2nd National Aquaculture Summit: Improving Governance in Aquaculture Value Chains

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Outline

1. Aquaculture: status, challenges, and potential
2. Aquaculture value chains
3. Policy, regulatory, and institutional issues
4. Learning from Thailand

Aquaculture: status, challenges, and potential

Status of Philippine Aquaculture

- With 7,107 islands and over 36,000 km of coastline, the **Philippines ranks fifth in the world** after Canada, Indonesia, Greenland, and Russia in **coastline length**.
- In 2015, the Philippines' total agriculture GDP reached PHP1,172 billion. **Fourteen percent came from fisheries and aquaculture products**
- In 2015, the Philippine **exports** were only 28 percent of Indonesia's and 16 percent that of Vietnam.

Country	Fish, shrimps, mollusc	Prepared Fish	Prepared shrimp, others	Seaweeds and Carrageenan	Total
Vietnam	4,299	401	1,182	3	5,885
Thailand	1,738	2,625	1,038	9	5,410
Indonesia	2,650	346	605	196	3,797
Philippines	473	238	56	235	1,002
Malaysia	504	102	33	7	646

Source: Dy, R. (2017). Agribusiness and Rural Progress: actions for poverty reduction. Pasig City, Philippines: University of Asia and the Pacific.

The Aquaculture Industry and Inclusive Growth (1)

- In a study coordinated by the Food and Agriculture Organization of the United Nations (FAO) (2015), the contribution of the Philippine aquaculture was found to be about **3.5% of GDP** and **28.7% to agriculture GDP** (reference date: 2012 to 2014).

- The study found that the **socio-cultural factors** that can be related to the successful development of aquaculture in a community are as follows:
  1. the knowledge of **appropriate aquaculture technologies**,
  2. the **skills and resources** to use the technologies,
  3. the **formation of groups, cooperatives or clusters** especially in communities with strong clan or community ties,
  4. the **inclusion of women** especially in small-scale aquaculture for this provide household benefits

Source: Ayson (2015). Aquaculture contributes to food security and poverty alleviation. http://www.seafdec.org.ph/2015/aquaculture-contributes-food-security-poverty-alleviation/

The Aquaculture Industry and Inclusive Growth (2)

- Some 1.6 million small fishers who have a high incidence of poverty, may potentially benefit from improved aquaculture
- Food processing industry will thrive with expanded raw materials; other forward and backward market linkages
- Third, fisheries and aquaculture play second fiddle to the DA centralized commodity programs, such as rice and corn.
- Fourth, sectoral exports lag severely compared with ASEAN peers
- Fifth, the imperative to protect the Philippine waters from poaching and destructive fishing

Aquafarm Type/ Environment	Area of Aquafarms (Hs.)	Number of Aquafarms
ALL AQUA FARMS	170,733.9	129,763
FISHPOND	151,342.4	73,812
Brackishwater	134,739.9	26,986
Freshwater	16,602.5	46,826
FISH PEN	6,655.6	3,078
Brackishwater	83.6	419
Freshwater	6,296.0	1,860
Marine	276.0	799
FISH CAGE	2,125.6	10,639
Brackishwater	136.5	1,606
Freshwater	915.6	5,931
Marine	1,073.5	3,102
OYSTER	356.5	3,303
MUSSEL	350.2	2,303
SEAWEED	9,155.8	34,190
RICE FISH	457.9	352
SMALL FARM RESERVOIR	290.0	2,086

Note: Compiled data from 2005 to 2010
Source: PSA inventory of aquaculture farms, June 2012

PSA (2016)	National Production (in MT)
Seaweeds	1,404,519.2
Milkfish	398,088.2
Tilapia	259,045.6
Grouper	172.6
Carps	16,849.2
Oyster	20,260.8
Mussel	19,774.6
Mudcrab	16,198.5
Whiteleg Shrimp	1,673.7
Black Tiger Prawn	49,139.5

No. of Facilities (as of Sept. 2016)	
CAR	3
Region 1	4
Region 2	6
Region 3	5
Region 4A	5
Region 4B	6
Region 5	7
Region 6	6
Region 7	8
Region 8	8
Region 9	4
Region 10	7
Region 11	4
Region 12	2
Region 13	3
ARMM	2
TOTAL	**80**

DA-BFAR Established Mariculture Parks (as of 2017)	
Total Declared Area	34,806.8
Total Area Developed	1,362.3
Total No. of BFAR Managed MPs	16
Total No. of LGU Managed MPs	27
Total No. of Non-Operating MPs	24
Total No. of Established MPs	67

- As of September 2015, there are 80 aquaculture facilities nationwide. But only half of this (e.g. 40 facilities) are fully-functioning.

Region	Total No. of FLAs	Total Area (Ha.)
Region 1	200	1,244.5
Region 2	7	75.9
Region 3	65	489.2
Region 4A	52	4,832.5
Region 4B	319	4,759.1
Region 5	453	7,459.4
Region 6	1,475	14,202.4
Region 7	446	4,497.1
Region 8	319	4,730.3
Region 9	436	7,942.8
Region 10	65	1,473.3
Region 11	135	1,311.6
Region 12	81	1,163.9
Region 13	142	2,502.9
ARMM	35	776.4
TOTAL	4,230	57,461.2

Data source: Fisheries Regulatory & Quarantine Division Fishpond Lease Section
From: 1973-2016

Fisheries: Volume of Production by Sector, Philippines, 2013 - 2015 (Metric Tons)

	2013	2014	2015	Annual Growth (13-14)	Annual Growth (14-15)
AQUACULTURE	2,373,386.5	2,337,605.0	2,348,161.2	(1.51)	0.45
Brackishwater Fish cage	1,031.3	979.8	1,172.0	(4.99)	19.61
Brackishwater Fish pen	915.8	855.6	832.2	(6.58)	(2.73)
Brackishwater Fishpond	325,463.7	320,832.9	323,629.0	(1.42)	0.87
Freshwater Fish cage	105,320.5	87,742.2	94,723.1	(16.69)	7.96
Freshwater Fish pen	65,176.6	62,643.3	60,833.3	(3.89)	(2.89)
Freshwater Fishpond	148,131.6	148,740.6	147,569.4	0.41	(0.79)
Marine Fish cage	101,572.1	110,712.6	105,606.5	9.00	(4.61)
Marine Fish pen	22,251.3	14,256.4	11,148.7	(35.93)	(21.80)
Oyster	22,069.8	22,355.2	20,260.8	1.29	(9.37)
Mussel	22,894.2	18,761.8	15,949.1	(18.05)	(14.99)
Seaweed	1,558,377.7	1,549,576.0	1,566,361.7	(0.56)	1.08
Small Farm Reservoir	178.2	146.5	72.0	(17.78)	(50.81)
Rice Fish	3.5	2.2	3.5	(37.62)	59.78

Source: PSA (2016). Fisheries Statistics of the Philippines, 2013-2015

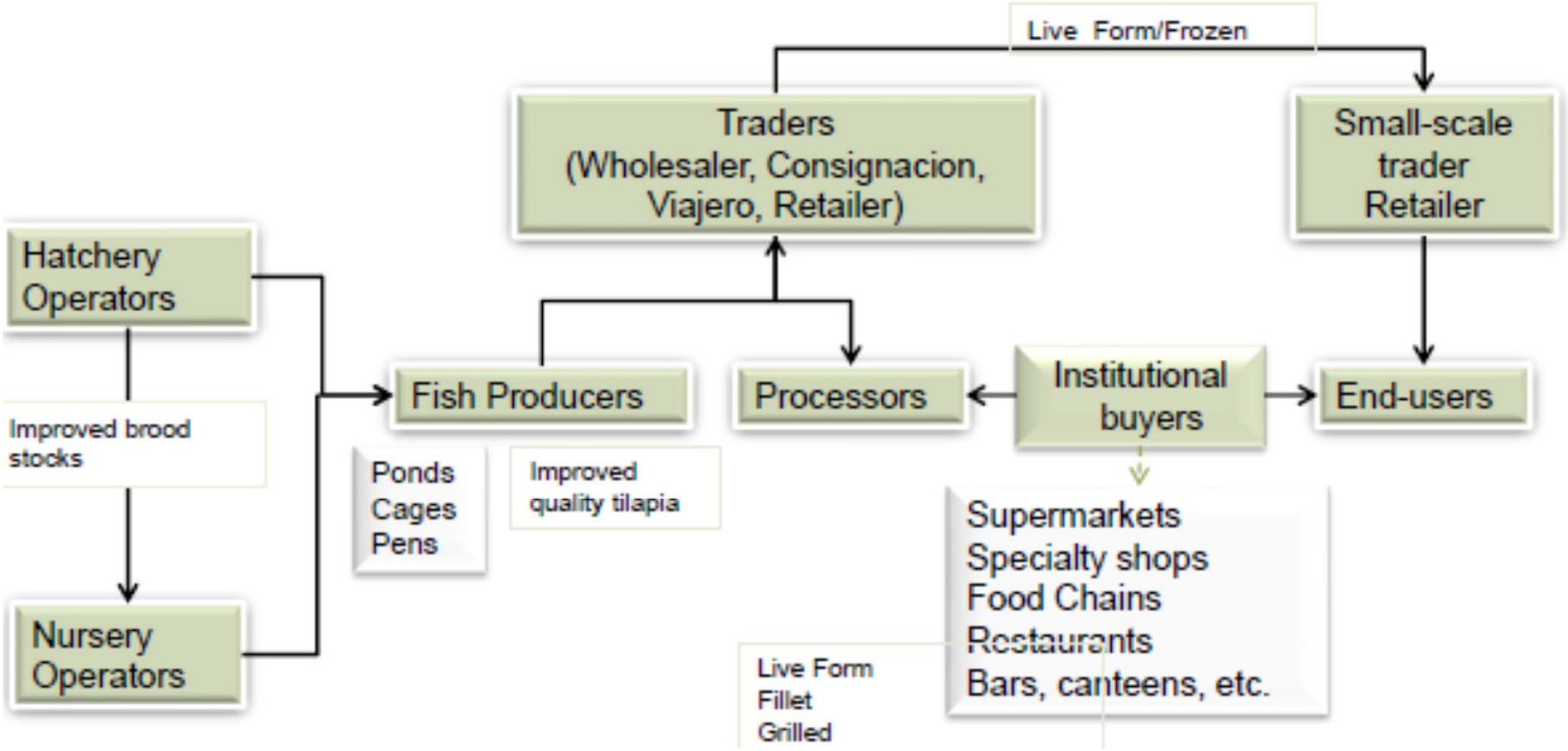
Fisheries: Value of Production by Sector, Philippines, 2013 - 2015 (million Pesos)

	2013	2014	2015	2016	Percentage Share (2016)
AQUACULTURE	93,731.2	93,949.0	93,340.9	91,141.9	100.00
Brackishwater Fish cage	123.0	109.1	131.2	106.7	0.12
Brackishwater Fish pen	93.7	90.1	88.2	216.2	0.24
Brackishwater Fishpond	**48,335.7**	**48,514.6**	**50,442.5**	**51,787.2**	**56.82**
Freshwater Fish cage	7,727.8	7,079.9	7,557.6	7,559.9	8.29
Freshwater Fish pen	3,679.4	3,455.1	3,325.2	2,815.5	3.09
Freshwater Fishpond	**10,862.8**	**11,127.2**	**11,019.4**	**10,179.9**	**11.17**
Marine Fish cage	**10,596.6**	**11,267.3**	**10,928.0**	**10,776.8**	**11.82**
Marine Fish pen	1,971.4	1,374.4	1,131.0	1,113.3	1.22
Oyster	170.9	179.5	180.9	203.4	0.22
Mussel	252.6	222.7	215.4	273.8	0.30
Seaweed	9,903.2	10,517.7	8,315.3	6,104.7	6.70
Small Farm Reservoir	13.7	11.3	5.9	0.3	0.00
Rice Fish	0.2	0.2	0.3	4.3	0.00
Value of Production as Percentage of GDP (%)	**0.81**	**0.74**	**0.70**	**0.63**	

Source: PSA (2016). Fisheries Statistics of the Philippines, 2013-2015

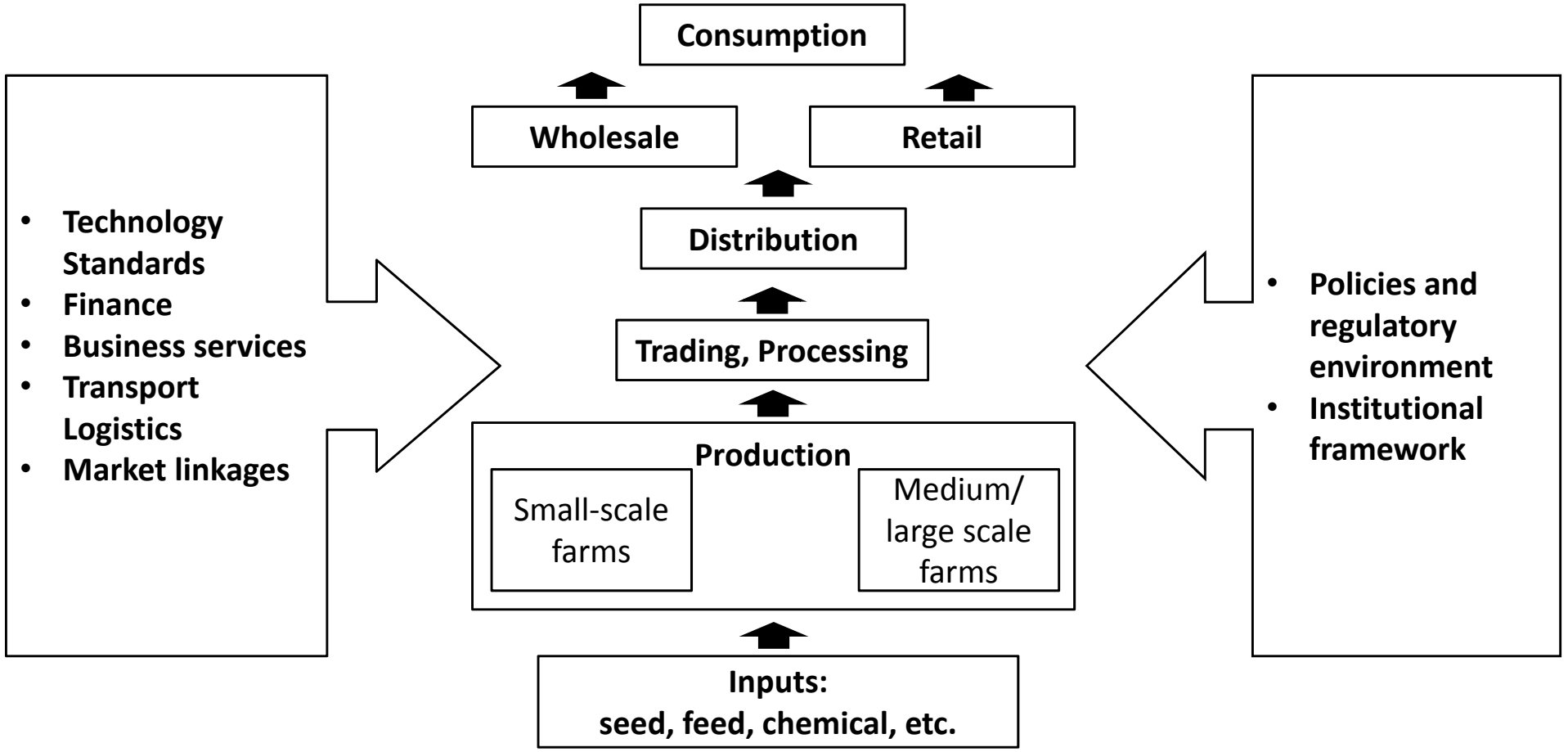
Aquaculture value chains

Tilapia Supply Chain: Major Players and their Activities



Source: Jamandre, W., Hatch, U., Bolivar, R. and R. Borski. "Improving the supply chain of Tilapia industry in the Philippines", a paper presented during the IIFET 2012 Tanzania Proceedings. https://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/35115/Improving the Supply Chain of Tilapia Industry of the Philippines.pdf?sequence=1

A Value Chain Model for Aquaculture



Coordination - horizontal - vertical

Productivity improvement and technology

Market Linkages

CHALLENGE OF COORDINATION TO GET RIGHT MIX

Standards, transport, logistics, power

Financing

Major Governing Regulations

- The Philippine Fisheries Code of 1998 (RA 8550) – development, management, conservation and utilization of fisheries and aquatic resources
  - Chapter II. Article III. Aquaculture
  - Chapter III. Article II. The Fisheries and Aquatic Resources Management Councils (FARMCs)
  - Chapter IV. Fishery Reserves, Refuge and Sanctuaries
  - Chapter VI. Prohibition and Penalties
- Fisheries Administrative Order No 196 (2000) provides detailed guidelines on the creation and implementation of FARMCs
- The Philippine Environment Code (1988) – provides a chapter on fisheries and aquatic resources and requires the government to establish a system of rational exploitation

Sources: http://www.fao.org/fishery/countrysector/naso_philippines/en; Aquaculture Asia – Soya Bean Association (Regional Workshop held on June 11-12, 2013) http://www.aquaculture.asia/pages/soybeanassociation.html

- **FAO No. 214** – Code of Practice for Aquaculture
- **FAO No. 215** – Insurance for aquaculture crops/stocks.
- **FAO No. 216** – Obstruction to Navigation Streams, Rivers, Lakes, and Bays
- **FAO No. 217** – obstruction to Defined Migration Paths
- **FAO No. 218** – Yearly Report on Aquaculture Projects

SOURCE: LIFTED FROM PHILIPPINES' PRESENTATION DURING THE TWO-DAY REGIONAL WORKSHOP AT THE NOVOTEL PLOENCHIT IN BANGKOK, THAILAND LAST JUNE 11, 2013.
HTTP://WWW.AQUACULTURE.ASIA/PAGES/SOYBEANASSOCIATION.HTML

Policy, regulatory, and institutional Issues

Some Issues (1)

- Siltation from deforested upland areas
- Pollution
- Destructive fishing practices (muro-ami, cyanide fishing, blastfishing, use of mesh nets)
- Uncontrolled shoreline development
- Overharvesting of mangroves
- Damage from anchors, divers, tourists, collectors
- Lime extraction and sand quarrying
- Proliferation of illegal fish pens/cages in rivers and lakes
- High fish stocking densities in fish pens/cages that causes mass mortality
- Poor management practices such as overfeeding, etc.

Source: Lifted from Philippines' presentation during the two-day regional workshop at the Novotel Ploenchit in Bangkok, Thailand last June 11, 2013. http://www.aquaculture.asia/pages/soybeanassociation.html

ISSUES AND PROBLEMS

- Siltation from deforested upland areas



- Destructive fishing practices (muro-ami, cyanide fishing, blastfishing, use of fine mesh nets)


- Pollution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Some Issues (2)

The case of Laguna de Bay:

- Environment-related problems
- Lack of access to cheap capital
- Obstruction of navigational lanes by fishpens
- Existence of illegal fishpens
- Poaching and overall limited support from the government

Source: photo by neodelphi of flickr.com

Some Issues (3)

- Results of the 2006 ADB Study:
  - There is a FLA registry maintained by the BFAR but there is a lack of centralized database on private fishponds covered by Certificates of Land Title
  - FLA holders undertook “paper subdivisions” of their properties so as to comply to the Comprehensive Agrarian Reform Law that provided for a retention limit of 5 ha.
  - Granting of long-term leases of up to 25 years, renewable for another 25 years is intended to give fishpond developers a chance to recoup their investment –situation showed otherwise; almost a third of the FLAs are sill either semi-developed or partially developed
  - Production from brackishwater fishponds has stagnated and may even be on the decline
  - Very low annual rental that prevailed for many years made it affordable for people to apply for an area larger than they can afford to develop and operate
  - Limit fishpond holdings to those who are genuinely interested in producing fish rather than as having a “status symbol” of sorts
  - **Challenge: how to bring in fresh investments and improve productivity?**

Source: ADB (2006). “Strategy for Sustainable Aquaculture Development for Poverty Reduction, Philippines” Midterm Report.

Learning from Thailand, among top global producers

- Thailand pro-actively supports the industry. Its long history of regulation and policy support has resulted in a mature and highly disciplined industry.
- Regulations – standardized and stricter in line with strengthened governance in resource allocation, environmental integrity, stringent food safety and quality standards
- Market expansion- from local to national and to international markets
- Early investments in infrastructure- transport; electricity; free-of-charge testing, analysis that led to increased sanitary measures that supported product upgrading [value addition]

Source: Ponte, Kelling, Jespersen and Kruijssen [2014]

Learning from Thailand (2)

- Highly regulated quality inputs such as seed and feeds to support product upgrading
- Other public services: technical extension service, free-of-cost training, testing and auditing services as well as internet-based information services and market facilitation
- Postharvest documentation that supports traceability has provided a solid base for third-party certification
- Public and private collaboration in preventing early morbidity syndrome in shrimp

Source: Ponte, Kelling, Jespersen and Kruijssen [2014]

Conclusion

- Different participants in the value chains benefit from the market linking mechanism created by the value chains.
- Domestic regulations [e.g., food safety and quality control, standards] and public sector support in terms of necessary public goods [e.g, research and development] , affect the efficient functioning of the value chains.
- An important regulatory concern is the fishpond lease agreements [FLAs] that have to be more responsive to the requirements of a growing aquaculture industry
- It is very important to improve the governance of value chains. An important part of governance is the policy, regulatory and institutional framework of the value chain. Thailand provides neat lessons.
- Private-public sector partnership/collaboration is imperative.

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