

# **SHRIMP FARMING IN VIETNAM: CURRENTLY STATUS, POTENTIAL AND INVESTMENT OPPORTUNITIES**



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# Outline

1. Introduction
2. Overview of Vietnam fisheries sector
3. Current status of shrimp farming techniques
4. Advances in shrimp farming techniques
5. Potential and investment opportunities

# Vietnam



## Location

Vietnam locates in the Southeast Asia

## Area

Land area is 331,212 km<sup>2</sup>

## Coastline

Coastline is 3,260 km

## EEZ

Exclusive economic zone is over 1 million km<sup>2</sup>

## Population

About 97 millions

# Nha Trang University (NTU)



Establishment: **1959**      Students: **15,000**  
Faculties: **30**                      Staff: **650**



Former as the Nha Trang Fisheries University, its **strength** focuses on aquaculture, processing, fishing and shipbuilding



Focusing on implementation of production research for **value-added products** and technology transfer for many years



Training and research in **cooperation with over 60** universities and non-governmental organizations



## Departments/Institutions relating to aquaculture:

- Institute of Aquaculture
- Institute of Biotechnology & Environment
- Institute for Ship Building
- Institute for Marine Science & Fishing Technology
- Faculty of Food Technology
- Center for Veterinary Medicine and Aquaculture



# Overview of Vietnam fisheries sector

- Total production in 2018: 7.74 million MT
  - Capture: 3.59 million MT (46.4 %)
  - Aquaculture: 4.15 million MT (53.6 %)
- Seafood export turnover in 2018: \$ 9.0 billions  
*Increase of 8.4 % against 2017, according to the General Directorate of Fisheries at the Ministry of Agriculture and Rural Development.*
- Labor force: >4 millions
- Contribution to national economic sector: 4-5% GDP, 5th for export value.

# Fisheries production

- **Aquaculture**

- Production: 4.15 million MT, increased 8.3% against 2017.
- Farming area: >1.0 million ha

- **Capture fisheries**

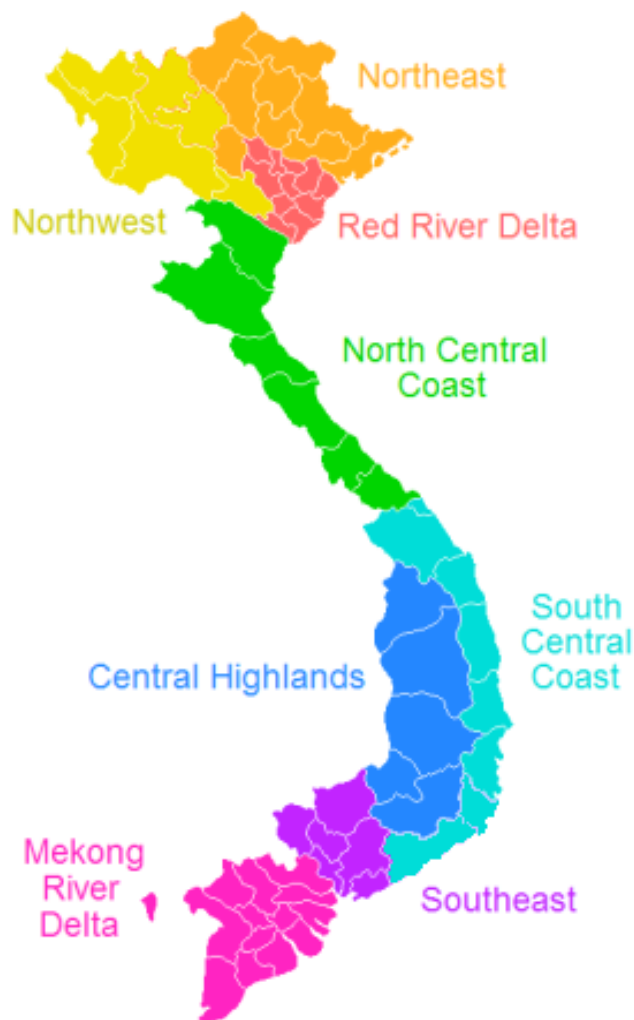
- Production: 3.59 million MT, increased 6.0 % against 2017.

**Proportion of aquaculture in total fisheries production: 53.0%,  
changed 0.8% per year**

# Water surface area for Aquaculture (>1 million ha)

| Production System             | Water Surface Area ('000ha) | % of Total    |
|-------------------------------|-----------------------------|---------------|
| <b>Marine Aquaculture</b>     | 252.7                       | 23.9%         |
| • Fish                        | 0.7                         | 0.1%          |
| • Shrimp                      | 218.0                       | 20.6%         |
| • Mixed & Other Aqua Products | 34.0                        | 3.2%          |
| <b>Brackish Water</b>         | 492.4                       | 46.6%         |
| • Fish                        | 24.0                        | 2.3%          |
| • Shrimp                      | 443.9                       | 42.0%         |
| • Mixed & Other Aqua Products | 24.5                        | 2.3%          |
| <b>Freshwater</b>             | 307.8                       | 29.1%         |
| • Fish                        | 300.1                       | 28.4%         |
| • Shrimp                      | 6.3                         | 0.6%          |
| • Mixed & Other Aqua Products | 1.3                         | 0.1%          |
| <b>Breeding</b>               | 4.4                         | 0.4%          |
| <b>Total</b>                  | <b>1,057.3</b>              | <b>100.0%</b> |

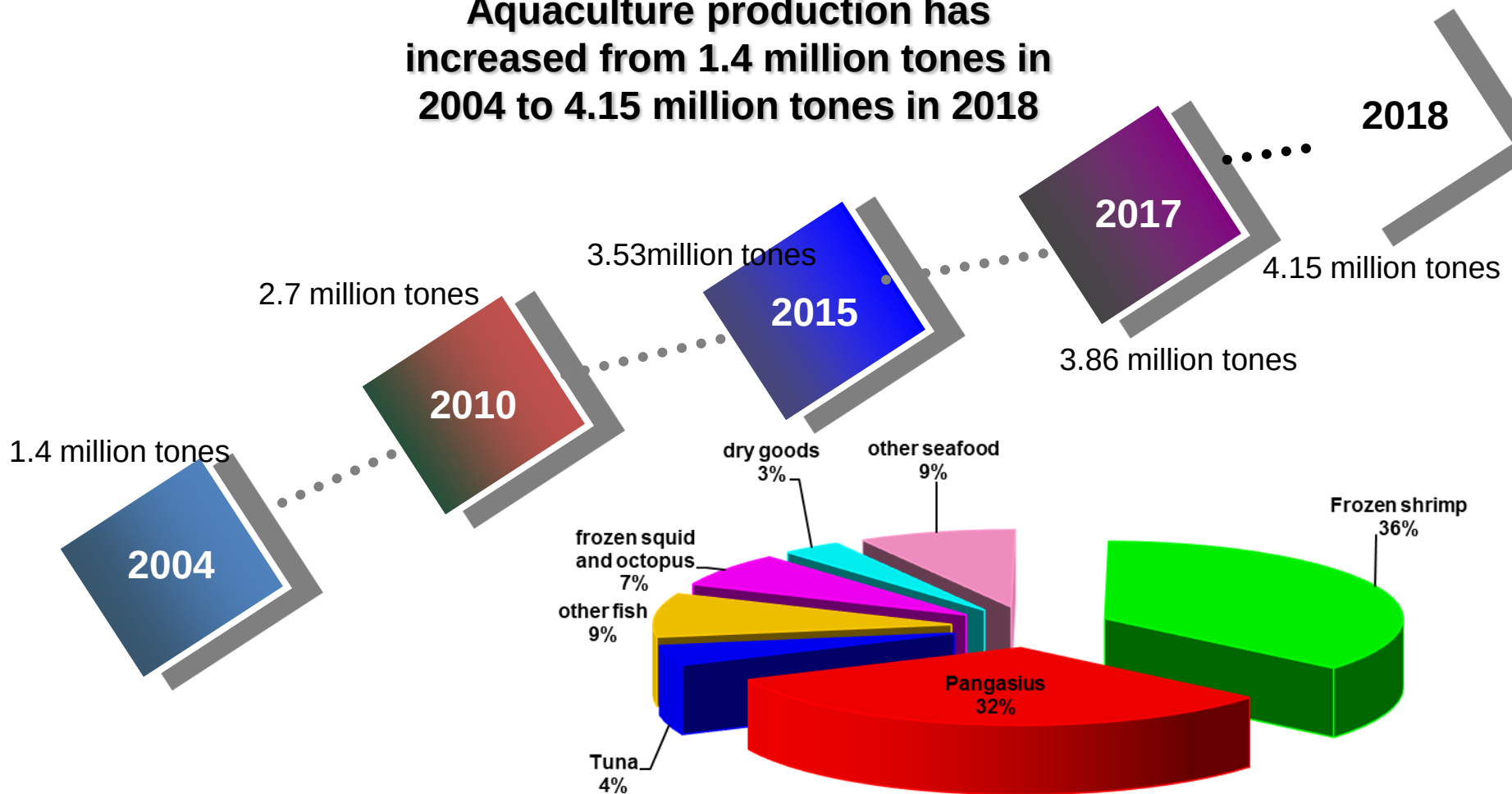
# Aquaculture production by region



| Region                                  | Fish      | Shrimp  | Other   | Total     |
|-----------------------------------------|-----------|---------|---------|-----------|
| Red River Delta                         | 406,447   | 20,963  | 155,967 | 583,377   |
| Nothern Mountains & Midlands Area       | 102,210   | 170     | 494     | 102,874   |
| North Central Area & Central Coast Area | 112,167   | 78,918  | 34,019  | 225,104   |
| Central Highlands                       | 32,555    | 7       | 59      | 32,621    |
| Southeast                               | 80,701    | 23,692  | 14,621  | 119,014   |
| Mekong River Delta                      | 1,788,517 | 504,483 | 157,275 | 2,450,275 |
| Total                                   | 2,522,597 | 628,231 | 362,438 | 3,513,266 |
| % of Total                              | 71.8%     | 17.9%   | 10.3%   | 100.0%    |

# Aquaculture production in recent years

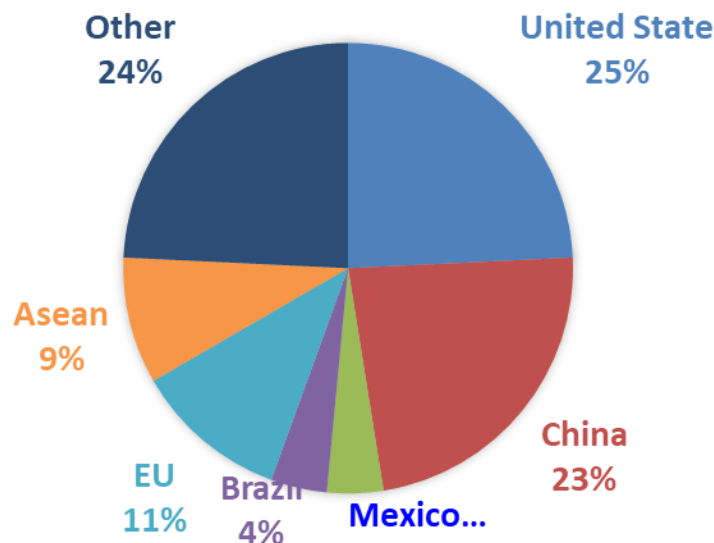
Aquaculture production has increased from 1.4 million tones in 2004 to 4.15 million tones in 2018



# Main freshwater species cultured

- Catfish
- Carps
- Tilapia
- Snakehead
- Eel

**IMPORT MARKET STRUCTURE OF PANGASIU IN 2018**



**Export value of Pangasius in 2014-2018  
(Billion USD)**

| 2014 | 2015 | 2016 | 2017 | 2018 |
|------|------|------|------|------|
| 1.7  | 1.6  | 1.75 | 1.8  | 2.26 |

# Main brackish & marine species cultured

- Black tiger shrimp  
(*Penaeus monodon*)



*Penaeus monodon*

- White leg shrimp  
(*Penaeus vannamei*)



*Penaeus vannamei*

- Lobster  
(*Panulirus ornatus*)

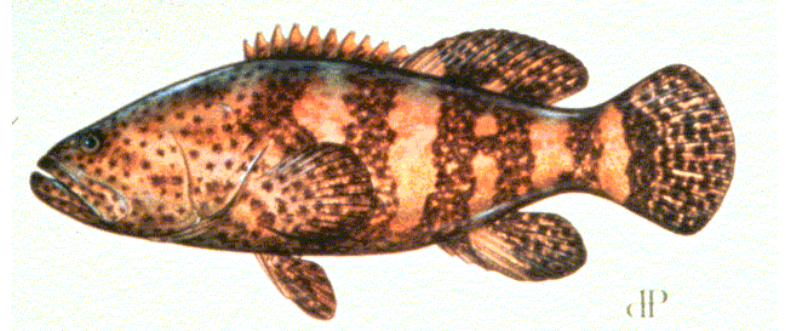


*Panulirus ornatus*

# Main brackish & marine species cultured

- Grouper

*(Epinephelus spp.)*



*Epinephelus spp.*

- Cobia

*(Rachycentron canadum)*



*Rachycentron canadum*

- Pompano

*(Trachinotus blochii)*



*Trachinotus blochii*



# Main brackish & marine species cultured

- Barramundi  
(*Lates calcarifer*)



*Lates calcarifer*

- Snapper  
(*Lutjanus argentimaculatus*)



*Lutjanus argentimaculatus*

- Seaweed  
(*Caulerpa lentillifera*)



*Caulerpa lentillifera*

# Nha Trang University has researched the successful seed production of some marine fish species

- Blue Threadfin  
(*Eleutheronema tetradactylum*)



- Milkfish  
(*Chanos chanos*).



- Giant trevally  
(*Caranx ignobilis*)



# Nha Trang University has researched the successful seed production of some marine fish species

- Golden trevally  
(*Gnathanodon speciosus*)



- Greater amberjack  
(*Seriola dumerili*)



- Black porgy  
(*Sparus macrocephalus*)





# Some models of Fish hatchery



Model of fish hatchery in concrete tank



Model of fish hatchery in earthen pond



# Some models of fish farming



Fish farming model in the pond



Fish farming model by sea cages

# Main shrimp species of Vietnam

There are two species of shrimp being cultured in Vietnam:

1. Black tiger shrimp  
(*Penaeus monodon*)

***Currently, Vietnam's black tiger shrimp production is at the top of the world***

2. White leg shrimp  
(*Penaeus vannamei*)

***White leg shrimp production of Vietnam is the fifth largest in the world***



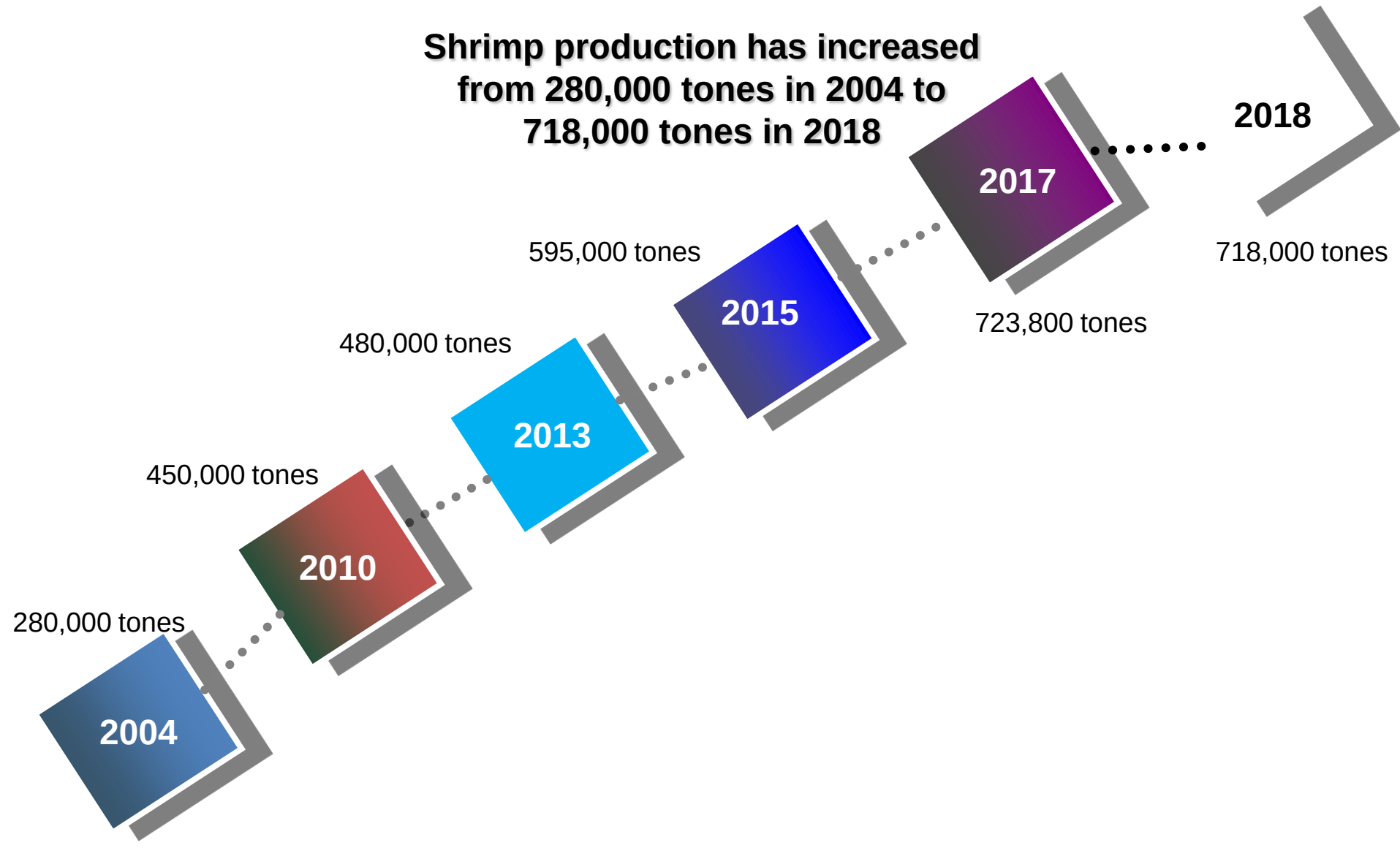
Black tiger shrimp  
*Penaeus monodon*



White leg shrimp  
*Penaeus vannamei*

# Shrimp production in recent years

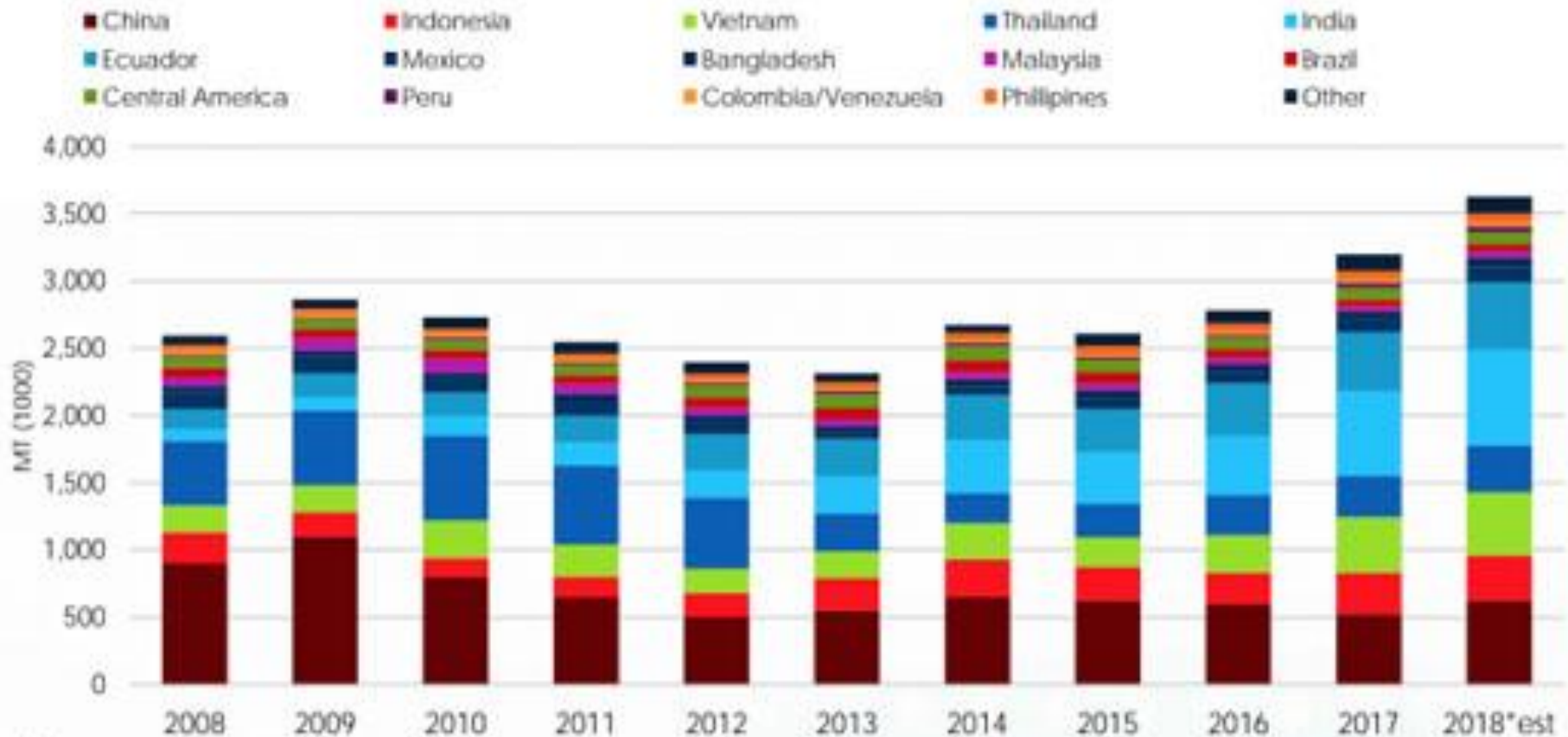
Shrimp production has increased  
from 280,000 tones in 2004 to  
718,000 tones in 2018





# Vietnam shrimp production compared to other countries

## Global farmed shrimp production



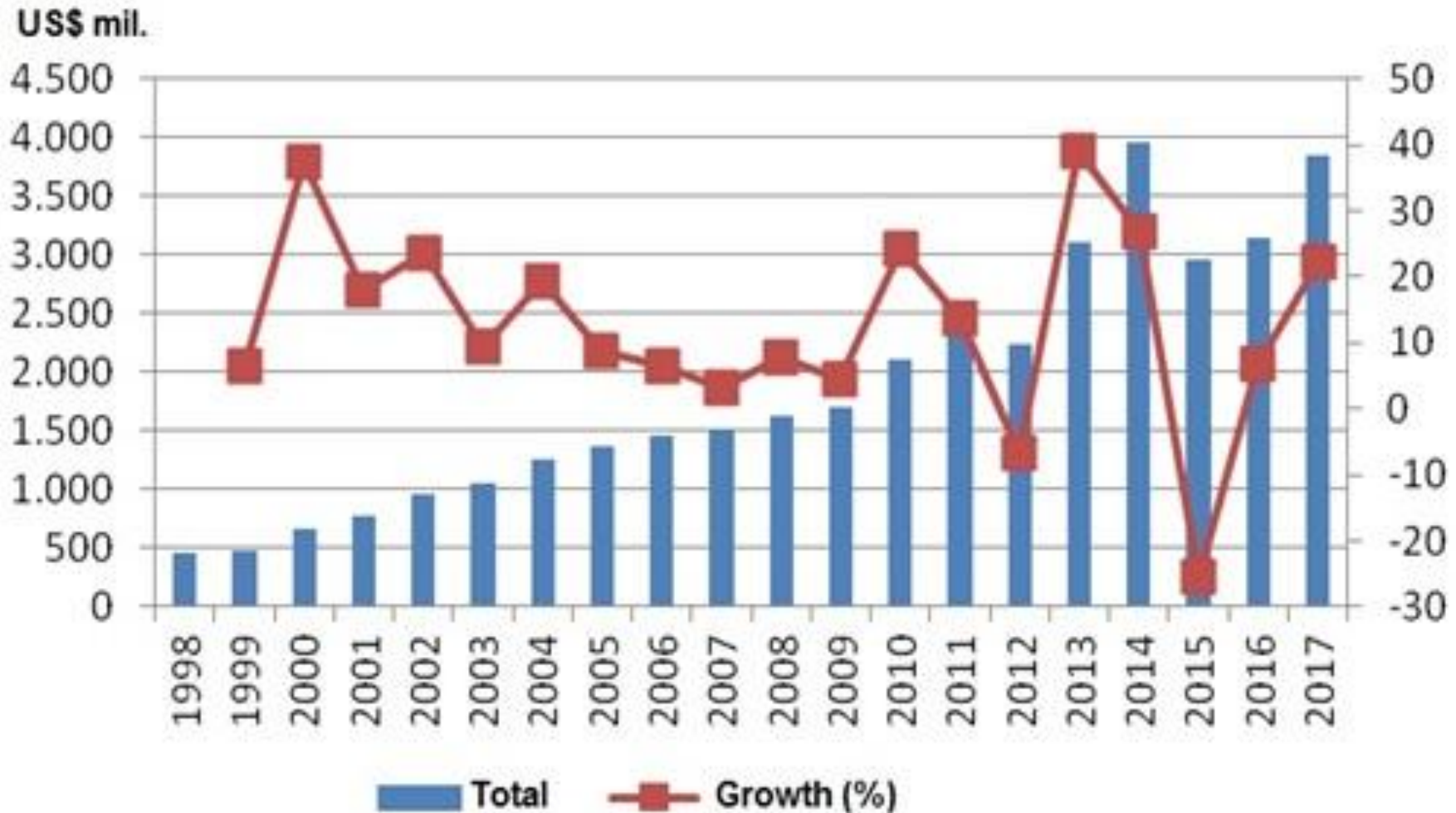
Source: Shrimp Panel estimates





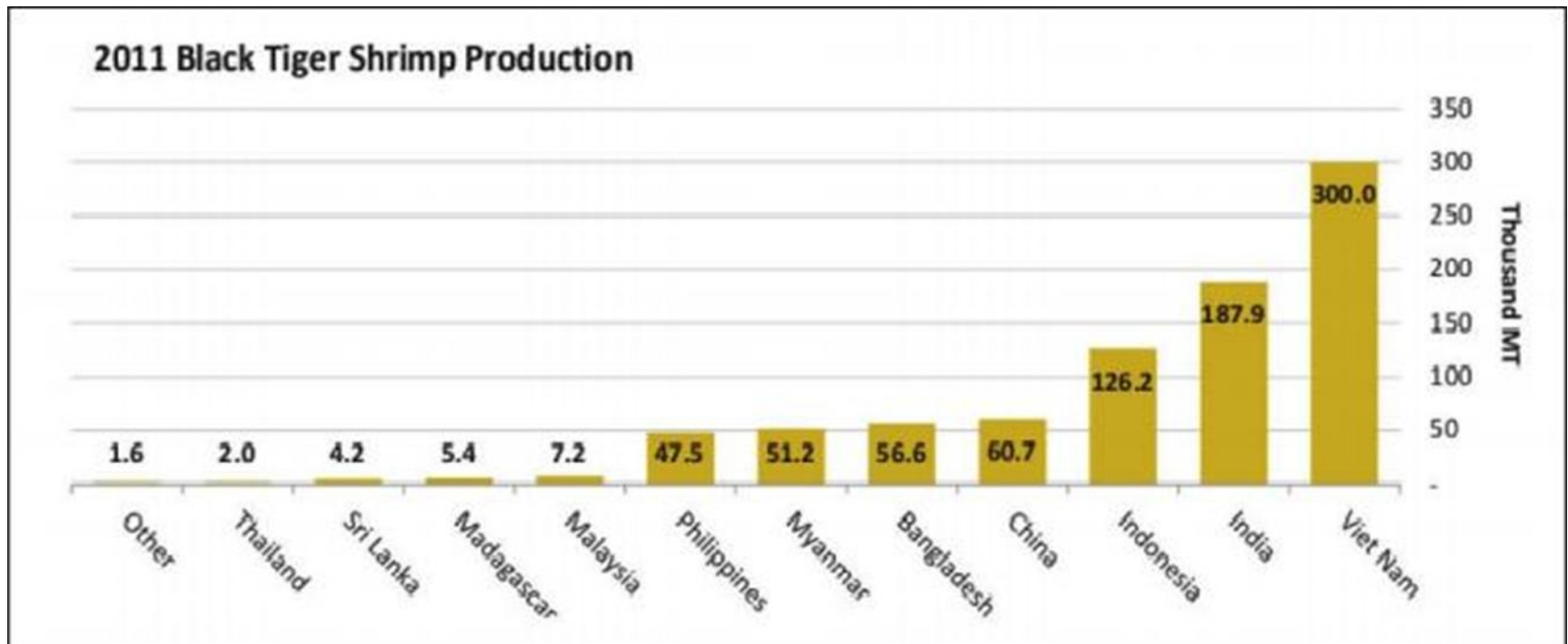
# Shrimp export value in recent years

Vietnam's shrimp exports , 1998-2017



# Aquaculture Black tiger shrimp production

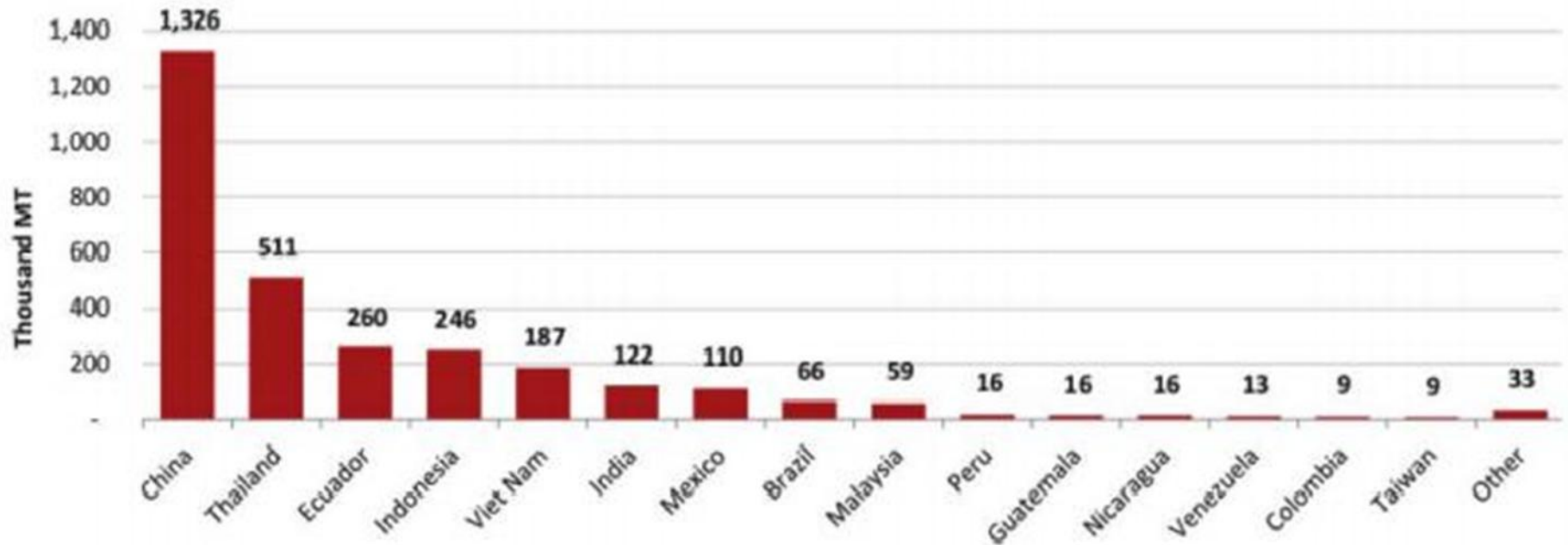
Vietnam is the world's leading production of black tiger shrimp from 2011 up to now, supplying quality shrimp products to more than 145 countries and territories around the world.



# Aquaculture White leg shrimp production

Vietnam is one of the top five white leg shrimp (*P. vannamei*) producing nations, after China, Thailand, Ecuador and Indonesia.

2011 Aquaculture White Shrimp Production



# Aquaculture *Penaeus* shrimp production

- The annual production of farmed shrimps from Vietnam has steadily increased in recent years.
- Export value is estimated around US\$ 3 – 4 billion/year. Of this 70% is produced in the Mekong Delta of Vietnam, which is already well known as “the land of rice”.
- The three provinces which contribute most to shrimp production are Ca Mau, Bac Lieu, and Soc Trang (in the south of Vietnam), accounting for 78% of the total production from 2015 up to now.

# Shrimp aquaculture production

## Shrimp Aquaculture in Asia: 2011 – 2018



Million MT



Sources: FAO (2016) for 2011; FAO (2016) and GOAL (2014) for 2012-2014; GOAL (2016) for 2014-2018.

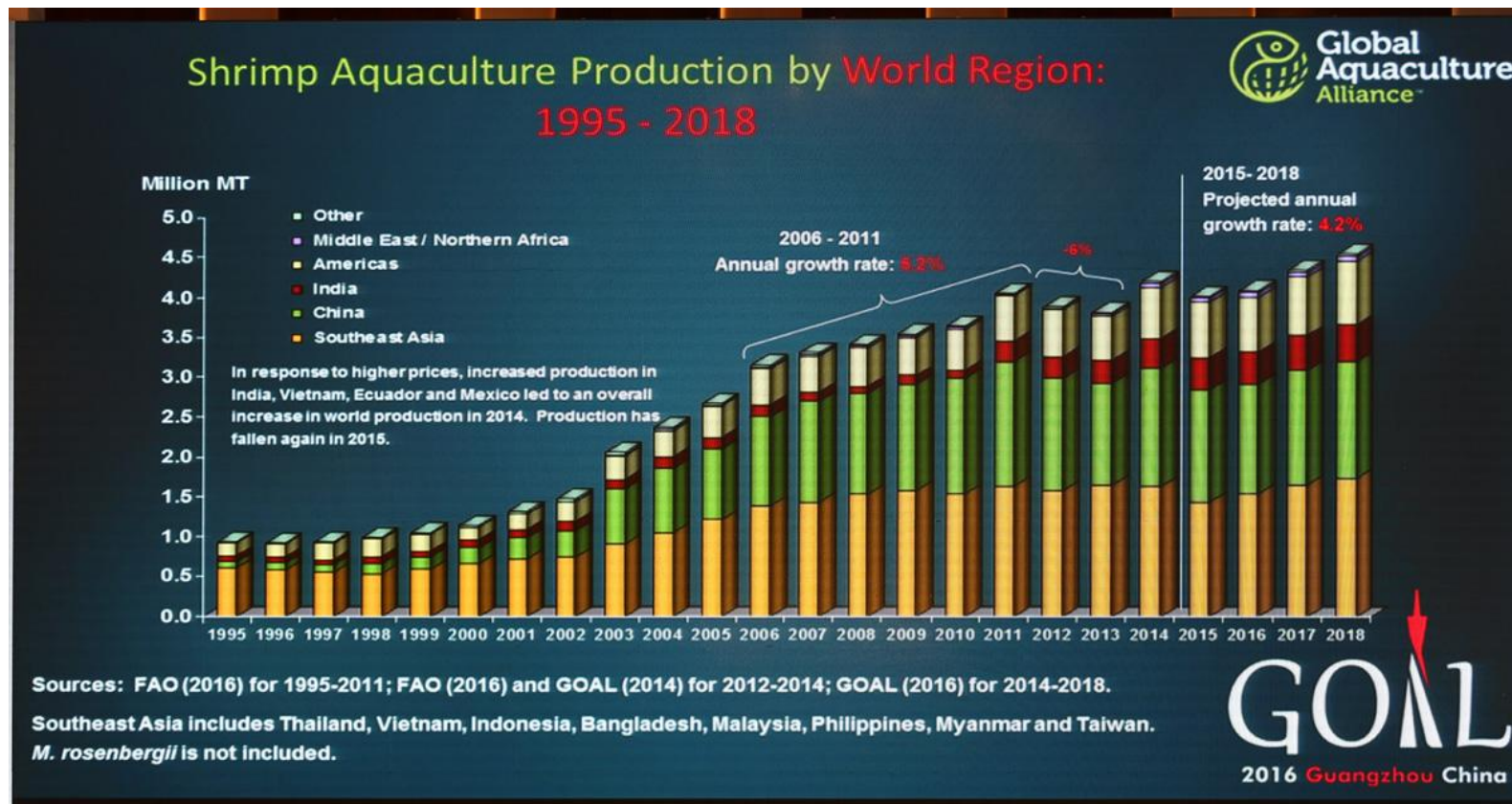
*M. rosenbergii* is not included.



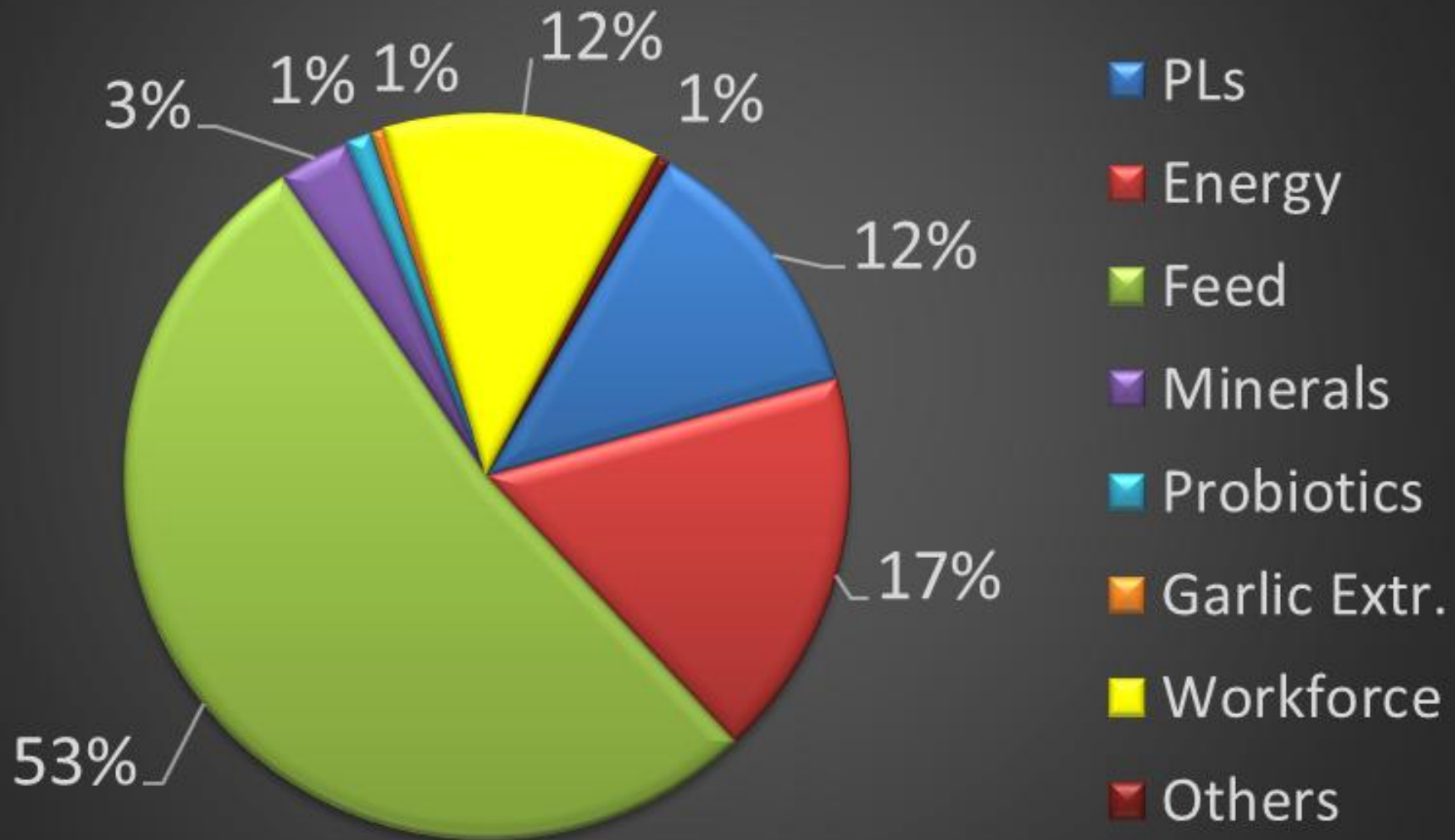


# Global Shrimp Production Trends

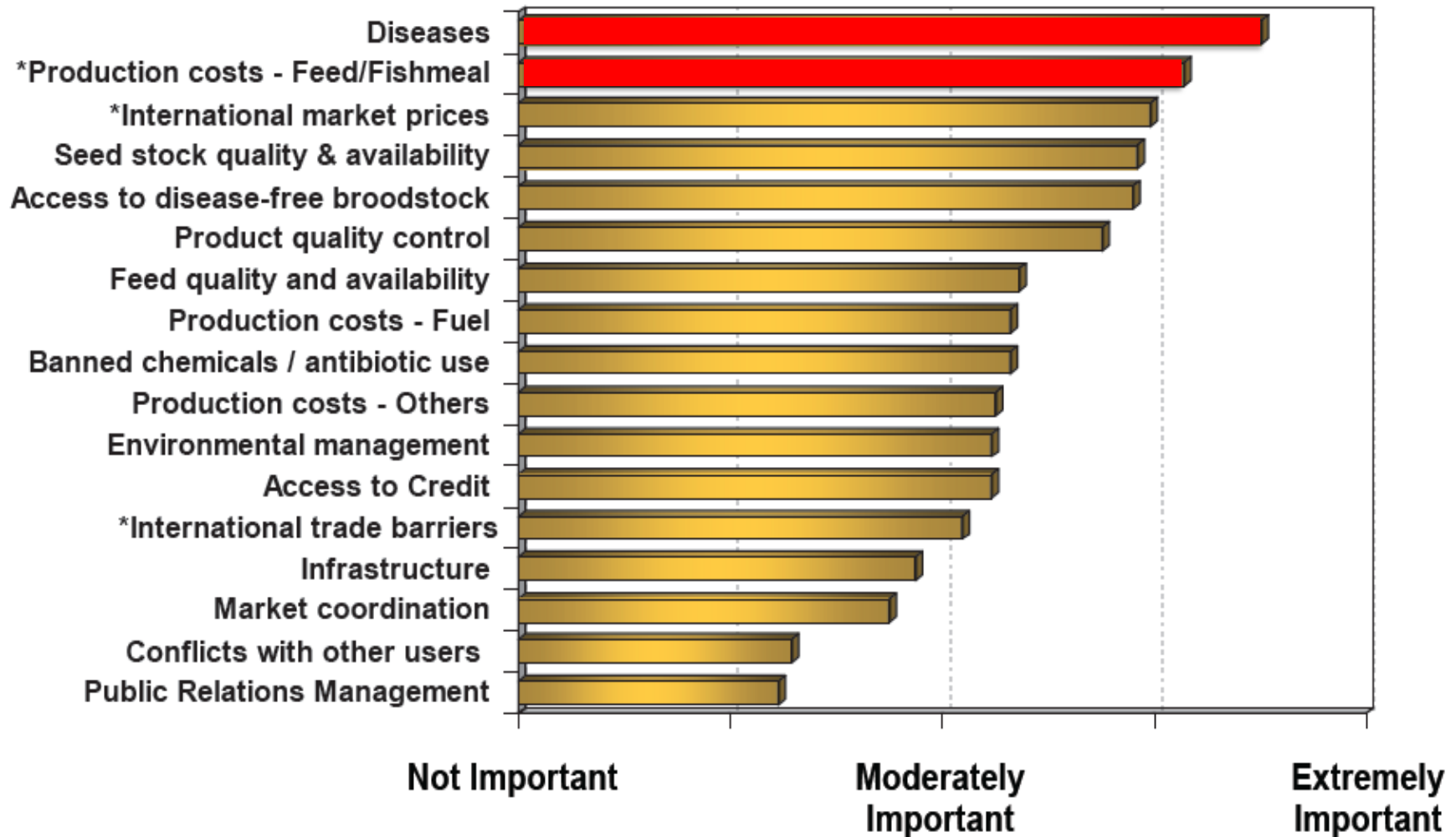
- Vannamei accounts for over 75% of Global shrimp production & about 70% of Asian shrimp production
- Expected to reach 4.5MMT in 2019 from the current levels of about 3.75MMT
- Americas – Lead by Ecuador
- Asia – Lead by India – China production is flat



# Production Cost distribution



# Challenges faced by farmer

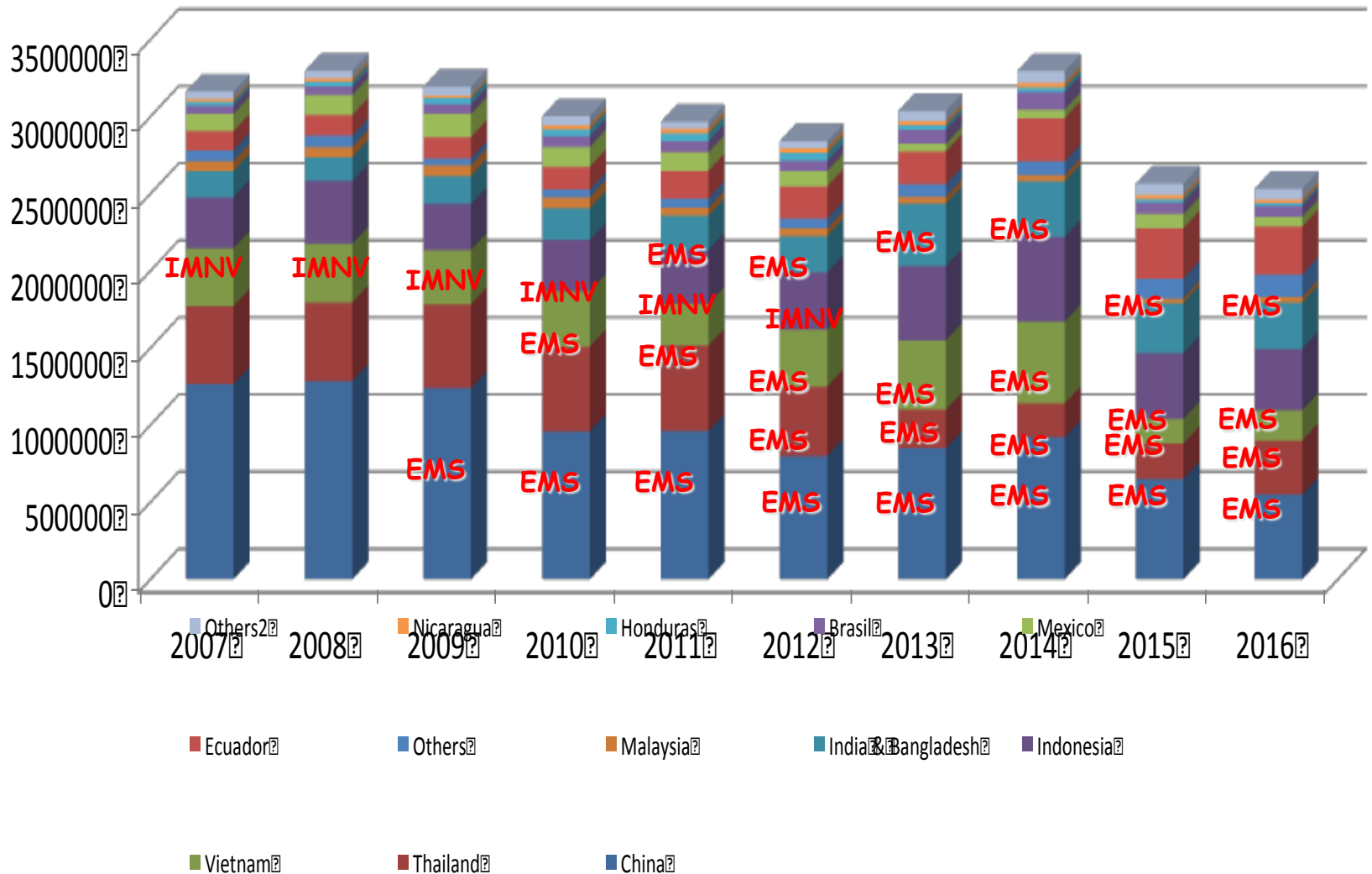


# Challenges faced by farmer

- White Spot Disease – rampant in 2018, in-spite of using 100% SPF broodstock .
- White Faeces Disease, Running mortalities, Slow growth, EHP – determine the harvest size of shrimp .
- Increasing ingredient cost for feedmill .
- Increasing Production cost - falling farm gate price
- Nursery System – a new concept
- High FCR – high organic and bacterial loads
- Sludge removal
- Antibiotic related international trade issues – more awareness now – antibiotics - 100% done away.
- Certification and traceability will be the key in 2019.

# WORLD PRODUCTION BY REGION

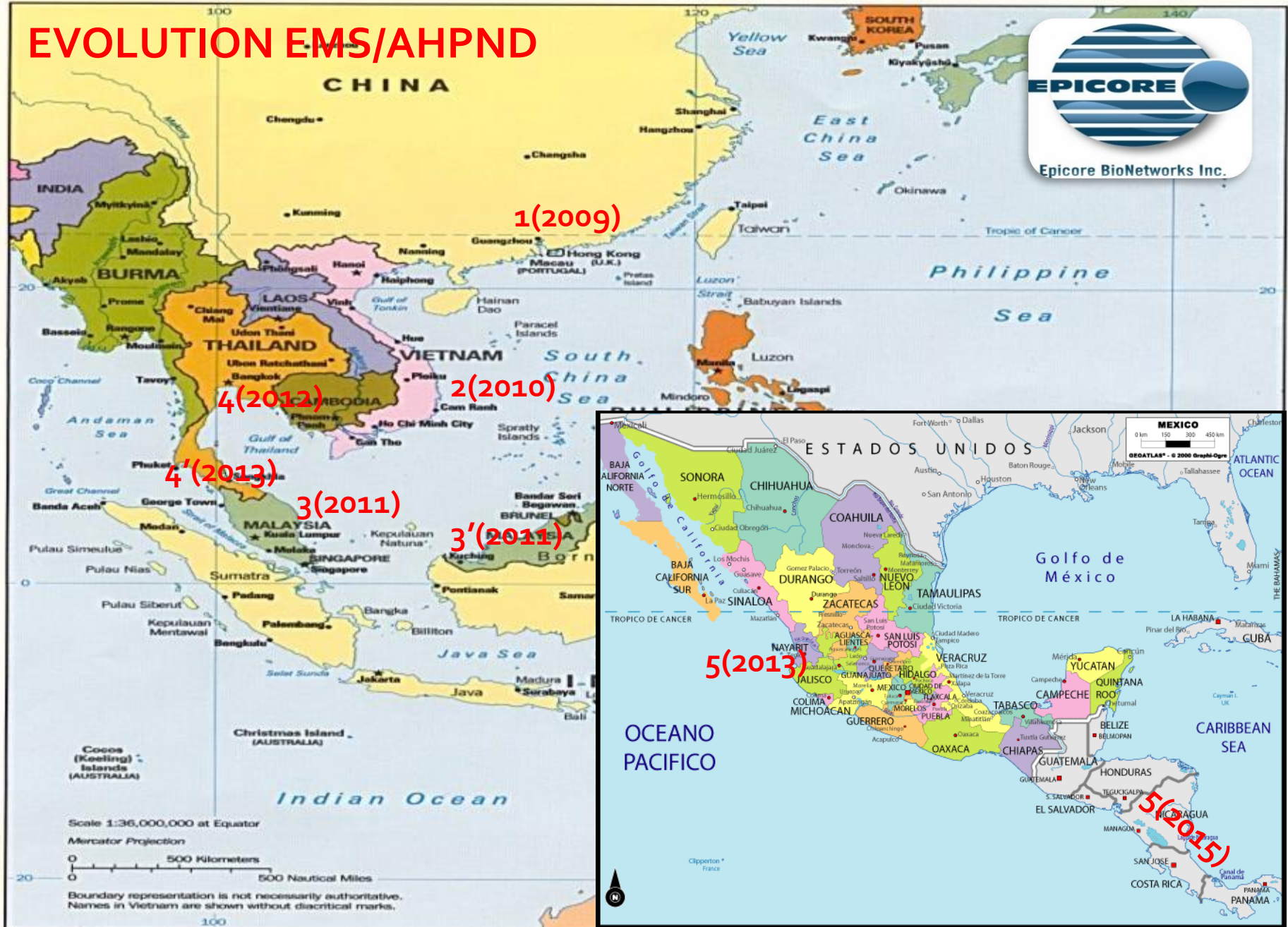
## CURRENT (IMPACT EMS & IMNV) 2007 - 2016





# Southeast Asia

## EVOLUTION EMS/AHPND



# Impact of EMS/AHPNS EMS/AHPNS in China



Coordinates: 21.601956, 109.089303

## Reported EMS/AHPNS

- 1) Guangxi Province (since 2010)
- 2) Hainan Province (since 2010)
- 3) Hebei Province (2012)
- 4) Guangdong Province (2012 and 2013)
- 5) Fujian Province (2012 and 2013)



# Impact of EMS/AHPNS in Vietnam



**Tra Vinh** 09°41'19.5072"N, 106°33'40.0212"E



**Soc Trang** 9°24'37.44"N, 106° 8'33.54"E



**Ca Mau** 8°46'29.76"N, 105°11'13.14"E



**Bac Lieu** 9°14'54.78"N, 105°30'9.94"E

## Impact of EMS/AHPNS

- Tra Vinh Province: 6 200 ha (in 2011)
- Soc Trang Province: 20 000 ha (in 2011)
- Bac Lieu Province: 11 000 ha (in 2011)
- Ca Mau Province: 15 000 hectares (2010-2011)
- Tra Vinh, Soc Trang and Bac Lieu combined: 39 000 ha (in 2012)

# Impact of EMS/AHPNS EMS/AHPNS in Malaysia



Coordinates 4 14'20.29"N, 100 38'0.12"E

| State      | Cases received by NaFish |      |      |
|------------|--------------------------|------|------|
|            | 2011                     | 2012 | 2013 |
| Kedah      | 2                        | 5    | 7    |
| Perak      | 5                        | 4    | -    |
| Penang     | 2                        | -    | -    |
| Pahang     | 3                        | -    | -    |
| Terengganu | -                        | -    | 2    |
| Sabah      | -                        | 5    | -    |
| Sarawak    | -                        | -    | 8    |
| Total      | 12                       | 14   | 17   |



# Impact of EMS/AHPNS EMS/AHPNS in Thailand



Coordinates 12.219485,102.579346

## Current status as of July 2013

EMS/AHPNS has been reported in 11 provinces out of 25 coastal provinces

Central:  
Nakhon-pathom

Eastern:  
Rayong, Chantaburi, Trad and Chachoengsao

Southern:  
Chumphon, Suratthani, Nakhon-Sithumarat, Songkhla, Krabi and Phuket



# Impact of EMS/AHPNS EMS/AHPNS in Mexico



Sonora 28 46'23.09"N, 111 52'21.62"W



Sinaloa. 25 31'29.18"N, 108 45'13.11"W

# EMS in Vietnam and increased imports of shrimp

- The poor harvest persists in Vietnam since 2012 affected by EMS. Reports indicated that, nearly 80% farms in Mekong Delta area was affected by the disease in 2013 .Lack of adequate bank loans was another problem for farmers.
- While the EMS disease persists in the affected areas, new areas have evolved for *vannamei* farming in 2014. Some have also moved away from rice to shrimp farming due to increased salinity in waters in the Mekong Delta, which has given the recent boost in *vannamei* shrimp production in the country. Farmers also shifted from black tiger to *vannamei* aquaculture which led to 20-30% decline in black tiger shrimp production last year.
- To combat the disease problem , some farmers used antibiotic(*ethoxyquin*) that caused high alert of quarantine in the export markets-particularly in Japan.
- However, Vietnam started to import large volume of shrimp for re-export with or with out processing since 2012 - a trend still continues.
- The industry association in Vietnam, VASEP reported 500 000 tons of production of farmed shrimp in 2013. During January- August 2014 , production reached 317305 tons where the share of *vannamei* was 52%.



# Farming system of *Penaeus monodon*

- **Extensive farming:**
  - Low input systems include production integrated within mixed use mangroves or rice fields
  - Stocking density  $\approx 3 - 6$  PL/m<sup>2</sup>
  - Productivity: 500 - 1000 kg/ha/year





# Farming system of *Penaeus monodon*

- **Semi Intensive:**

- Stocking density :  
*15-20 PL/m<sup>2</sup>*
- Productivity:  
*2 - 3 ton/ha/year*



- **Intensive:**

- Stocking density:  
*50-60 PL/m<sup>2</sup>*
- Productivity:  
*8 - 10 ton/ha/year*





# Farming system of *Penaeus monodon*

- **Super Intensive:**
  - Stocking density:  
*80-100 PL/m<sup>2</sup>*
  - Productivity:  
*20 - 25 ton/ha/year*



# Farming system of *Penaeus vannamei*

- **Extensive farming:**

- Low input systems include production integrated
- Stocking density:  
***20-30 PL/m<sup>2</sup>***
- Productivity:  
***5-8 ton/ha/year***



- **Semi intensive:**

- Stocking density:  
***50-80 PL/m<sup>2</sup>***
- Productivity:  
***15-20 ton/ha/year***





# Farming system of *Penaeus vannamei*

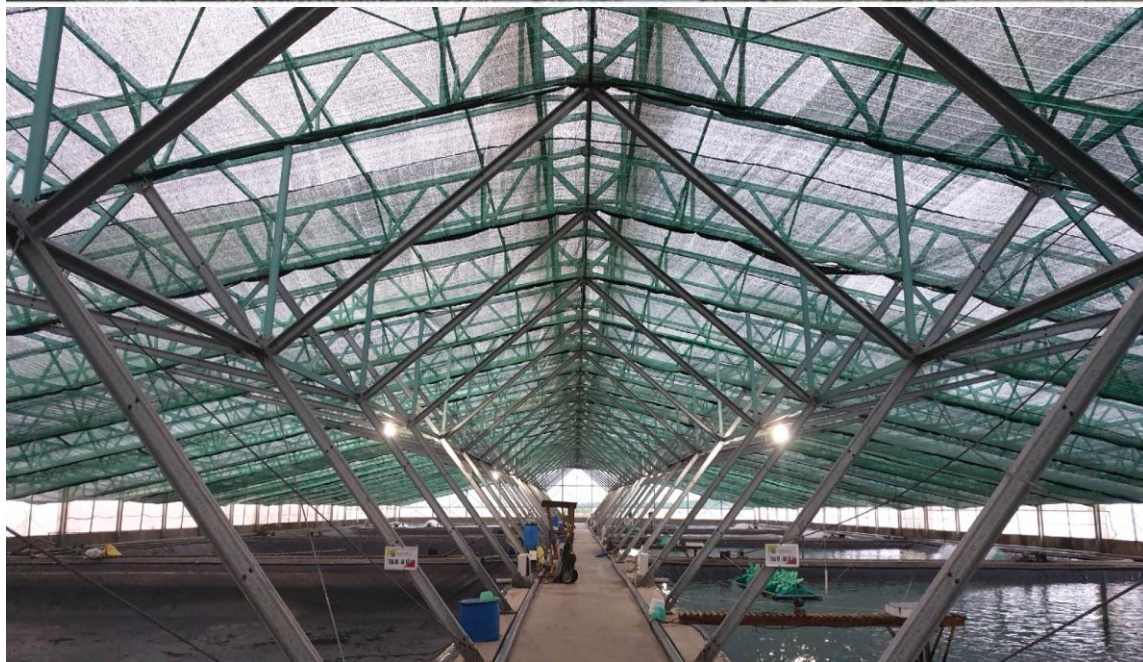
- **Intensive:**

- Grow-out pond outside
- Stocking density:  
*100-200 PL/ m<sup>2</sup>*
- Productivity:  
*30-60 ton/ha/year*



- **Super Intensive:**

- Grow-out pond in greenhouse
- Stocking density:  
*300-500 PL/ m<sup>2</sup>*
- Productivity:  
*100-120 ton/ha/year*





# Some model of shrimp farming in Vietnam





# Some models of shrimp farming in Vietnam





# Some models of shrimp farming in Vietnam



hệ thống nuôi tôm  
thịt ba cấp nhìn từ  
trên cao

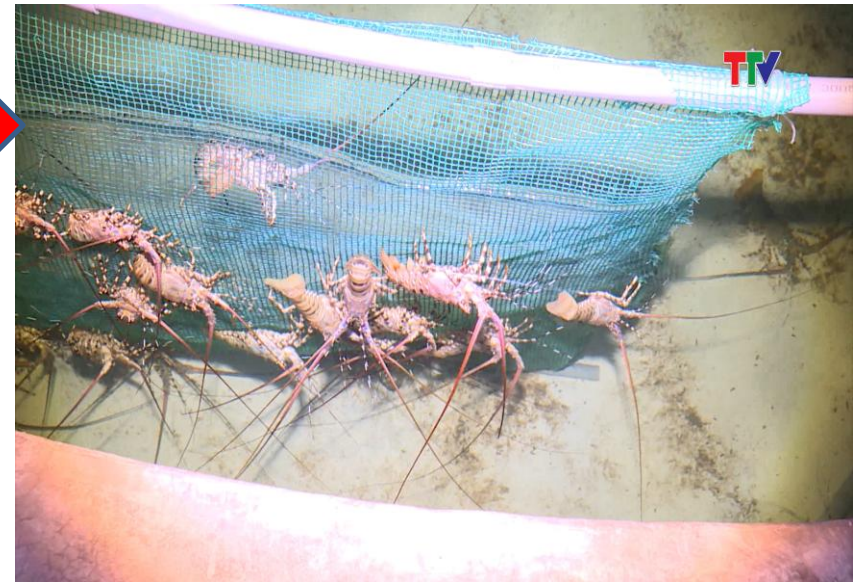




# Some model of Lobsters farming in Vietnam



Lobster culture in Nha Trang and Cam Ranh Bay, Vietnam



Lobster culture in concrete tank at Nha Trang, Vietnam



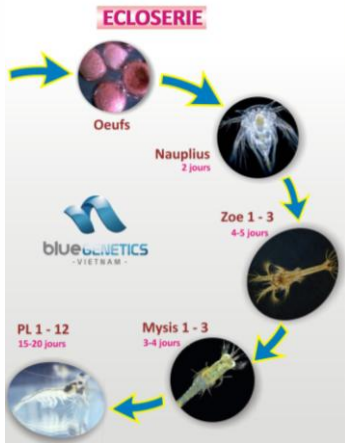
# Some new technical solutions

Shrimp farms applies many new technologies, among them are:

- **A production system with three phase** to reduce disease outbreaks and increase productivity.
- **A water treatment** to improve the biosecurity and prevent of disease outbreak
- **A special aeration system** to reduce energy cost optimizing the air production.
- **A sound feeding system** to decrease the Feeding Conversion Rate (FCR).
- **Shrimp farming by Biofloc technology**

# Traditional Production System

## Hatchery : Post Larvae Production



## ONE-PHASE SYSTEM

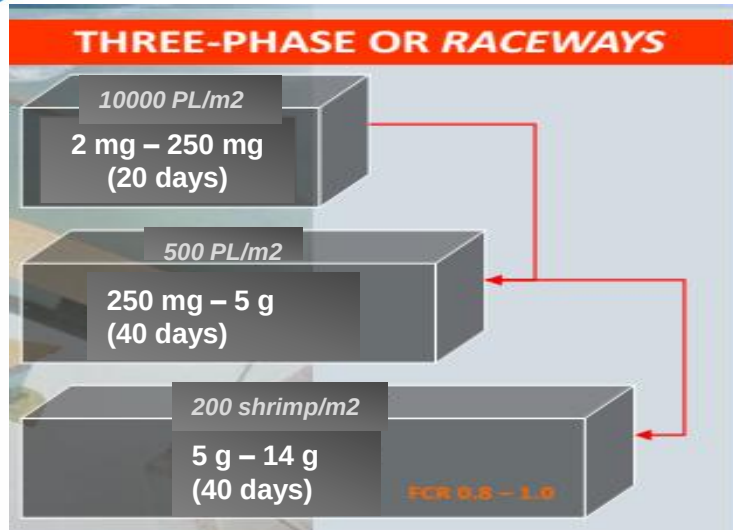
120 shrimp/m<sup>2</sup>

2 mg - 14 g  
(90 - 120 days) **R 1.2**

## Pond: Grow-out Stage



# Innovation in Production System



Technics of Production (high technology for Hyper-Intensive Production)

- **Biofloc** technique in nursery Phase 1
- **Semi-Biofloc** technique in nursery phase 2
- Water treatment by **Ozone**
- Optimum aeration system

**Hatchery**



**Nursery (2 Phases)**

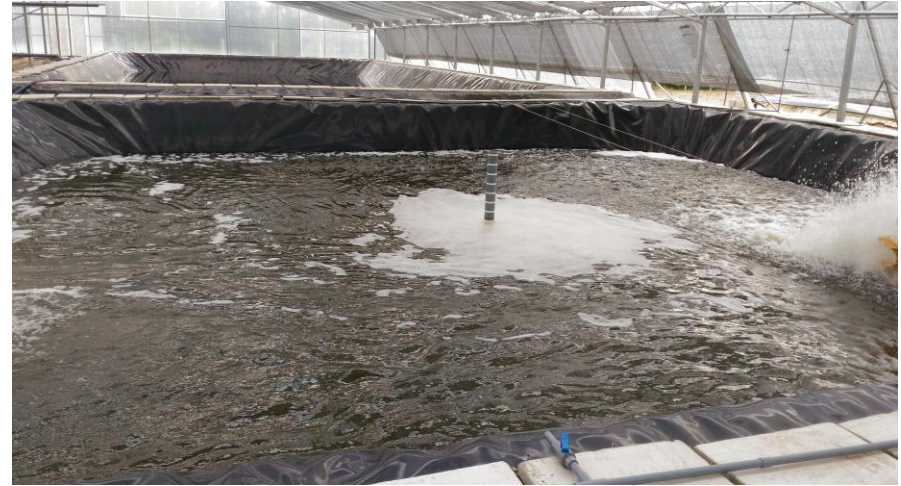


**Pond**





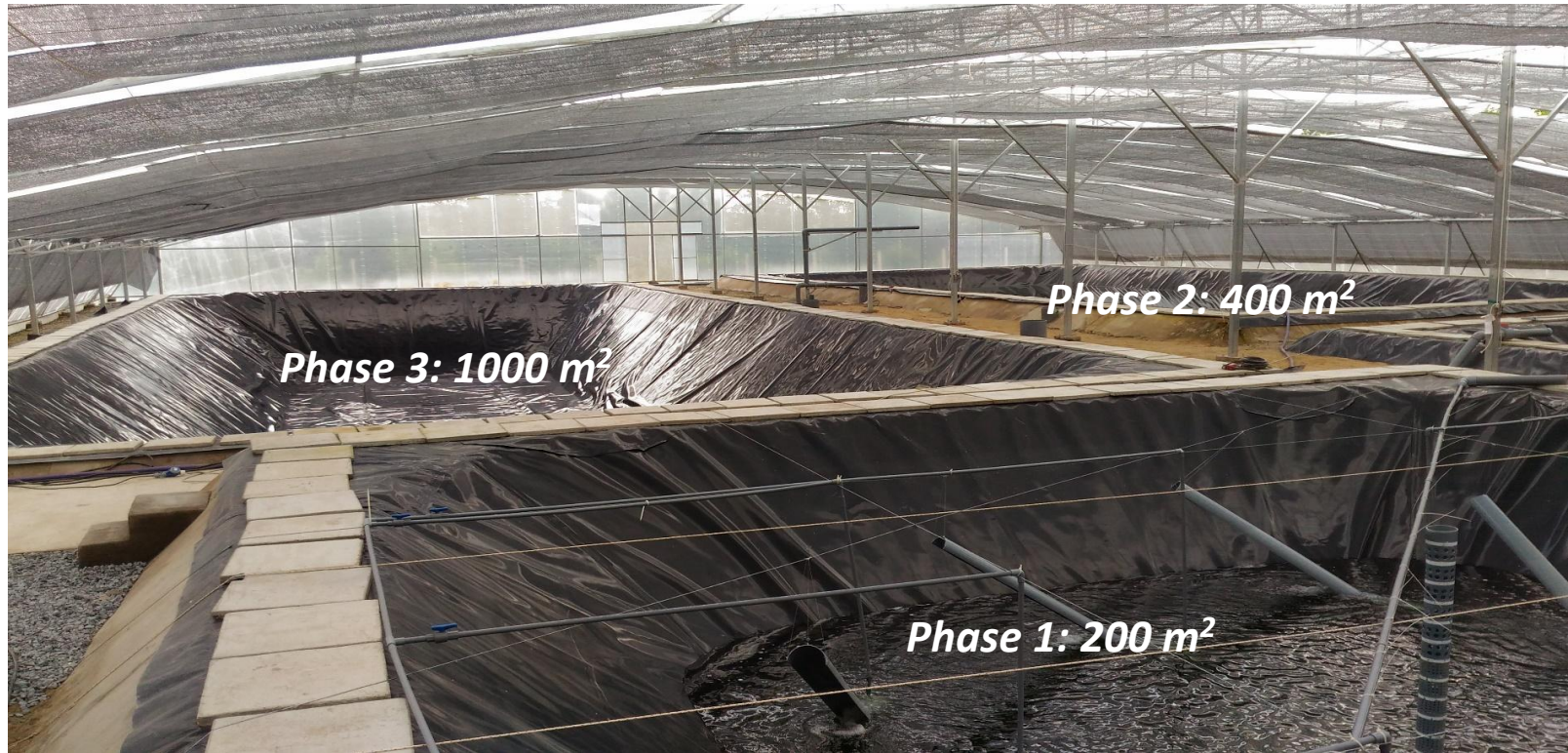
# Model of super intensive shrimp farming in 3 stages



- Nissis company from Japan cooperates with Nha Trang University
- Use fresh water from Tri An dam, Dong Nai province, Vietnam mixed with marine water 120 ppt to have salinity of 15 ppt.



# Model of super intensive shrimp farming in 3 stages



- Phase 1: Density: 5,000 PLs/m<sup>2</sup>; Day of culture: 15
- Phase 2: Density: 2,400 shrimps/m<sup>2</sup>, Day of culture: 15
- Phase 3: Density : 1,000 shrimps/m<sup>2</sup>, Day of culture: 15
- Day of culture three phase: 45 days, size 5-6 g/shrimp
- Survival rate > 80%
- This model does not use antibiotics, only use probiotics.







# Innovation in Water Treatment



**Filter**

**+**

**=**



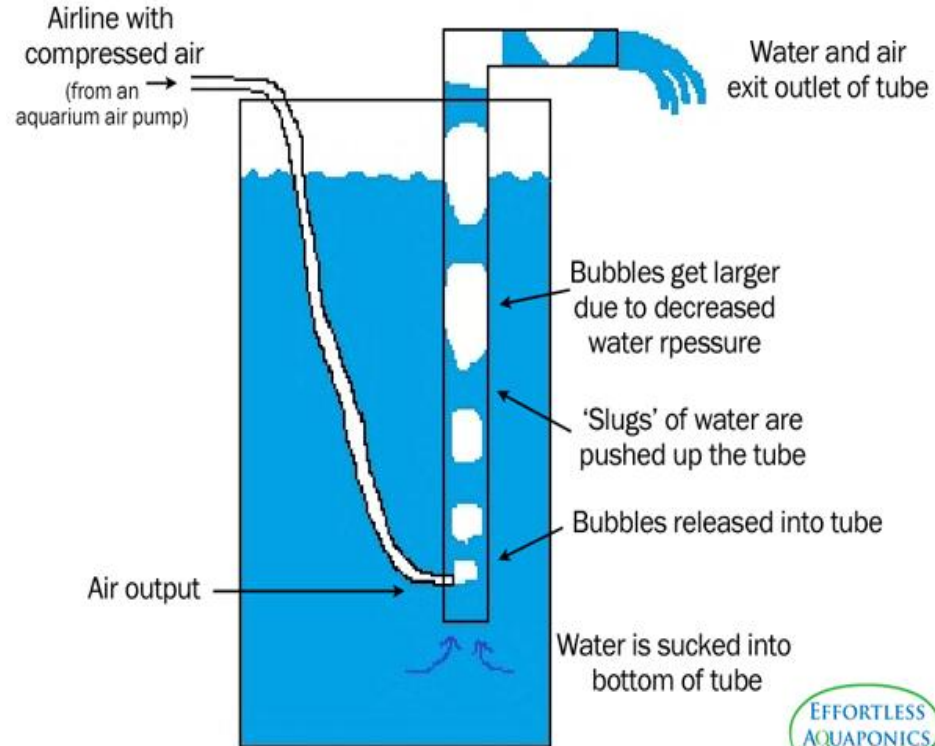
**Compact and Mobile System**

**Ozone**

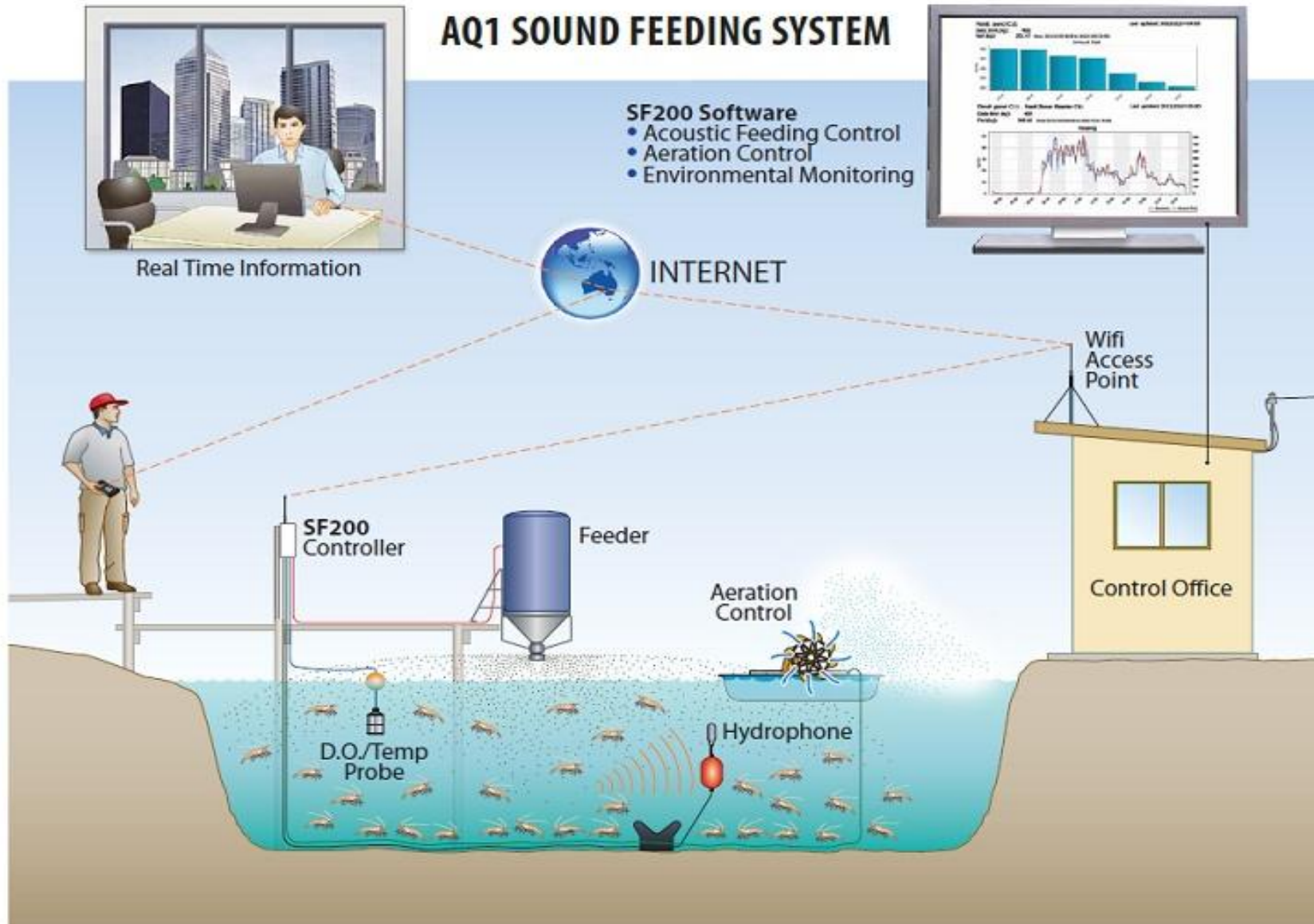


**Ozonation Tower**

# Innovation in aeration and recirculation



# Innovation in feeding management





# The sound when shrimp eating

**SHRIMP ARE SLOW, BUT  
FREQUENT FEEDERS**

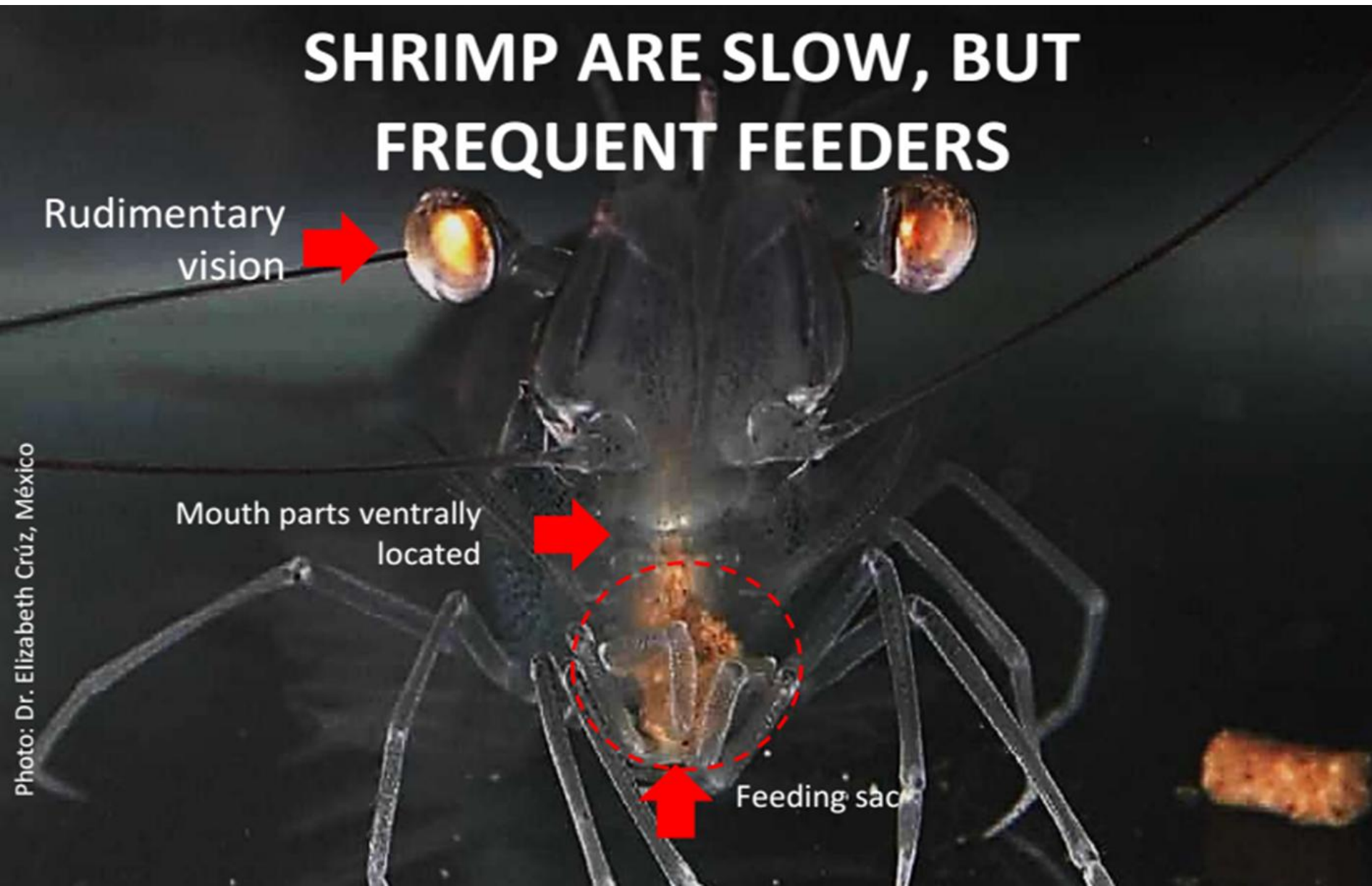
Rudimentary  
vision



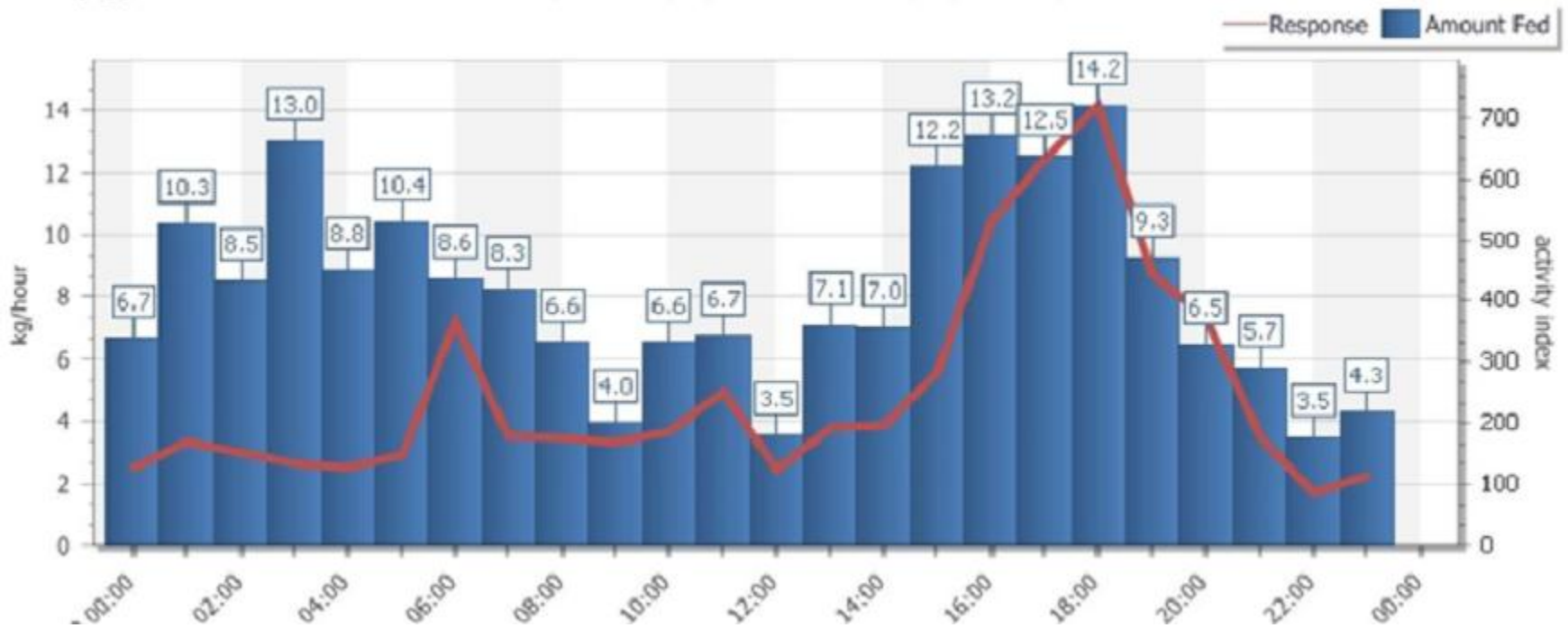
Mouth parts ventrally  
located



Feeding sac



# Sound feeding system Result



**Hydrophone**



**Feeder**

# Innovative and intensive shrimp farming will boost the annual production





# Innovative shrimp farming is very productive

|                                  |                    | THREE-PHASE<br>SYSTEM       | ONE-PHASE<br>SYSTEM                 |
|----------------------------------|--------------------|-----------------------------|-------------------------------------|
| Days of culture                  |                    | 100                         | 90-120                              |
| Final shrimp size (gr)           |                    | 15                          | 10-15                               |
| No. cycles per year              |                    | 5                           | 2                                   |
| Density<br>(pcs/m <sup>2</sup> ) | Nursery #1         | 10 000                      | -                                   |
|                                  | Nursery #2         | 550                         | -                                   |
|                                  | Growth out<br>Pond | 200-300                     | 100                                 |
| Survival rate (%)                |                    | > 80                        | 30-50                               |
| Yield (tons/ha) per cycle        |                    | 30 tons/ha/cycle            | 5-10 tons/ha/cycle                  |
| Yield (tons/ha) per year         |                    | 150 tons/ha/year            | 10-20 tons/ha/year                  |
| FCR                              |                    | 1.1-1.3                     | 1.2-1.4                             |
| Risks                            |                    | Reduce Disease<br>outbreaks | Low Control of<br>Disease outbreaks |

# Innovation Respects the environment



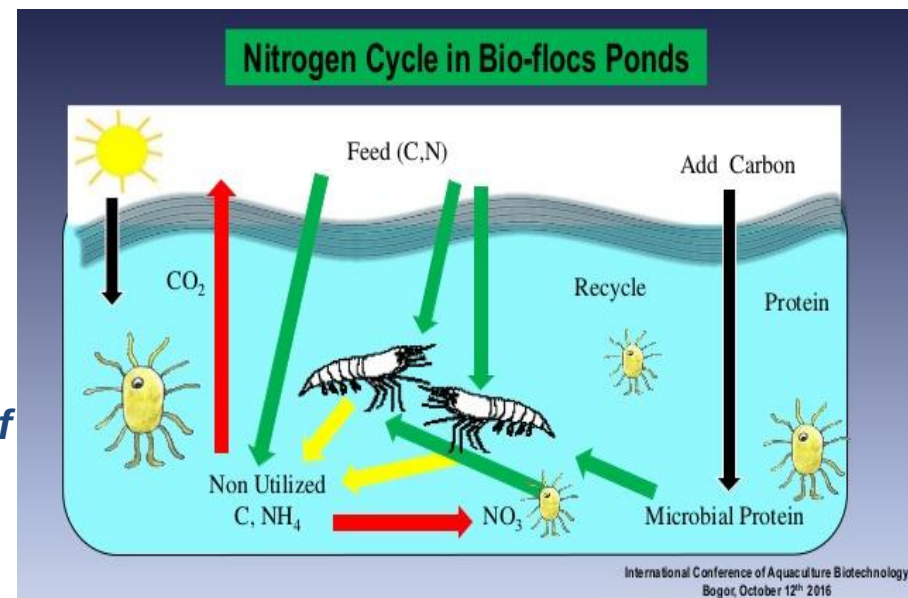
- Using Feed certified BAP (Best Aquaculture Practices)
- Using very low quantity of water, zero water exchange in Nurseries and Pond
- Antibiotic free
- Reduction of Nitrogen pollution in environment with Biofloc technology

## The biofloc



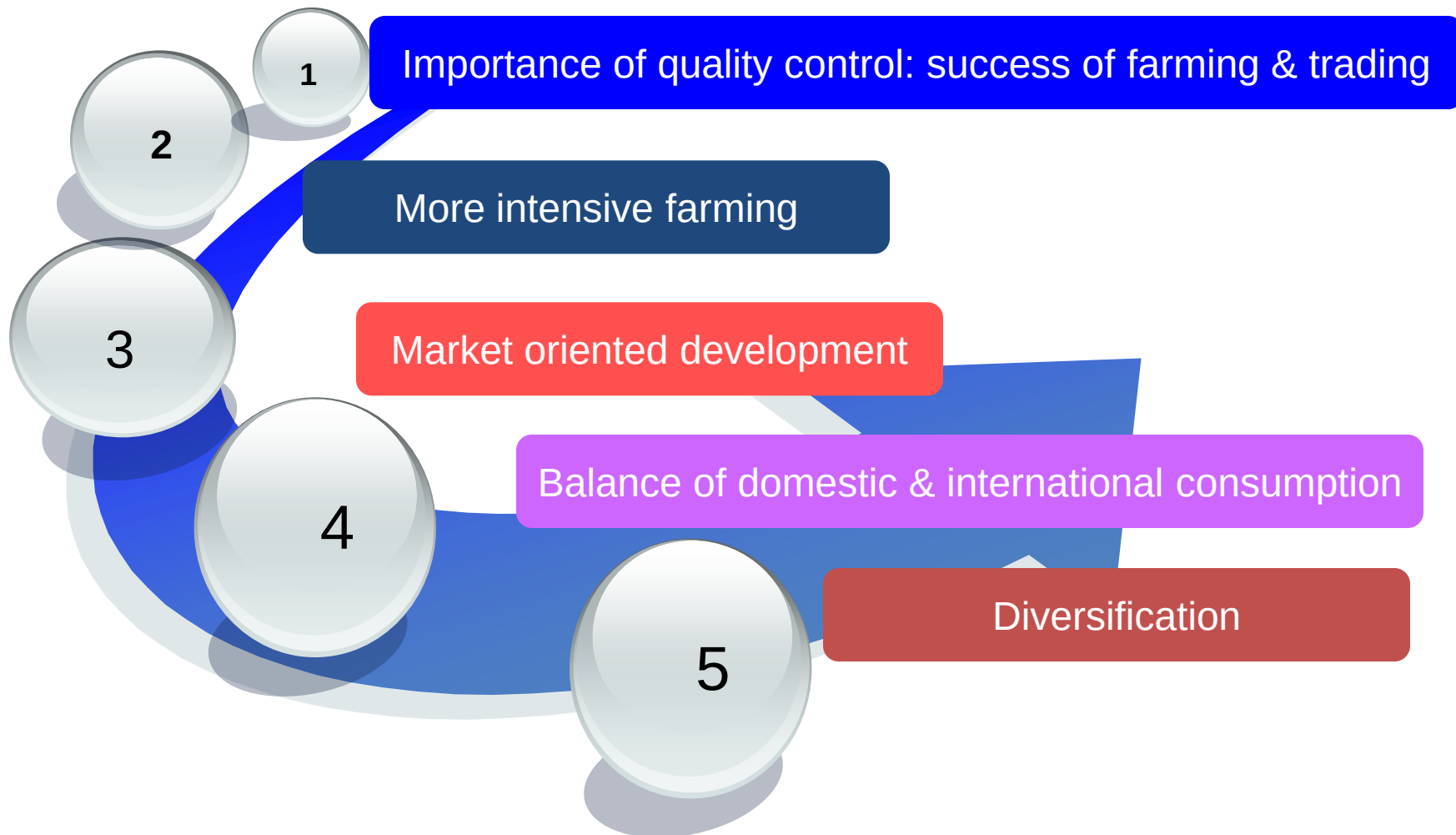
***Defined as macroaggregates – diatoms, macroalgae, fecal pellets, exoskeleton, remains of dead organisms, bacteria, and invertebrates.***

**(Decamp, O., et al 2002)**



# Outlook of shrimp farming

By 2020 the goal is to increase fisheries production from the current 7.74 million tons to 8.5-9.0 million tons (Aquaculture Production: 60-70%; **Shrimp: >35%**)





# Promote attraction of foreign investment in Vietnam

- Vietnam has become an investment market for corporations and big company in the world because of the following reasons.
  - Abundant natural resources,
  - Large area,
  - Cheap labor resources,
  - Investment policies and procedures are increasingly improved,
- Currently there are 116 countries pouring capital in all provinces and cities in Vietnam.

# Promote attraction of foreign investment in Vietnam

- *List of 10 countries that invest the most in Vietnam up to the present time:*
- **Korea** Project: 5,364; Total investment: \$ 48.6 billion
- **Japan** Project: 3,117; Total investment: \$ 39.8 billion
- **Singapore** Project: 1,643; Total investment: \$ 38.0 billion
- **Taiwan** Project: 2,525; Total investment: \$ 31.7 billion
- **Virgin islands** Project: 654; Total investment: \$ 20.0 billion
- **Hongkong** Project: 1,043; Total investment: \$ 16.6 billion
- **Malaysia** Project: 547; Total investment: \$ 13.9 billion
- **United state** Project: 816; Total investment: \$ 10.9 billion
- **China** Project: 1,445; Total investment: \$ 10.7 billion
- **Thailand** Project: 459; Total investment: \$ 9.0 billion

# **Promote attraction of foreign investment in the fisheries sector**

- According to the International Cooperation Department - Ministry of Agriculture and Rural Development, the fisheries sector is currently attracting many foreign investors.
- Currently has more than 100 foreign direct investment (FDI) projects in the fisheries sector, with over US \$ 1.0 billion of registered capital focusing on aquaculture, processing, food and aquatic breeds.
- Currently there are 18 countries and territories with investment projects in the fisheries sector in Vietnam: China, Taiwan, Japan, Thailand, Hàn Quốc, Đức, Pháp etc.



# Conditions for aquaculture investment in Vietnam

1. Having a business registration certificate on aquaculture, granted by a competent state management agency.
2. Places for construction of aquaculture establishments must follow local planning.
3. Aquaculture establishments (shrimp and catfish) must ensure technical conditions and standards on aquaculture; veterinary hygiene standards, food hygiene and safety according to current law provisions.
4. Use of feeds, drugs, chemicals and probiotics in the List permitted to circulate in Vietnam.

# **Vietnam shrimp industry has many opportunities to develop**

- The land area for shrimp farming is over 700,000 ha.
- Vietnam weather can rear shrimp all year, which is a favorable condition for processing enterprises to maintain regular operations.
- Vietnam Government has issued Decree 57/2018/ND-CP dated April 17, 2018 on mechanisms and policies to encourage enterprises to invest in agriculture and shrimp industry.
- Global demand for shrimp will grow steadily and sustainably.
- According to the forecasts of international organizations, the world's demand for shrimp by 2020 will be 5.2 million tons, by 2025 will be 6.5 million tons.

# **Areas of potential investment in shrimp industry at Vietnam**



# Growth -Hatchery

- Producing high quality shrimp seed that supplies enough demand for industrial shrimp farming (about 500,000 - 600,000 broodstock, 150-200 billion shrimp seeds).
- Import of broodstock SPF/SPR.
- Proceeding to produce broodstock SPF/SPR .
- Hatcheries had to obtain license from the Govt. regulator before they can start operations.
- Hatchery Installed Capacity about 180-200 Billion PL /year
- Produced about 150 billion PL in 2019, more than 200 billion PL in the next few years.

# Growth - Farm

- Continue Developing high-tech farms for super intensive farming (300-500 PL/m<sup>2</sup>)
- Developing multi-stage shrimp farms (2 or 3 stages)
- Harvest size 25- 40g/shrimp in 90 – 110 DOC.
- Output in 2019 -2020 : 700,000 - 750,000 MT/year - growing because of increasing area under production.

# Growth - Processing

- Vietnam now has more than 600 Processing plants with a processing capacity of 3 million tons of products a year.
- Vietnam is one of the five largest shrimp exporters in the world and now need to expand in shrimp processing capacity.
- According to the Prime Minister's Decision 79 / QD-TTg, the requirements for processing and consumption of shrimp products are as follows:
  - Develop shrimp processing technology in accordance with the production capacity of raw shrimp and meet the requirements of the consumer market.
  - Apply advanced management processes and new technologies in the stage of harvesting, transporting, processing and preserving shrimp products.



# **Continue to develop some support services for the shrimp industry**

- Growth - Feedmill
- Growth - Probiotics
- Growth - Aquatic drugs
- Growth - Vitamins, minerals
- Growth - Equipments
- Growth - Human resource
- Growth - High efficiency farming models

# **Stakeholder perceptions on factors affecting the future of shrimp industry**

- Responsible shrimp farming and environment for sustainability.
- Best Quality Broodstock for production PL.
- Production post larvae SPF or SPR to provide high quality seed for shrimp farmers.
- High quality feeds for improving growth & survival rates in hatchery and shrimp farms.
- Improved Farming Systems – Automatic feeders, Antibiotic free farming (hatchery as well as farm).
- Reduce input costs to increase profits for shrimp farmers.
- Co-ordination among all the stakeholders in the shrimp industry.

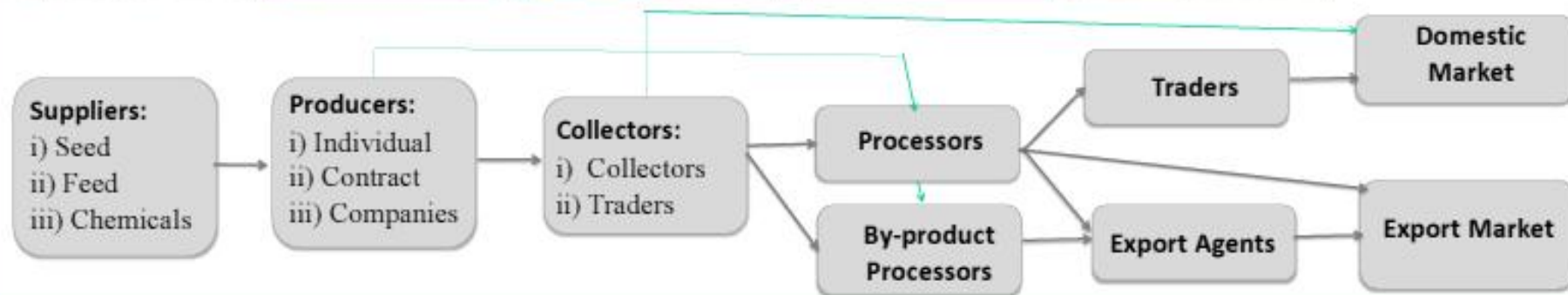
# Stakeholder perceptions on factors affecting the future of shrimp industry

| Category                      | Sustainability factors               | Seed producers | Grow-out producers | Input suppliers | Processors | Govt. officials |
|-------------------------------|--------------------------------------|----------------|--------------------|-----------------|------------|-----------------|
| Economics issues:             | Limited availability of capital      |                | *                  |                 | *          |                 |
|                               | High input costs                     |                |                    | *               |            |                 |
|                               | Unstable raw material supply         |                |                    |                 | *          |                 |
|                               | Unstable product price               |                |                    |                 | *          |                 |
|                               | Unstable markets                     |                |                    | *               |            |                 |
| Environmental issues:         | Disease & predation                  |                | *                  |                 |            | *               |
|                               | Disease management                   | *              |                    |                 |            |                 |
|                               | Negative environmental impact        |                |                    |                 |            | *               |
|                               | Inconsistent seed quality            |                |                    | *               |            | *               |
|                               | Erratic water quality & availability | *              | *                  | *               |            | *               |
| Institutional /social issues: | Job losses due to market instability |                | *                  |                 | *          |                 |
|                               | Ineffective regulation & policy      | *              |                    |                 | *          | *               |



# Shrimp industry value chain

## Value chain cluster



# Some pictures in the shrimp value chain



Raw Shrimp



Frozen Shrimp



Frozen Breaded Shrimp



Finished Shrimp



Finished Shrimp



Nha Trang Sea Product Company

# Shrimp by-products in Vietnam



=



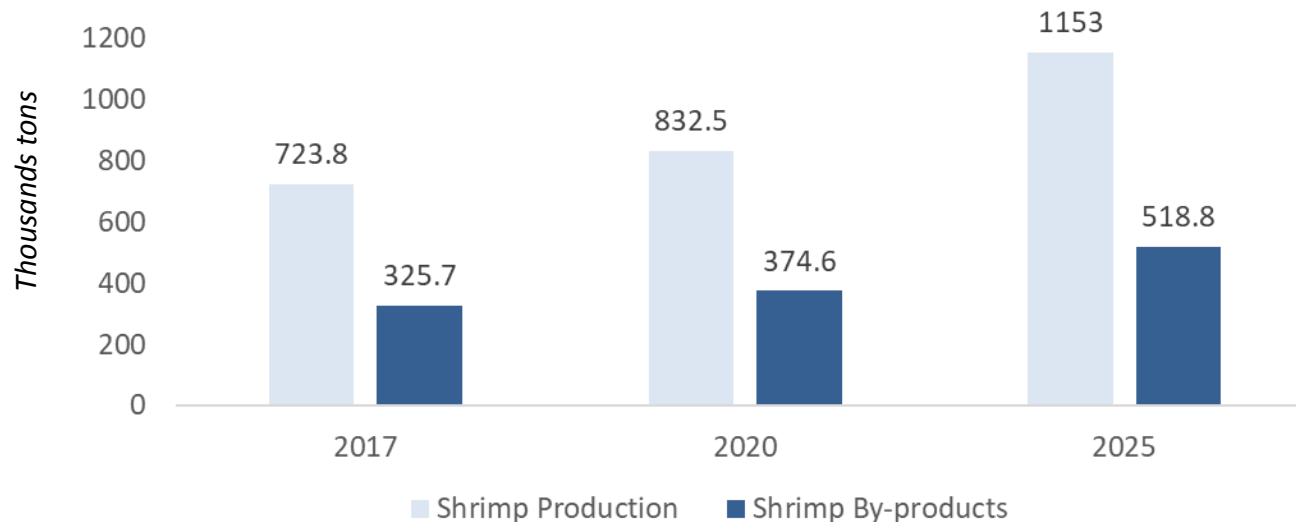
Meat

+



By-products

## Shrimp production and by-products until 2025





# Shrimp by-products from seafood industries

Shrimps



Processing



By-products



Collection



# Valuable products from shrimp by-products

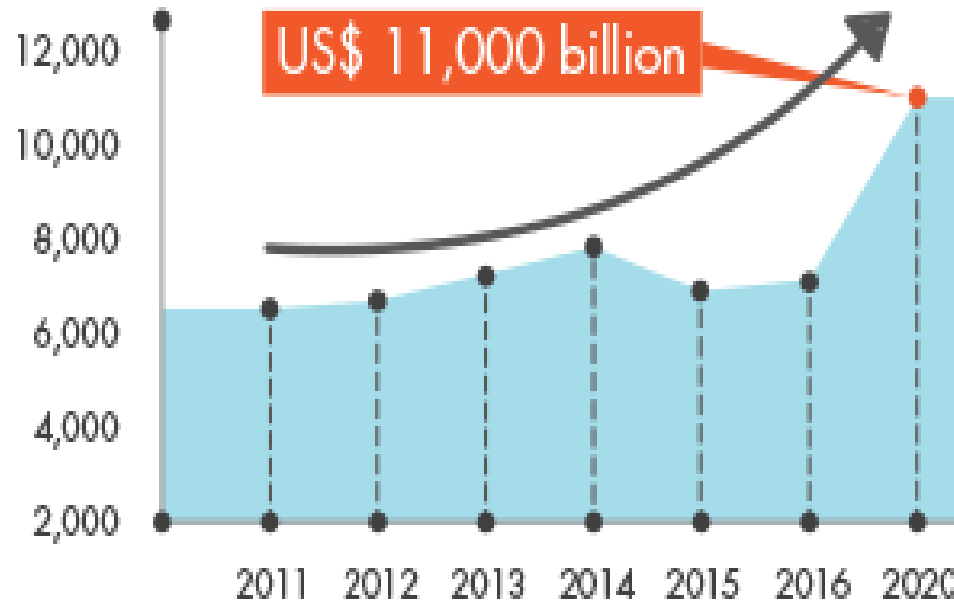


**Nutrition contained in shrimp by-products can be applied in many fields thus creates much more values**

# Targets to 2020

## Vietnam's Seafood Export and Fisheries Goals in 2020

- BY 2020 Vietnam's seafood export value is expecting to reach US\$ 11 billion.
- Annual average growth rate of 7-8% during 2011 - 2020.
- The total fisheries output will be around 7 million tons, of which fishing output will make up around 35% and aquaculture output will account for around 65%.





# Targets to 2025

- Attracting foreign investment to promote the sustainable development of the fisheries sector in general and the development of the shrimp industry in particular.
- Total fisheries output will be around 9 million tons, of which capture fisheries will make up around 30% and aquaculture will account for around 70%.
- Post-harvest losses in marine catch will be reduced from more than 20% at present to below 10%.
- Export value will reach around \$20 billion, with an annual average growth rate of 6-7% (during 2020-2030).
- Shrimp export value will reach around \$10 billion.
- The proportion of exported value-added products will reach 60%.
- About 80% of fisheries workers will be trained.
- Workers' average per-capita income will triple the current amount.

# Targets to 2025

*Decision 79/QĐ-TTg of the Prime Minister promulgating the National Action Plan to develop Vietnam's shrimp industry until 2025*

| Order                      | Categories              | Unit              | 2016           | 2020           | 2025             |
|----------------------------|-------------------------|-------------------|----------------|----------------|------------------|
| <b>Shrimp farming area</b> |                         | <b>ha</b>         | <b>714,239</b> | <b>740,000</b> | <b>800,000</b>   |
| 1                          | Black tiger shrimp      | ha                | 600,000        | 600,000        | 600,000          |
| 2                          | White leg shrimp        | -                 | 94,246.        | 110,000        | 150,000          |
| 3                          | Giant freshwater shrimp | -                 | 19,993         | 30,000         | 50,000           |
| 4                          | Lobster                 | m <sup>3</sup>    | 800,000        | 1,000,000      | 1,200,000        |
| <b>Harvest output</b>      |                         | <b>ton</b>        | <b>668,814</b> | <b>832,500</b> | <b>1,153,000</b> |
| 1                          | Black tiger shrimp      | -                 | 263,853        | 320,000        | 400,000          |
| 2                          | White leg shrimp        | -                 | 393,429        | 480,000        | 700,000          |
| 3                          | Lobster                 | -                 | 1,800          | 2,500          | 3,000            |
| 4                          | Giant freshwater shrimp | -                 | 9,732          | 30,000         | 50,000           |
| <b>Export turnover</b>     |                         | <b>\$ million</b> | <b>3,650</b>   | <b>5,500</b>   | <b>10,000</b>    |
| 1                          | Black tiger shrimp*     | -                 | 930            | 1,500          | 2,900            |
| 2                          | White leg shrimp*       | -                 | 1,956          | 3,000          | 5,500            |
| 3                          | Lobster                 | -                 | 80             | 100            | 200              |
| 4                          | Giant freshwater shrimp | -                 | 20             | 50             | 100              |
| 5                          | Non-quota export        | -                 | 100            | 100            | 100              |
| 6                          | Export at side          | -                 | 300            | 450            | 900              |
| 7                          | Natural shrimp          | -                 | 264            | 300            | 300              |

**THANKS YOU FOR YOUR ATTENTION**

