

## Indian Shrimp Industry: A Primer

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### Executive Summary

India contributes 6.3% of the total global aquaculture production and ranks 2<sup>nd</sup> after China. The Indian Fisheries Industry, valued at about USD 15 billion, has emerged as a significant high-value contributor and key enabler of diversified Indian agriculture. The industry is also one of the substantial foreign exchange earners and accounted for 2% of the total export earnings of India in the last four years (FY14 – FY17; refers to the period April 1 to March 31). During FY17, the marine exports reached an all-time-high with an export value of 5.78 billion USD (compared with 4.69 billion USD in FY16) on the back of robust demand for frozen shrimps in the international market. In the marine export basket, frozen shrimps export has the lion's share, contributing 65% of the total value of marine export in FY17. Indian seafood, especially frozen shrimps, has gained popularity in the USA (accounting for 30 % in terms of USD in FY17), South East Asian countries (30%) and European Union (18 %), and over the last decade, it has enabled the sector to grow at a rapid pace. The cultured shrimp production has grown with the introduction of the Vannamei variety of shrimps in the commercial production, displacing the sales of the other major shrimp species, especially the Black tiger which is more prone to viruses.

Although India has a huge marine wealth and a strong position in the global fisheries trade, the sector has been marred with few challenges with respect to domestic market value chain, stringent regulatory approvals and quality confirmations. *The report provides an insight into the growth drivers that helped the seafood processing industry achieve significant size in the global market, the key challenges plaguing the*

*industry, the supply chain dynamics, and also provides an impact analysis of recent development in the regulatory and global political environment.*

### Growth drivers of shrimp culture in India

#### Huge marine wealth

India possesses abundant and varied resources both in marine and inland sectors which facilitate development of aquaculture business. The country has a long coastline of 8129 km in addition to vast inland water resources and hence offers scope for large exploitation of marine wealth.

#### Rapid commercialisation of Vannamei shrimps

The aquaculture sector of India witnessed a boom with the introduction of White leg shrimps (*Litopenaeus Vannamei*; also known as *Penaeus Vannamei*) in 2004. Over the past decade, production and export of Vannamei shrimps has outpaced the native species such as the Black Tiger which was the dominant farmed species until 2003. The dominant place that Black Tiger held in global shrimp farm production was due to a number of factors, including their rapid growth rate, large harvest size and relatively high market price. However, the growing importance of Vannamei variety is attributed to the favorable characteristics of their commercial production in the form of higher adaptability to the production environment (tolerance to varied temperature, salinity, etc.), superior disease resistance capability, higher growth rate, ease of breeding and relatively higher demand in the global market.

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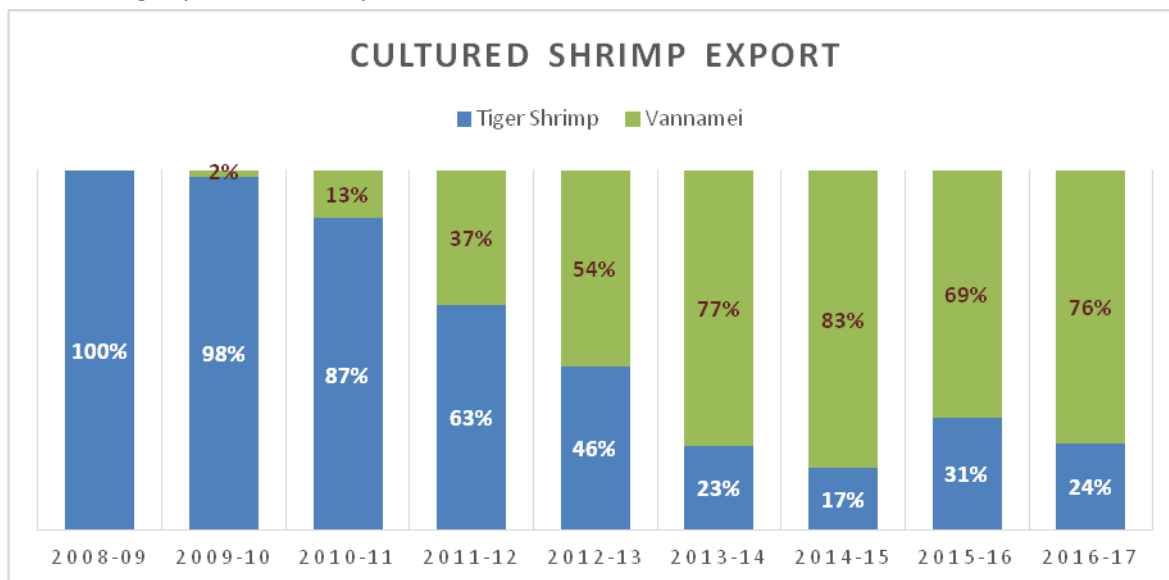
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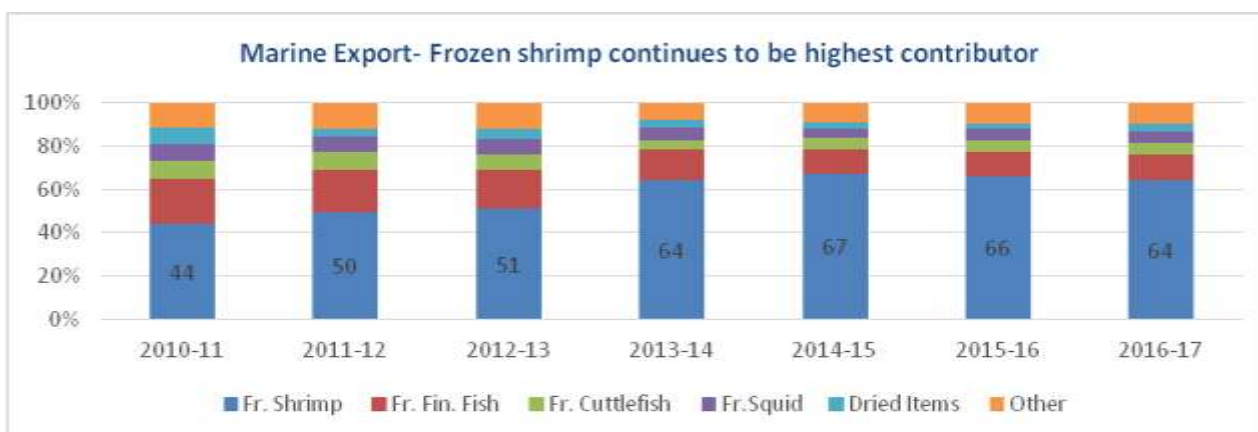
Given the benefits of commercialization of Vannamei shrimps, the Industry players got approval for trials from Marine Products Export Development Authority (MPEDA), a statutory body under Ministry of Commerce & Industry, Government of India, which is entrusted with the overall development, promotion and export of fish and fishery products from the country. Consequently, the production of Vannamei variety has outpaced Black Tiger and has resulted in increasing exports over the years as can be seen from table below-



The overall export of shrimp during FY17 was pegged at 0.43 million tonnes (0.37 million tonnes in FY16) with a y-o-y growth by 16.21%, majorly at the back of y-o-y growth in export quantity of Vannamei shrimp by 28.46% in FY17 to 0.33 million tonnes.

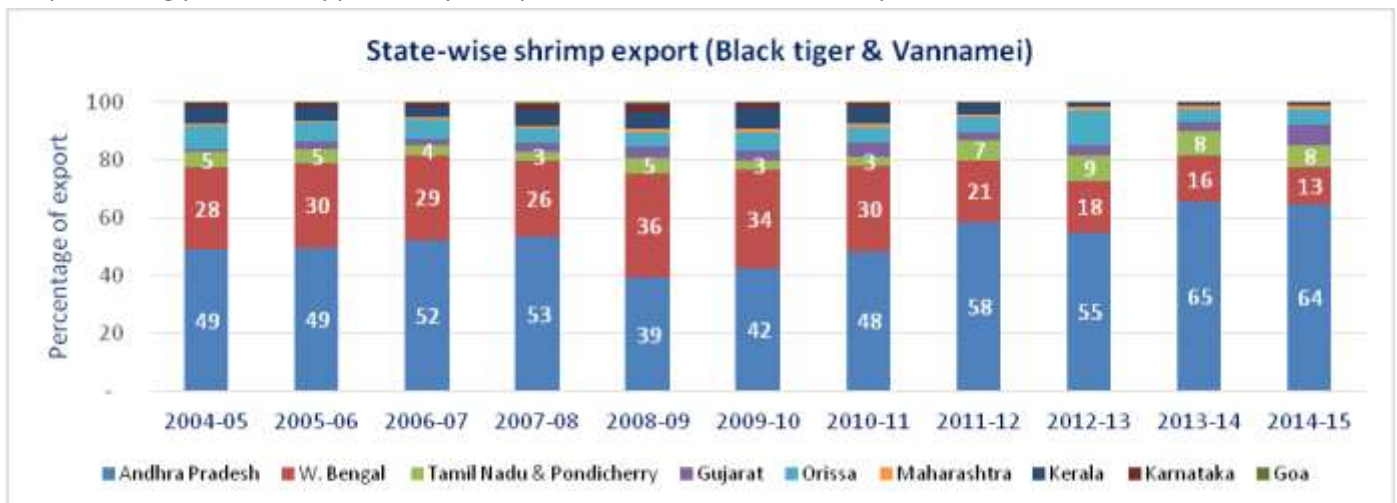
**Marine export basket and increasing contribution of frozen shrimps:**

Commercialization of Vannamei shrimps in India along with the huge marine potential has resulted in significant growth in the export earnings from export of processed shrimps and still a significant growth potential persists. Marine exports constituted 2.1% of the total Indian export earnings from goods (USD 274.6 billion) during FY17. The marine export basket comprises frozen shrimps, fin fish, cuttle fish, squid, dried items and others. Frozen shrimps ranks first in the marine export basket and since last five years, it has dominated the marine export basket in terms of value of foreign exchange earned. During FY17, exports of marine products reached an all-time high with an export volume of 1.13 million tonnes valued at USD 5.78 billion. Out of the said export value, the frozen shrimp segment comprised share of about 65% with a volume contribution of 38% (of which 76% was Vannamei and 24% - was Black tiger shrimps). The growing contribution of frozen shrimps (in dollar terms) in the export basket is depicted below -



**Andhra Pradesh – The Hub of Indian Aquaculture**

The growing business volume of frozen shrimps in India has encouraged many medium to large players to set up seafood processing units, feeds manufacturing facility and cold storage chains to take part in the potential growth in seafood export industry. India has 20,255 Million Tonnes of processing capacity with 506 processing plant, where southern regions of India, particularly Andhra Pradesh, had highest (49%) processing capacity followed by western regions (44%), while eastern regions contributed 7% to the total capacity. Out of the total plants, more than 62% of the processing plants are approved by European Union. The state-wise export data is as follows-



Source: MPEDA

Among the states in India, out of the total shrimp production of 4.35 Million Tonnes during FY15, Andhra Pradesh tops the chart with share of around 64% followed by West Bengal (13%) and Tamil Nadu & Pondicherry (8%). Andhra Pradesh has total cultivable brackish water area of about 28,000 hectare, out of which it has dedicated 57% to shrimp farming vis-à-vis national area under cultivation at 14%. Hence, immense growth potential still persists. The exports growth in Andhra Pradesh (A.P.) was 10.67% in FY15 as compared with 7.33% in FY14. Vannamei culture in the state had increased by 31% in FY15 which helped the state to retain the status of leading exporter of shrimp. Vizag port in Andhra Pradesh continued to top the charts in marine exports from India with exports worth Rs.7,161 crore in FY16 followed by Kochi port (Rs.4,447 crore) and Kolkata port (Rs.3,431 crore).

**Challenges**

The robust growth of the seafood industry, nevertheless, has been marred by several roadblocks; the primary one being absence of adequate infrastructure facilities to comply with stringent quality norms and regulatory approvals required.

**A. Stringent regulatory norms and quality control**

The seafood industry is a highly regulated industry. Various accreditations and certifications (viz Hazard Analysis Critical Control Point (HACCP) approvals, British Retail Consortium (BRC) and Best Aquaculture Practices (BAP) certifications) are mandatorily to be obtained by shrimp processing units to enable themselves to export the products to various global markets. Countries, particularly, USA and European Union have stringent quality requirements and the manufacturing facilities of indigenous units have to be approved by the respective authorities of the countries. Till June 2016, globally 1,290 processing plants, hatcheries, and feed mills are BAP certified out of which India has 78 certified units. Out of these, 51 plants are located in Andhra Pradesh and Telangana, which is highest seafood producer in the country. Out of the total 506 processing plants in the country, 313 plants are approved by European Union.

However, to receive and maintain these approvals and certifications, the companies need to invest on infrastructure and internal quality control. Absence of adequate infrastructure has resulted in large number of export rejections (39 in 2016, accounting for about 29% of global rejections) from US Foods & Drug Administration department due to

traces of banned antibiotics found in the consignment. While the shrimp processors have increased their focus on the development of the infrastructure facilities to make them export compliant; export rejections still persists (27% of global rejections during January –April 2017).

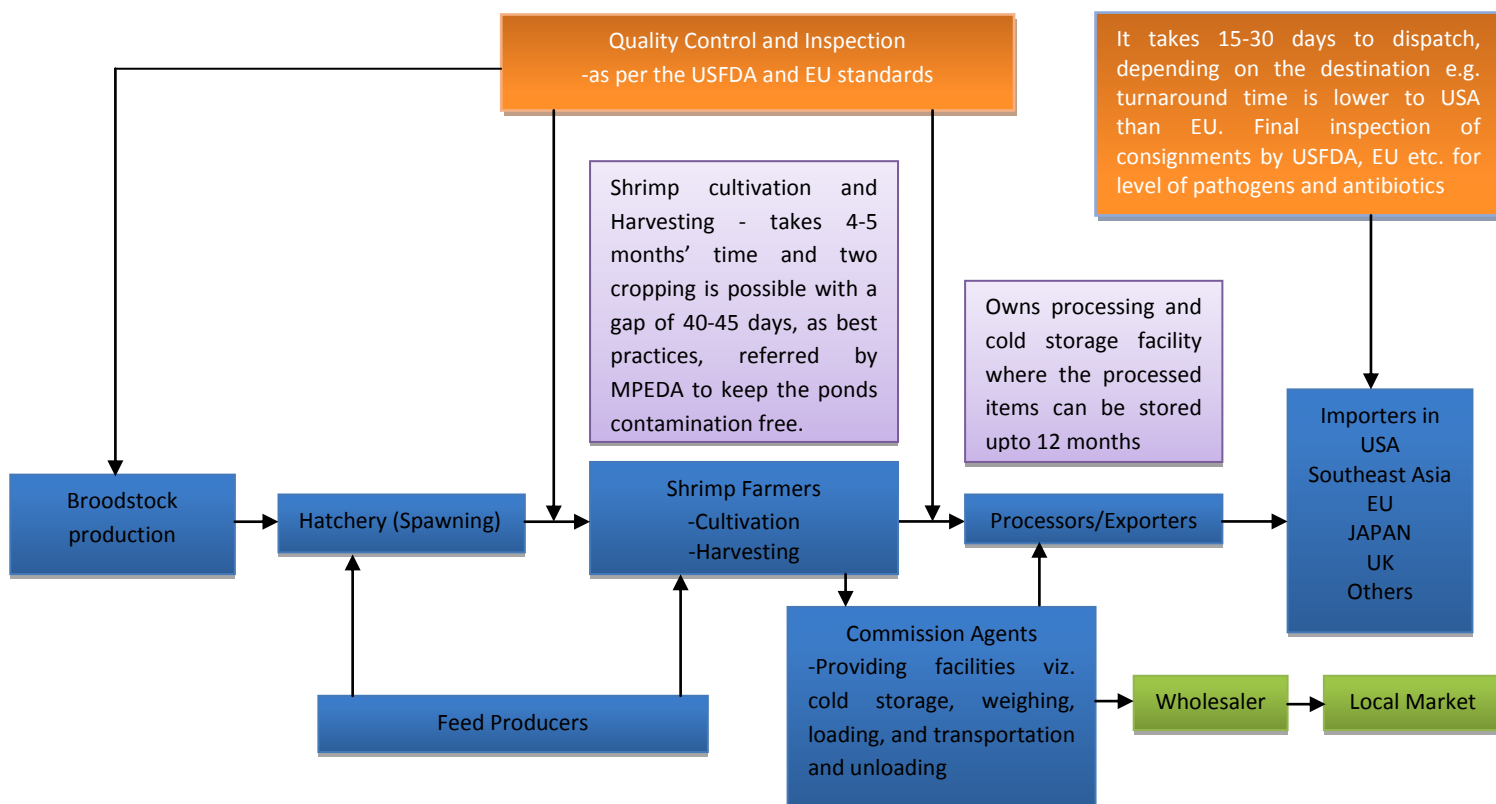
**B. Seasonal nature of business**

Aqua cultured shrimps are seasonal in nature and crop is harvested twice a year. Hence, the companies need to maintain stocks of shrimps at almost half of the inventory level. Seeds also cannot be stored for more than one month as the larvae have specific shelf life. On account of the demand in export market, shrimp processing companies majorly uses aqua cultured shrimps. Furthermore, there are varieties of lethal viral and bacterial diseases that affect shrimp. The fact that the shrimps are kept in clusters, acts as an exponential factor in multiplying the disease caught by a single shrimp and which may wipe out the almost 90% of total shrimp population in a particular farm. A major transfer vector of many of these viruses is the water itself; and thus any virus outbreak also carries the danger of decimating shrimp living in the wild. The farms generally take two to three months of “Farming Holiday” to maintain the hygiene of the ponds and lakes. Thus, the working capital requirement of the companies engaged in the business is also on the higher side. However, as the harvesting seasons are different for different parts of the country (Eastern Coast – Monsoon to March-April, Saurashtra – July to September, Bombay Coast – August to October), many seafood processors procure the stock from the other states during the Farming Holidays which along with increased investment in cold storage/quick freezers have reduced the impact of seasonality in recent times. If adequately equipped, processors are capable to store the processed shrimps for about 24 months.

**Understanding the Supply chain of Shrimp culture & processing:**

**Broodstock production:** There are three sources of Broodstock of Vannamei: (a) naturally grown sea-caught and spawned, (b) cultured shrimps harvested from ponds, then on-grown for 2-3 months before transferring to maturation facilities and (c) purchased from tank-reared Specific-Pathogen Free (SPF)/Specific-Pathogen Resistant (SPR) Broodstock from USA.

**Hatchery:** Broodstock are procured by hatcheries and stocked in maturation facilities where the shrimps are grown and spawned. From hatching, it takes 21 days to reach larvae stage where it is sold to the farmers.



**Cultivation, harvesting and storing:** The shrimp farmers design and construct a suitable pond according to the characteristics of the selected site and culture system and maintain the water quality suitable for the selected breed. The cultivation to harvest takes 120-150 days' time period with good quality seed stocking and availability of all the required nutrients in the feeds, which constitutes 60%-70% of the total variable cost of farming. As per best practices, the cropping is halted for 40-45 days after one cropping to make the ponds ready for next cropping. Generally, the farmers are able to crop twice a year.

As the cold storage involves high cost, the cold storage chains act as a commissioning agent who procures the entire harvest and store it for up to one year to supply to the processors or wholesalers in the local market.

**Processors/Exporters:** The processors procure the shrimp, either directly from the farmers or from the agents, depending on the location, availability and pricing of the shrimp. Farmers have lower bargaining power as they lack the cold storage. Due to seasonality in cropping, the processors procure large quantum of harvest during the harvesting seasons which increases the inventory and working capital requirements. The shrimp processors are equipped with the advanced cold storages in their facilities capacity ranging between of 1,000 Metric Tonne (MT) and 10,000 MT where the processed shrimps can be stored for up to 1 year, using Individual Quick Freezing (IQF) process, freezing the product at -27 degrees centigrade. Though the IQF process requires large capex, it is a more efficient approach than the earlier block freezing where customers were forced to buy the product in bulk. The entire processing, freezing and packaging takes maximum 7 days when it would be ready to be shipped from the port. The transportation from farmers to processing units to ports requires insulated vans where the temperature needs to be maintained at -18 degrees centigrade.

#### **Road ahead under changing business environment**

##### **Impact of Anti-Dumping Duty levied by US**

India's processed shrimp exports are subject to Anti-Dumping Duty (ADD) imposed by the US Department of Commerce (USDoC) and it is the only country which levies ADD on frozen shrimps from India. However, the rates are being continuously revised downward with the ADD reducing from 10.17% (first levied in 2005) to 2.20% as notified on September 06, 2016. The rates may revise further to 1.09% as indicated in the 11<sup>th</sup> administrative preliminary review (period of review: February 1, 2015 to January 31, 2016) undertaken by the USDoC, in March 2017. However, the final outcome would be known by July-August, 2017. Given that USA continues to be the largest importer for Indian seafood with a share of around 29% in dollar terms, any change in the ADD severely impacts export to the USA and has a bearing on the profitability of the Shrimp processors. Nevertheless, the continuous reduction in the ADD augurs well for the industry and is expected to give momentum to the exports and have positive impact on the profitability.

Apart from reviewing the ADD rates; the USDoC conducts "Sunset Review" in every five years' timeframe to determine whether duties can be withdrawn or should be continued for another five years. While the ADD would continue to be levied as per the discussion conducted during the Third Sunset review Meeting held on May 3, 2017; the reduced rate is expected to be a credit positive.

##### **Impact of Brexit**

European Union (EU) is the third largest market for Indian seafood export with contribution of 20% during FY15. The exit of UK from EU shall have speculative impact on seafood exports from India. Before the formation of EU in 1993, India used to export 30%-40% of its marine products to UK which started to decline soon after the EU adopted stricter norms and stipulations for the import of the seafood items. After Britain exited from the EU in June 2016, the exporters from India see this as a positive factor as UK may not adopt the same importing norms as EU has which will eventually increase the share of export in UK zone which is one of the major consumers in Europe.

##### **Impact of liberalised Foreign Direct Investment (FDI) Policy, 2016**

Many activities related to seafood processing and production fall under the 100% automatic route of FDI where only Reserve Bank of India (RBI) approval is required. While the FDI was earlier restricted to aquaculture production that takes place under controlled conditions; the restriction has been uplifted by the Government in its policy review



undertaken in June 2016. Therefore, since June 2016, foreign investment in aquaculture operations in uncontrolled conditions (such as grow out in earthen ponds or cage culture in rivers) falls under the 100% automatic route. This will open up the sector to new avenues of financing and access to advanced international aquaculture & cage culture technology.

**Industry Outlook: Stable**

During FY17, the Indian seafood export registered an all-time-high volume with a y-o-y growth of around 20%. The Industry recovered in FY17 after witnessing a setback in FY16 wherein exports declined by about 10% in volume terms. Major factors contributing to the strong growth in FY17 include increased production of Vannamei shrimp, diversification of aquaculture species, sustained measures to ensure quality and increase in infrastructure facilities for production of value added products. High dependence on the US market continues to remain a concern with the profitability of the shrimp processors dependent upon policy changes undertaken by the importing country. Thus, geographical diversification of exports would remain important for the industry players, going forward. Overall, the industry is poised to grow favorably given the liberalized FDI policy, favorable growth environment and increasing export demand.

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