations but also act as a channel whereby CP will be able to market other complementary products.

Such a service proposition is not only confined to CP. Other feed millers are pursuing similar strategies. Thus, relationships between feed millers and farmers are trending away from a mere transactional basis to more of a partnership basis. Therefore companies looking to gain market share in this segment should consider significantly expanding their technical and customer service capabilities. With such intense competition among incumbents, new entrants looking to get significant market share must evaluate their growth plans to tap into the aquaculture industry's growth.



SHRIMP HEALTH

Shrimp farming is far from a risk-free enterprise. Disease outbreaks such as white feces disease (WFD) and white spot syndrome virus (WSSV) can reduce shrimps' survival rate to below 30% and even wipe out entire harvests. Furthermore, WFD has also reached epidemic proportions in major intensive shrimp farming regions, especially Java and Lampung. These outbreaks have already forced farmers in the afflicted regions to adopt stocking densities 20 – 30% lower than optimal.

There is no proper treatment method or medication available for shrimp diseases. Farmers mainly depend on preventive measures. Regular water quality checks to ensure shrimps' health are done through measurements of pH, total organic carbon (TOC) contents and dissolved oxygen (DO) levels. When outbreaks do happen, farmers will mostly implement immediate isolation and harvesting of affected ponds to minimize losses. Farmers that try to treat and cure disease outbreaks will resort to unconventional means such as feeding shrimps with garlic, herbs and even worm medication meant for humans. The lack of established standard operating procedures highlights the industry's vulnerability to diseases.

Needless to say there is a huge opportunity for companies who are able to help mitigate or even cure disease outbreaks affecting the shrimp industry. Engineering a cure for these shrimp diseases would be a very difficult task, however, as current outbreaks are viral in nature, for which the conventional approach of using antibiotics would be useless. Furthermore, shrimp are devoid of immune systems, making them especially vulnerable to viral diseases. Additionally, no vaccines can be developed as a counter measure. Hence, in the absence of effective medication, the market has turned to preventive measures such as usage of probiotics to mitigate risk of outbreaks.

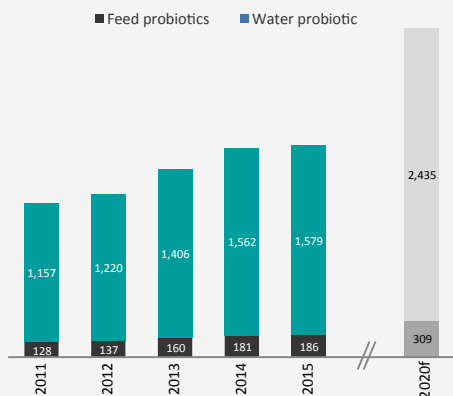


Probiotics is another industry that has benefitted significantly from the shrimp aquaculture industry's growth. As Figure 10 shows, market volume of probiotics for shrimp industry alone has generated strong growth of 8.3% CAGR over 2011 – 2015 period. Unlike animal feed, there are other factors that contributed to the increasing popularity of probiotics beyond just the corresponding increase in production volume and aquaculture farming area, namely increasing intensification of farming practices and the ban on antibiotic usage. These two factors look to continue boosting growth in the probiotics market volume by an estimated 9.2% CAGR in the 2016 – 2020 time period.

Encouraged by potentially large profit margins, shrimp farmers have been increasing the stocking densities of their farms in hopes of reaping larger harvests. Unfortunately, this intensification of farming practice also brings higher instances of disease outbreaks. Higher shrimp density means that environment deterioration takes place more rapidly due to accumulation of waste and other harmful substances.

Conventionally, farmers mitigated the risk of disease outbreaks through liberal application of antibiotics. However, usage of antibiotics was banned by the government after rejection of shrimp shipments meant for export markets such as Japan, USA and EU. As shrimp production is predominantly earmarked for export, farmers and processors have little choice but to comply with the strict regulations set by the importing countries. Thus, the ban on antibiotics has been a boon for probiotics as the shrimp farming industry viewed them as viable alternatives to antibiotics.

Figure 10. Shrimp Probiotics Production Volume (Tons)



Source: Ipsos BC

CONCLUSIONS

There are a number of challenges that need to be overcome by industry players to fully take advantage of the market opportunity in probiotics. Unlike animal feed which is a heavily consolidated industry, the probiotics industry is relatively fragmented with more than 50 brands present in the market. Companies ranging from household enterprises to multinational companies are all present in the market. With all the competition for farmers' business, companies will need to be clear on their product proposition, positioning and marketing message in order to stand out in the crowded marketplace.

Being a relatively new product category also presents its own unique challenges and opportunities, with lack of product knowledge being the main factor. Through in-depth market interviews, Ipsos Business Consulting has observed numerous cases of probiotics being mishandled in terms of their storage and application methods. Hence, it is highly recommended that companies go beyond just educating their customers. Companies should look at these instances as a challenge to design more user-friendly products that will stand out in the market. Low brand loyalty and low penetration rate of 19% among shrimp farmers means that there is a huge untapped potential market for the taking.

Thanks to wide coastline and warm tropical climate, Indonesia has become one of the top 4 nations in fishery production. With growth of capture fisheries stagnating, further growth has to increasingly depend on the nation's aquaculture fisheries, which comprises mainly of shrimp, fish and seaweed. Companies looking for stronger growth opportunities could be better served catering to the rapidly growing shrimp aquaculture industry, whose 2014 shrimp export value of USD 2.3 Bn already exceeds that of fish and seaweed industry combined. With entrenched players controlling large majority market share in shrimp feed industry, new entrants would be wise to look at developing shrimp health industry which is relatively much more fragmented and faster growing. Even so, an increasingly competitive marketplace and commoditization of key aspects of the supply chain means that only companies that are able to deliver high quality products with excellent after sales service will be able to win and retain the market.



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