



# An Analysis of Striped Snake Head Fish Supply Chain in Thailand

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# Researchers

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# Introduction

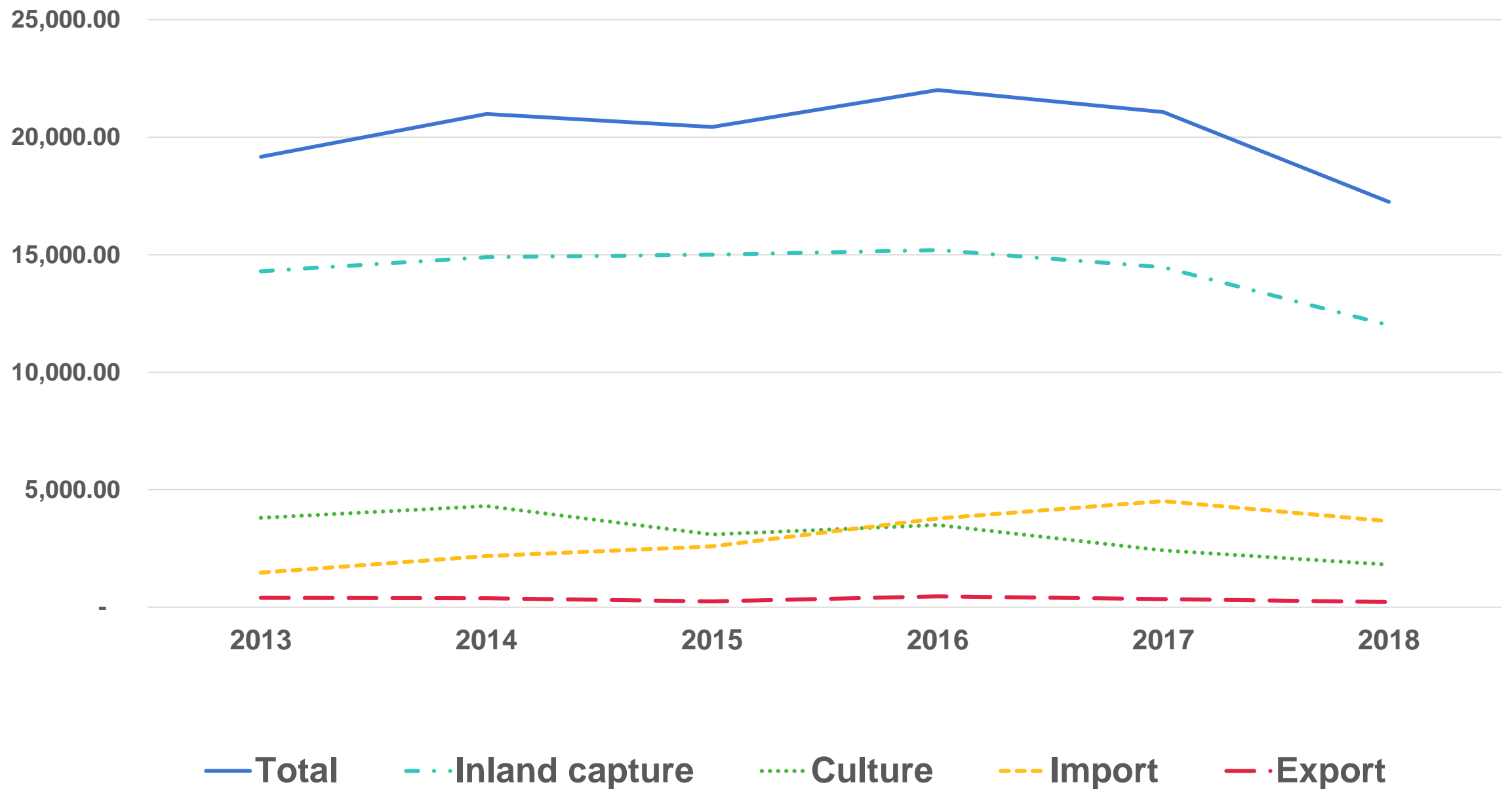
- Snakehead fish is a high value fish and it can increase farmer incomes.
- Snakehead Fish Breeding just succeeded by DOF in 2013 but it still need more improvement and transfer knowledge to farmers both hatchery and grow-out farmers.
- During the support farmers, the demand also need to study what consumer want.
- Moreover, the industry has been facing the import snakehead fish from Vietnam.
- How to improve the snakehead fish industry from upstream to downstream.
- Value chain study can support and develop the snakehead fish industry.





# Snakehead fish quantity in Thailand

Snakehead fish quantity during 2013-2018 (Ton)



# Aim



**Study supply chain of the Snakehead fish in Thailand**



**Study consumer behaviour of the Snakehead fish in Thailand**



# Data and Method

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## Primary data

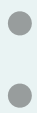
1. 133 stakeholders from hatchery farmers, grow-out farmers, middleman, local processors and restaurants in Thailand, grow-out farmer and feed agents in Vietnam.

2. Focus group: 20 consumption stakeholders

3. 472 Consumer in the North, N/E and Bangkok

## Secondary data

Related research and articles



-Farms decrease  
-Fish Import increases  
-Lack of value added

Supply chain of the snakehead fish analysis

Cost and Benefit Analysis (Upstream to Downstream)

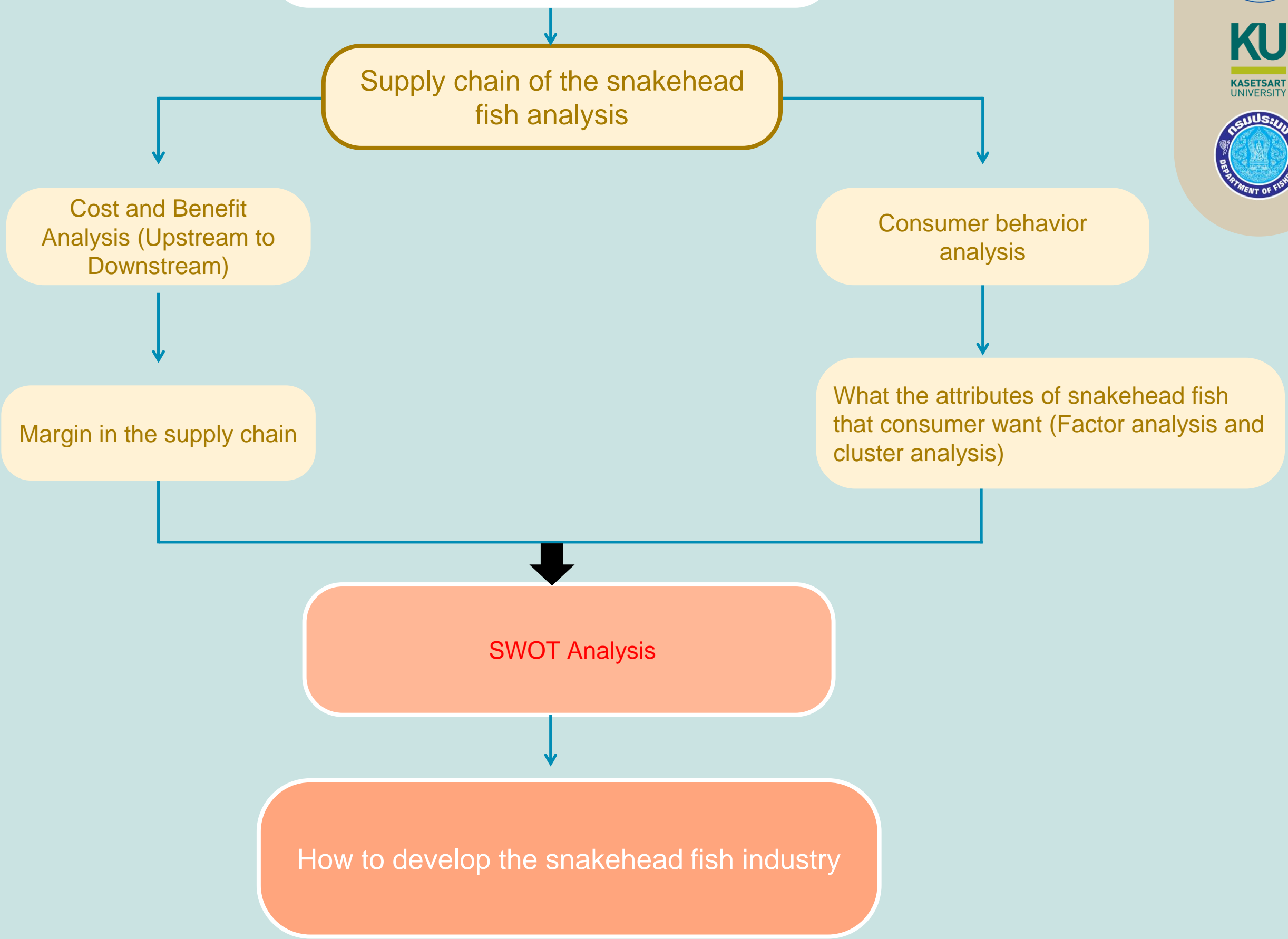
Consumer behavior analysis

Margin in the supply chain

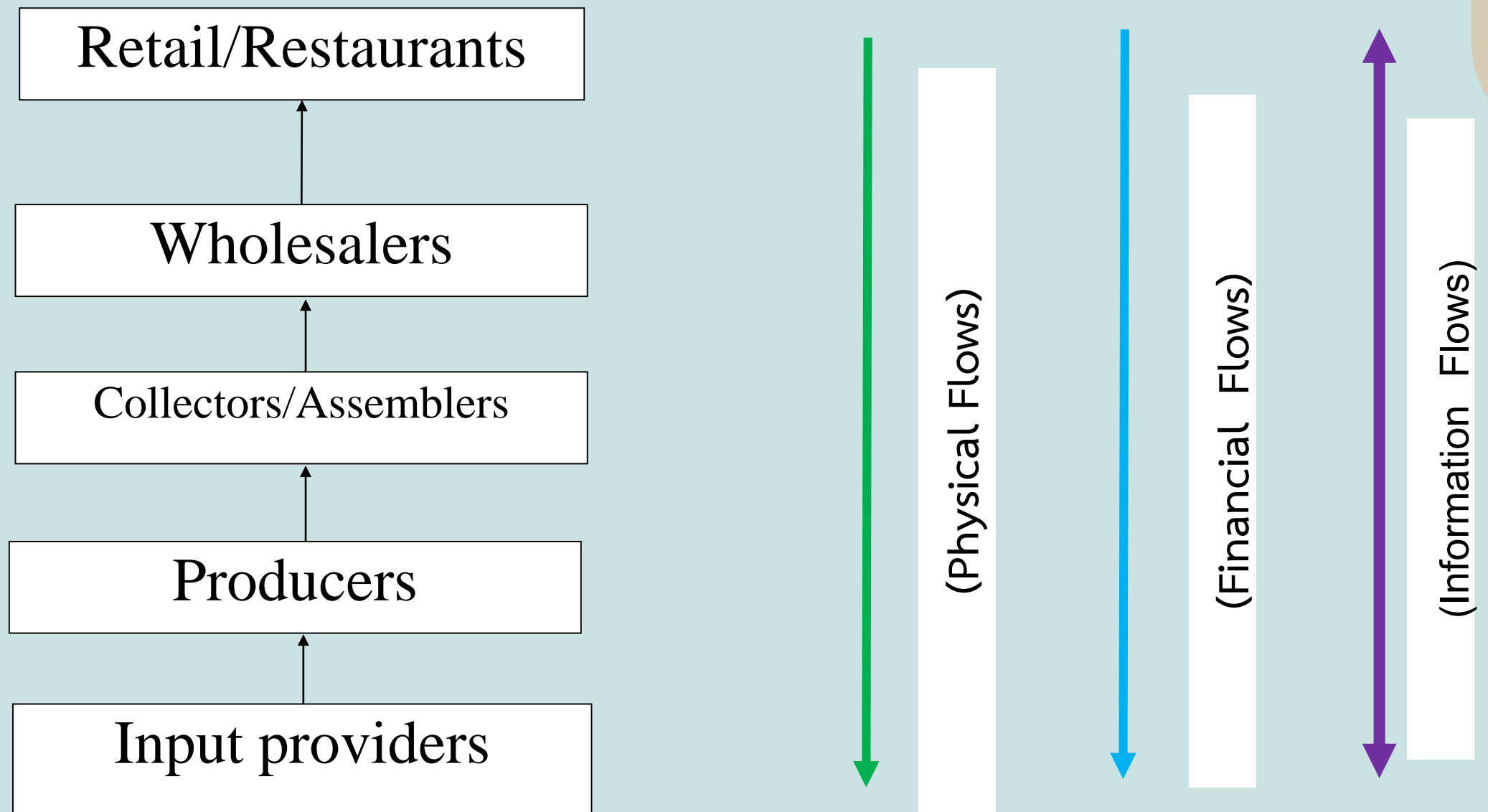
What the attributes of snakehead fish that consumer want (Factor analysis and cluster analysis)

SWOT Analysis

How to develop the snakehead fish industry



# Supply chain concept





# Calculation of marketing margin.



Value chain actor	Unit Total Cost	Added Unit Cost	%Added Cost	Unit Price	Unit Profit	%Profit	Value added	% Value added
Farmers	A	A	A/F	G	G-A	$\frac{(G-A)}{(K-F)}$	G	G/J
Assemblers	G+B	B	B/F	H	H-G-B	$\frac{(H-G-B)}{(K-F)}$	H-G	$\frac{(H-G)}{J}$
Processors/Wholesalers	H+C	C	C/F	I	I-H-C	$\frac{(I-H-C)}{(K-F)}$	I-H	$\frac{(I-H)}{J}$
Retailers	I+D	D	D/F	J	J-I-D	$\frac{(J-I-D)}{(K-F)}$	J-I	$\frac{(J-I)}{J}$
Total		F=A+B+C+D	100		J-F	100	J	100

# Study Area

Kampheang Phet

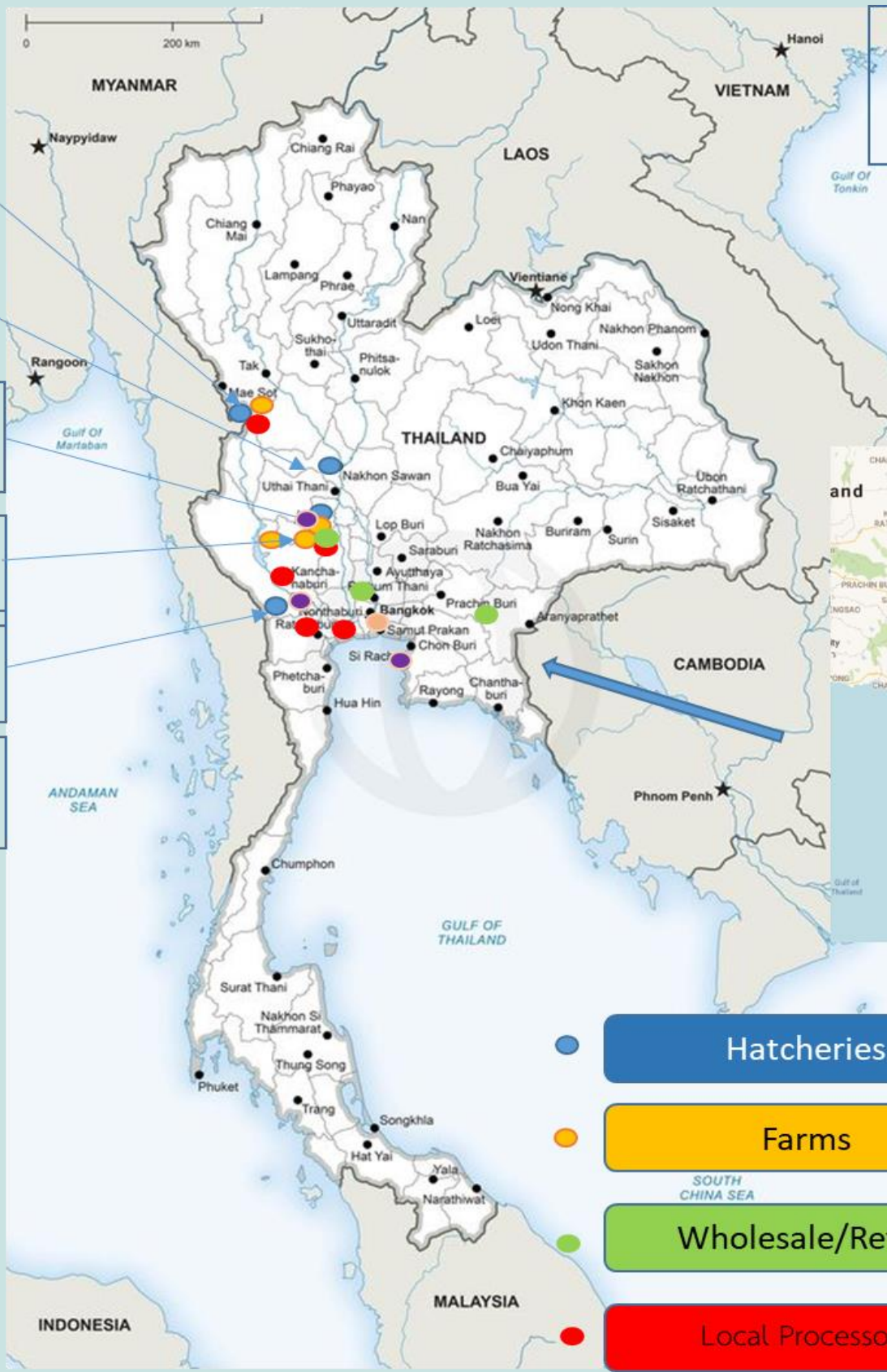
Nakhon Sawan

Singburi

Angthong

Nakhonpathom

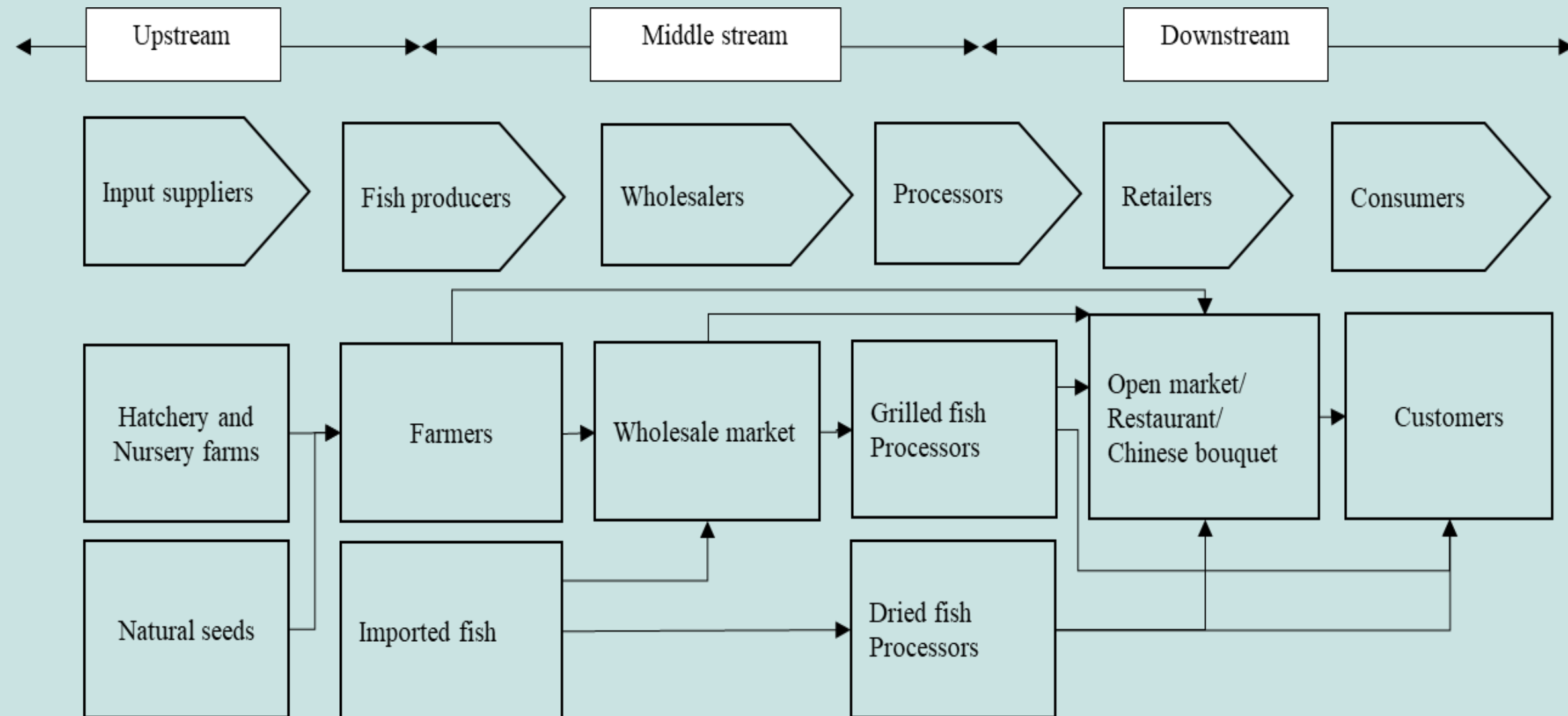
Pratumtani



- Hatcheries
- Farms
- Wholesale/Retail
- Local Processors
- Restaurants/Chinese bouquet

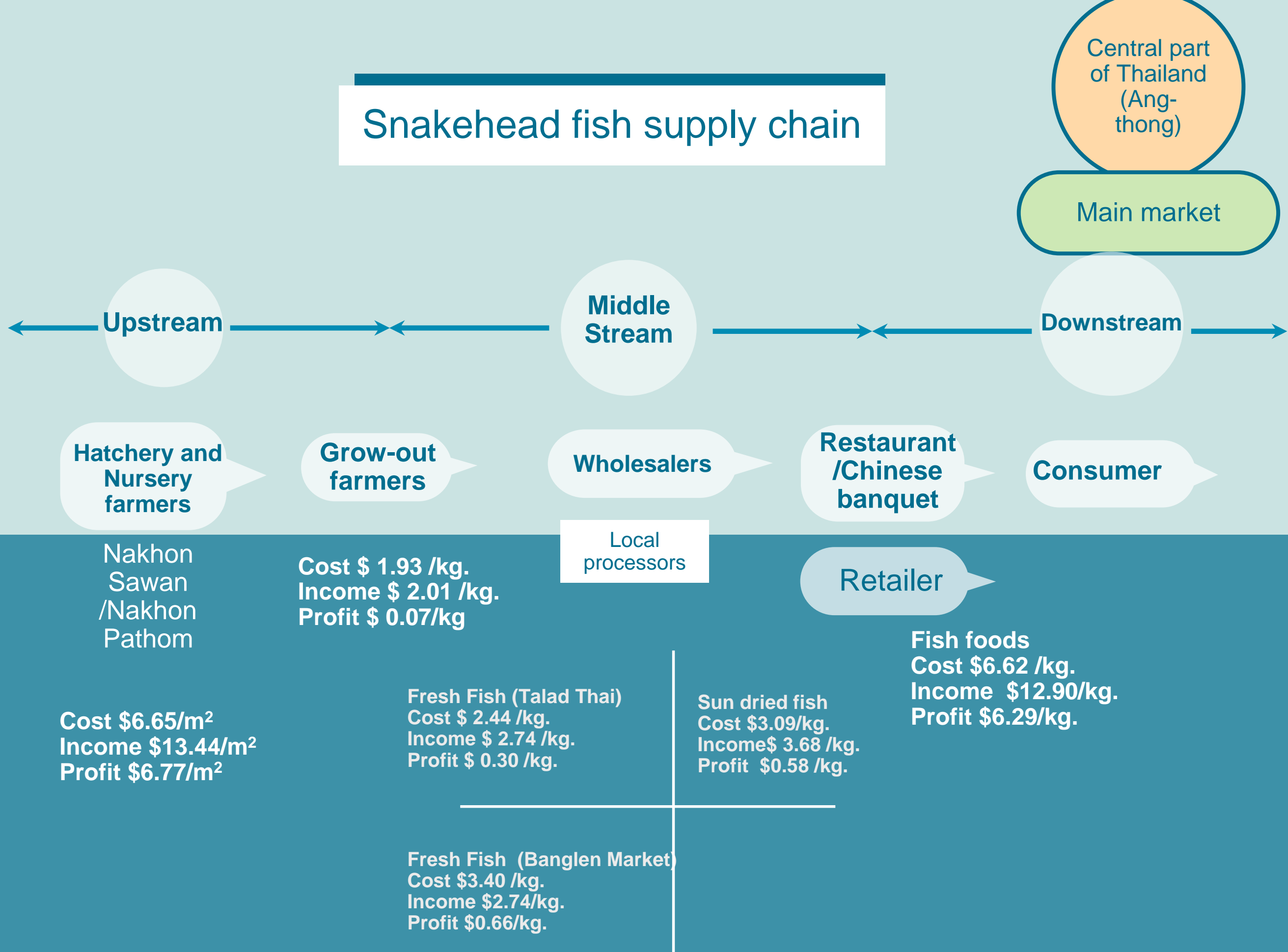
# Result

## Snakehead fish supply chain in Thailand





# Snakehead fish supply chain



# Valued added in Marketing Channel

Farmer – Processors – Retailers

(Unit: USD/kg.)

Activities	Total cost	(Added cost)	% Added cost	Selling price	Profit	%Profit	Value added	% Value added
<b>Grow-out snakehead fish farmers</b>	1.94	1.94	71.22	2.01	0.07	7.34	<b>2.01</b>	54.64
Assemblers/ Ang Thong Market	2.44	0.43	15.73	2.74	0.30	31.90	0.73	19.92
Dried snakehead fish (Fresh fish 1 kg = 0.76 kg dried fish)	3.10	0.36	13.05	3.68	0.58	60.76	0.94	25.44
Total		2.72	100		0.95	100	<b>3.68</b>	100





# Farmer – Wholesaler -Restaurant and Chinese Bouquet

(USD/Kg)

Activities	Total cost	(Added cost)	%Added cost	Selling price	Profit	%Profit	Value added	% Value added
<b>Grow-out snakehead fish</b>	1.94	1.94	31.74	2.01	0.07	1.03	2.01	15.57
Wholesale market	2.44	0.43	7.01	2.74	0.30	4.48	0.73	5.68
Sub-wholesale market	3.40	0.66	10.79	3.54	0.13	1.97	0.79	6.15
Restaurants	6.62	3.08	50.46	12.90	6.29	92.52	<b>9.37</b>	72.6
Total		6.11	100.00		6.79	100.00	<b>12.90</b>	100.00



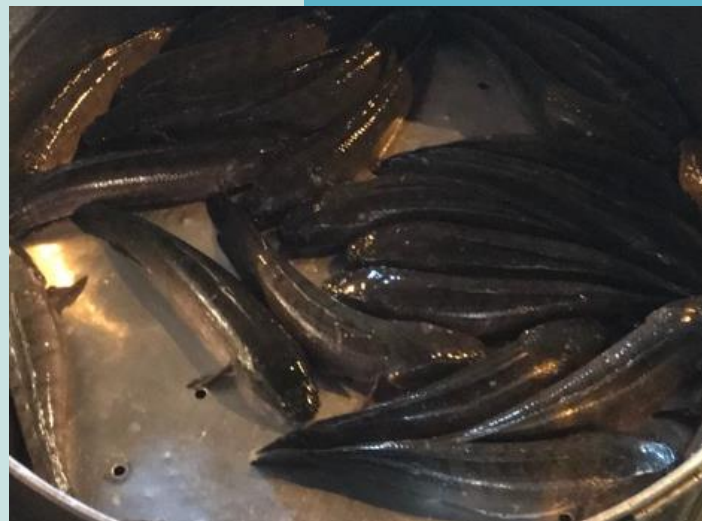
# Thailand farm vs. Vietnam farm



VS

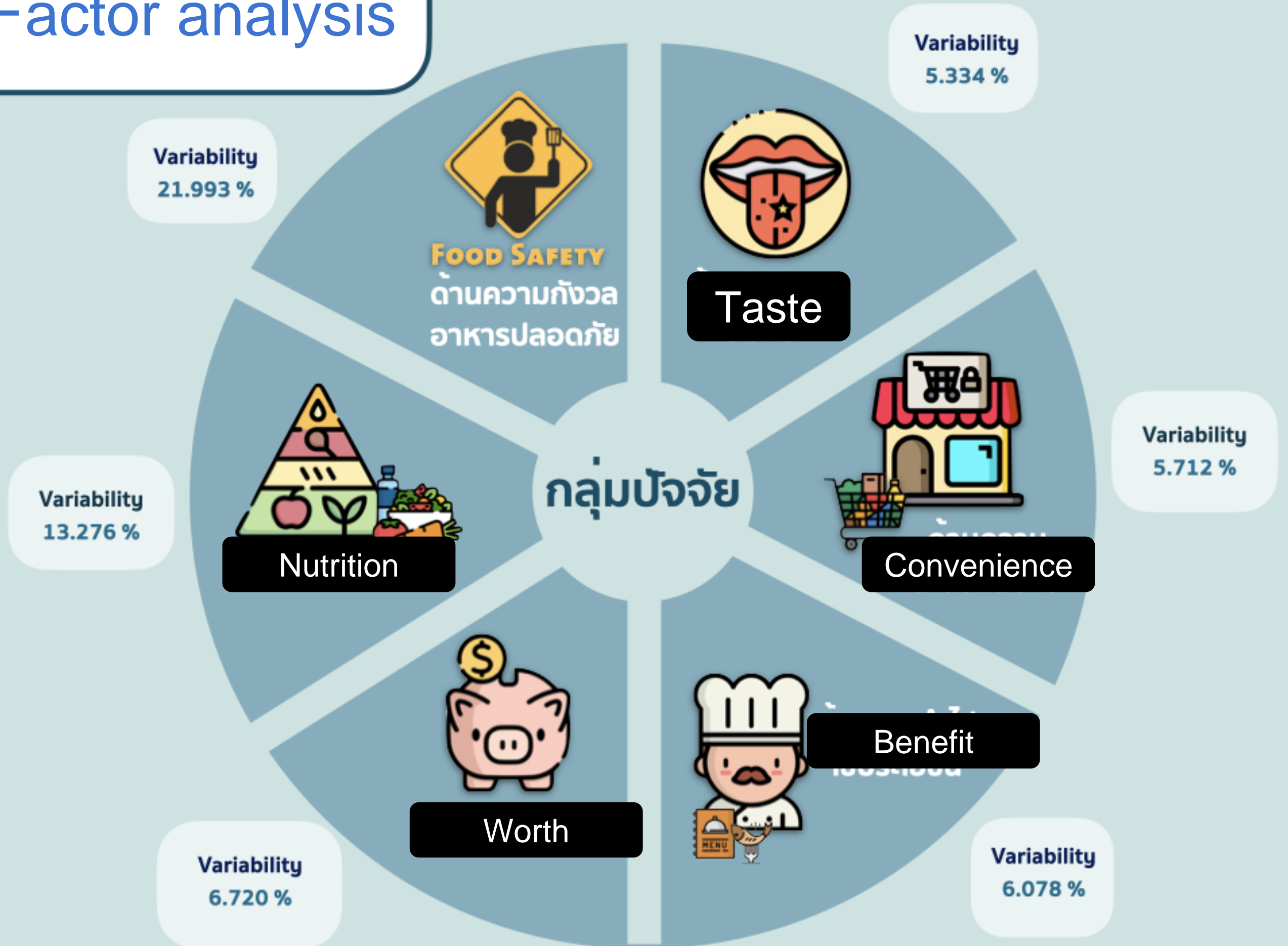


Average age 47.78 days: 2,380 fish/Kg (\$0.204-\$0.048/fish)	Fry/Fingerling size	700-1,200 unit/Kg. (\$0.005/unit)
14,422.42 fish/rai (1rai=1600m <sup>2</sup> )	Stocking density	160,000 fish/rai
\$1.67/Kg.	Feed and Labor costs	\$1.45 /Kg.
\$0.97/Kg.	Feed price	\$0.88 /Kg.
\$1.23-2.64/Kg. (average price \$2.07/kg)	Farm gate	\$1.15-1.99/Kg.
4.7 Ton/rai	Yield/rai	80 ton/rai
-	Import price	\$0.98-1.61/kg
	Wholesale price in Thailand \$2.74-3.39/Kg.	





# Factor analysis



# What consumer want

Fresh snakehead fish:

Fish without head and scale

Price \$4.81/kg



Processed fish: (Ready to cook)

Sun dried fish (raw)

Slide fish with bone

Fish dish set



Ready to eat:

Sun dried fish

Grilled snakehead fish chili paste

Crispy fish





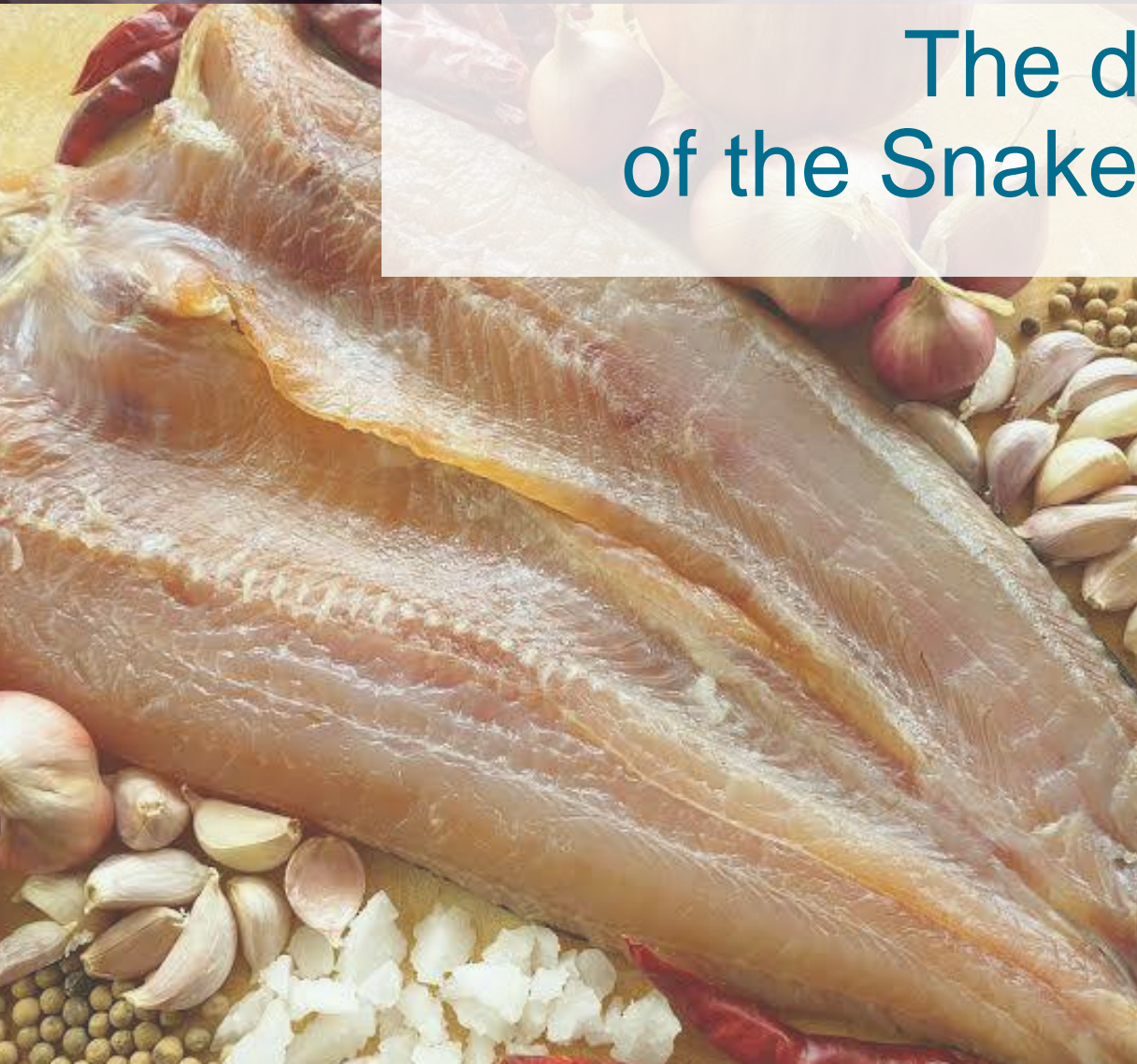
# Conclusions

- Hatchery farm : quality of fish seed is not consistent, less number of farm succeed for hatchery.
- Grow-out farm: Farmers still have faced a decrease of snakehead fish price because the large amount of imported snakehead fish from Vietnam. With the higher cost of production, a lot of grow-out farmers quit from farms. The rest of farmers gain low profit.
- Water quality in the farm and irrigation system is not good condition.
- Processed fish product do not meet what consumer want.





# The development of the Snakehead Fish Industry





## Increase production efficiency



### Hatchery farm

- Quality Broods
- Quality Fish Seed
- Increase Production



### Grow-out farmers (decrease the cost of production)

- Group farming
- Smart farm
- GAP standard
- Improve irrigation system in the farm



## Imported snakehead fish

- Import only processed fish instead of live fish from other countries
- Increase the standard of production at farm level from other countries



## Processed snakehead fish

- Ready to cook
- Ready to eat
- “Thai Snakehead Fish” Brand with Thailand standard







Q&A

THANK YOU

