

The IndoGAP: Strengthening The Indonesian Aquaculture Best Practices for Healthy, Safe, and Environmentally Friendly Aquaculture Products for Consumers

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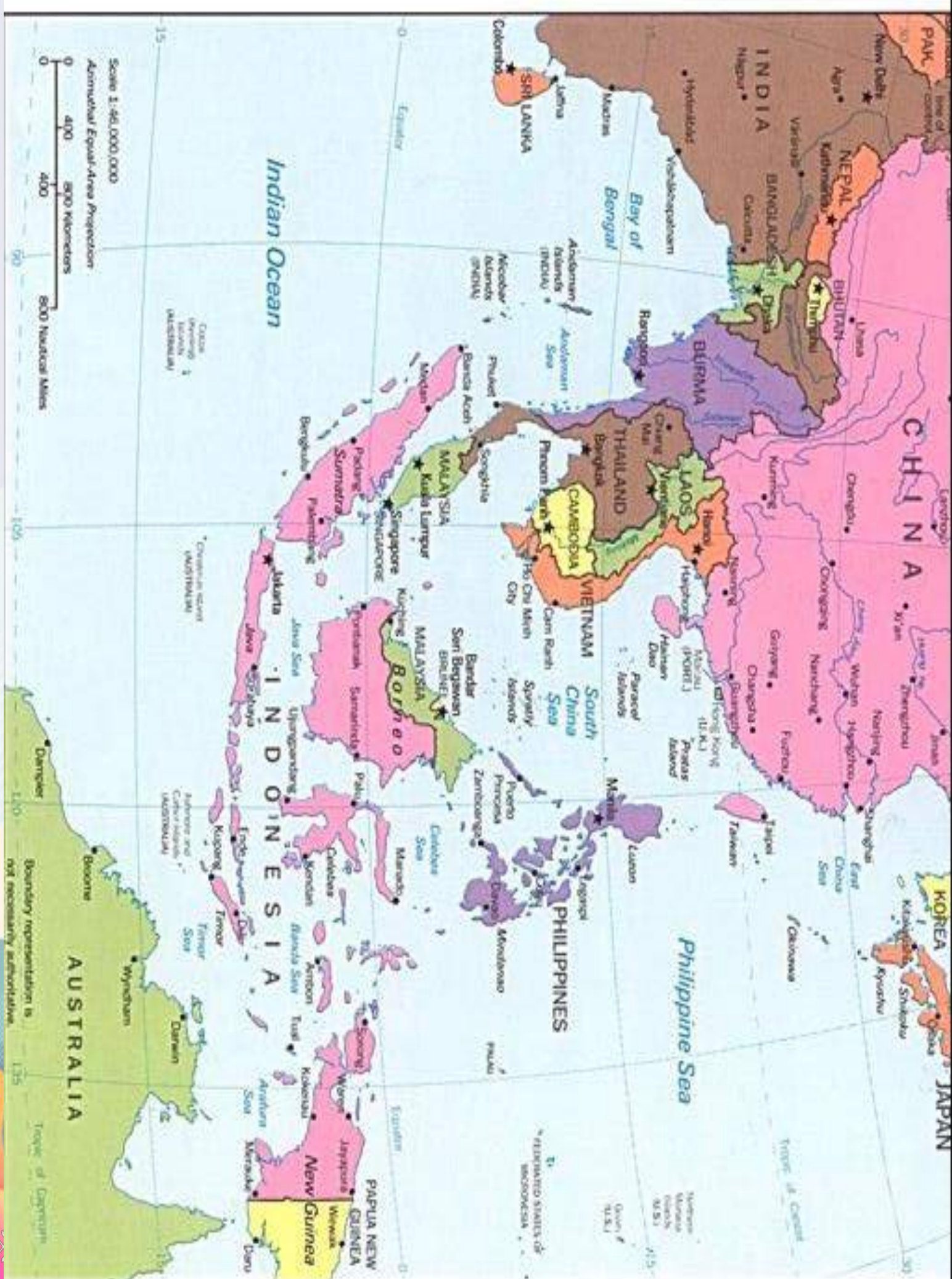


INDONESIA'S POSITION IN THE GLOBAL ECONOMY AND AQUACULTURE

❖ **Indonesia is the largest archipelagic country in the world consisting of 17,508 islands with 99,093 km coastline, the second longest after Canada.**

❖ **Blessed with the highest marine biodiversity on Earth and a unique geographical character, Indonesia encompasses 1.9 million km² of land mass (24%); 3.3 million km² of archipelagic seawater and territorial seas (42%); and 2.7 million km² of EEZ (34%). In addition, 28% of its total land mass is in the form of freshwater ecosystems including rivers, lakes, reservoirs (dams), and freshwater swamps (**National Agency for Geospatial Information, 2017**).**





Potensi Laut sebagai :

- 



- ❖ With total population of 267 million people, Indonesia is the fourth most populous country in the world, and having 'a demographic dividend (bonus)' from 2020 – 2032.
- ❖ Indonesia is a member of G-20. In 2019 (before the covid-19 pandemic), the country's GDP was US\$ 1.2 trillion (the 16th largest in the world), and GDP per capita was US\$ 4,000 (a middle-income country) ([World Bank, 2020](#)).

- ❖ In 2019, the number of poor people (who lives below the Indonesian poverty line (US\$ 1 per day) was 25,6 million people (9,6% total population) and unemployment rate of 6.5% ([BPS, 2019](#)).

- ❖ In order to achieve a high-income (rich) country status (GDP per capita > US\$ 11,500), Indonesia must produce an inclusive economic growth at least 7% per year in the next ten years ([Mc Kinsey Global Institute, 2019](#)).
- ❖ One of the largest potential sources of the country's economic growth is marine and fisheries sector, especially aquaculture.
- ❖ Indonesia has the largest aquaculture production potential in the world (100 million tons/year). Until 2019 its total aquaculture production was only about 17 million tons (17%) of which 11 million tons (65%) is seaweed and 6 million tons (35%) consists of fish, shrimps, crabs, and mollusks.
- ❖ Since 2009, Indonesia has been the second largest producers of aquaculture commodities in the world, after China ([FAO, 2018](#)).





INDONESIAN AQUACULTURE POTENTIAL, ITS UTILIZATION LEVEL, AND PRODUCTION

Indonesian Aquaculture Potential, its Utilization Level and Production

Types of fisheries	Potential areas (million km ²)	Potential production (million ton/year)	Production 2018 (million ton)	Utilization level (%)
A. Capture Fisheries				
1. Marine ecosystems	5.80	12.54	6,70	51.20
2. Freshwater ecosystems	0.54	0.90	0.66	52.22
B. Aquaculture				
1. Marine culture	0.24	60.00	10.52	17.50
2. Coastal aquaculture	0.05	34.36	2.93	8.50
3. Inland aquaculture	0.02	5.70	2.34	66.0
TOTAL	6.65	113.50	23.15	21.60

Source: KKP dan BPS (2019)

Production of Indonesian Aquaculture and Capture Fisheries, 2014-2018 (tonnes)

No	Commodities	2014	2015	2016	2017	2018
A	Aquaculture	14,359,130	15,634,093	16,002,319	16,114,991	15,790,294
	Seaweed	10,076,992	11,269,342	11,050,301	10,547,552	10,320,226
	Shrimps	602,663	580,348	667,245	919,988	932,698
	Fish	3,308,363	3,421,609	3,673,808	4,070,227	4,184,821
	Others	371,112	362,794	610,966	577,224	352,549
B	Capture Fisheries	6,484,346	6,677,802	6,580,191	6,891,936	7,355,854
	Marine	6,037,654	6,204,668	6,115,469	6,424,114	6,696,336
	Freshwater	446,692	473,134	464,722	467,822	659,518
	Total	20,843,476	22,311,895	22,582,510	23,006,927	23,146,148

Source: Ministry of Marine Affairs and Fisheries of RI, 2020



Total Area of Brackishwater (Coastal) Shrimp Ponds in Indonesia (2018)

Total Area
380.000 ha

TRADITIONAL

65%

SEMI INTENSIVE

25%

INTENSIVE - SUPER

10%



Production of Aquaculture by Main Commodities (tonnes)

NO	Commodity	2014	2015	2016	2017	2018
1	Seaweed	10,076,992	11,269,342	11,050,301	10,547,552	10,320,226
2	Nile Tilapia	999,695	1,084,281	1,114,156	1,288,735	1,169,145
3	Catfish (<i>Clarias</i> sp)	679,379	719,619	764,797	1,125,526	1,027,033
4	Shrimp	602,663	580,348	667,245	919,988	932,698
5	Milkfish	631,125	672,196	747,445	701,427	875,487
6	Common carp	434,653	461,546	497,208	320,941	534,075
7	Catfish (<i>Pangasius</i> sp)	418,002	339,069	392,918	319,967	373,258
8	Giant Gouramy	126,718	121,545	137,889	234,904	179,425
9	Grouper	13,346	16,795	11,504	70,294	16,537
10	Barramundi	5,447	6,558	7,890	8,432	9,864
11	Others	371,112	362,794	610,966	577,224	352,549
	Total	14,359,130	15,634,093	16,002,319	16,114,991	15,790,294

Source: Ministry of Marine Affairs and Fisheries of Rol, 2020

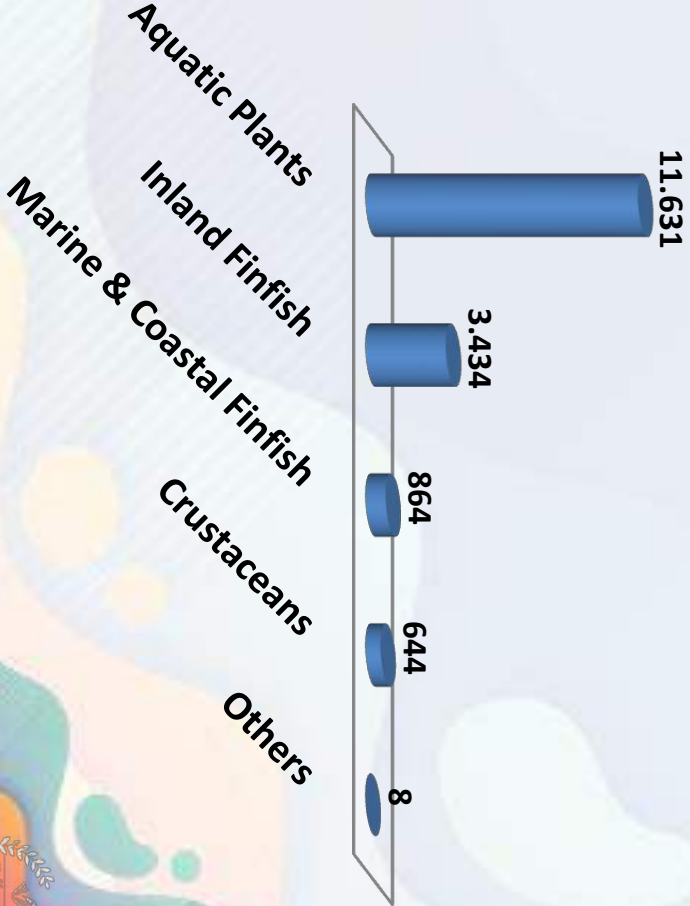


TOP 10 PRODUCERS OF WORLD AQUACULTURE IN 2016

Rank	Country	Tonnes (Thousand)	% of world total
1	China	63,631	57.80%
2	Indonesia	16,581	15.06%
3	India	5,703	5.18%
4	Vietnam	3,635	3.30%
5	Bangladesh	2,204	2.00%
6	Philippines	1,405	1.28%
7	Egypt	1,371	1.25%
8	Rep. of Korea	1,351	1.23%
9	Norway	1,326	1.20%
10	Chile	1,050	0.95%

Indonesia is **second** only to China as the largest aquaculture producer in the world

Indonesia's Aquaculture Production
(thousand tonnes)



MARINE CAPTURE PRODUCTION IN 2016



15,314,000 tonnes

19.3%



6,109,783 tonnes

7.7%



4,897,322 tonnes

6.2%



4,466,503 tonnes

5.6%



3,774,887 tonnes

4.8%

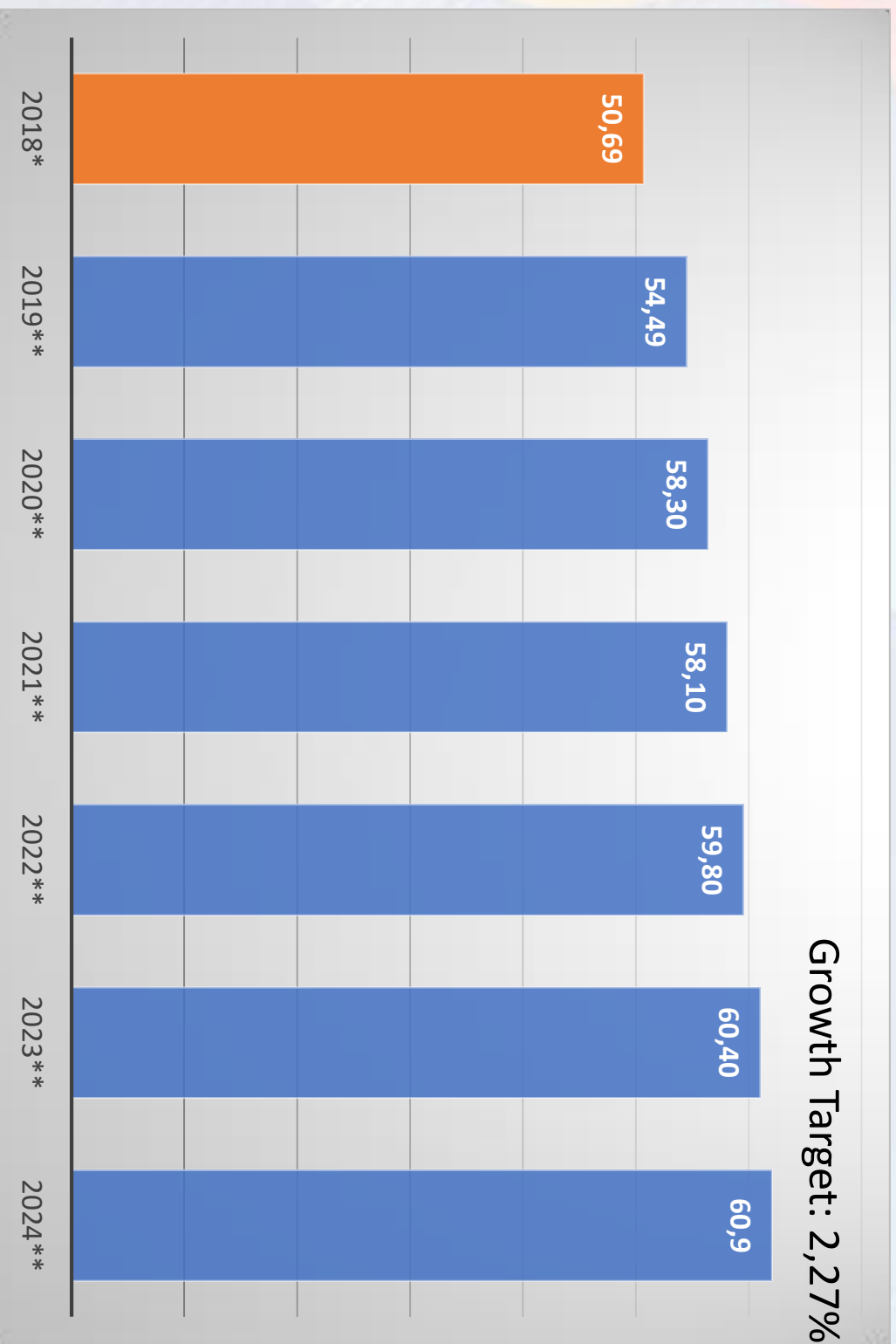
Country	Production (tonnes)			% Variation		Variation, 2015 to 2016 (tonnes)
	Average 2005-2014	2015	2016	2005-2014 (average) to 2016	2015 to 2016	

China	13 189 273	15 314 000	15 246 234	15.6	-0.4	-67 766
Indonesia	5 074 932	6 216 777	6 109 783	20.4	-1.7	-106 994
United States of America	4 757 179	5 019 399	4 897 322	2.9	-2.4	-122 077
Russian Federation	3 601 031	4 172 073	4 466 503	24.0	7.1	294 430
Peru	6 438 839	4 786 551	3 774 887	-41.4	-21.1	-1 011 664
Excluding anchoveta	989 918	1 016 631	919 847	-7.1	-9.5	-96 784
India	3 218 050	3 497 284	3 599 693	11.9	2.9	102 409
Japan*	3 992 458	3 423 099	3 167 610	-20.7	-7.5	-255 489
Viet Nam	2 081 551	2 607 214	2 678 406	28.7	2.7	71 192
Norway	2 348 154	2 293 462	2 033 560	-13.4	-11.3	-259 902
Philippines	2 155 951	1 948 101	1 865 213	-13.5	-4.3	-82 888
Malaysia	1 387 577	1 486 050	1 574 443	13.5	5.9	88 393
Chile	3 157 946	1 786 249	1 499 531	-52.5	-16.1	-286 718
Excluding anchoveta	2 109 785	1 246 154	1 162 095	-44.9	-6.7	-84 059
Morocco	1 074 063	1 349 937	1 431 518	33.3	6.0	81 581
Republic of Korea	1 746 579	1 640 669	1 377 343	-21.1	-16.0	-263 326
Thailand	1 830 315	1 317 217	1 343 283	-26.6	2.0	26 066
Mexico	1 401 294	1 315 851	1 311 089	-6.4	-0.4	-4 762
Myanmar*	1 159 708	1 107 020	1 185 610	2.2	7.1	78 590
Iceland	1 281 597	1 318 916	1 067 015	-16.7	-19.1	-251 901
Spain	939 384	967 240	905 638	-3.6	-6.4	-61 602
Canada	914 371	823 155	831 614	-9.1	1.0	8 459
Taiwan, Province of China	960 193	989 311	750 021	-21.9	-24.2	-239 290
Argentina	879 839	795 415	736 337	-16.3	-7.4	-59 078
Ecuador	493 858	643 176	715 357	44.9	11.2	72 181
United Kingdom	631 398	65 451 506	701 749	11.1	-0.4	-2 753
Denmark	735 966	868 892	670 207	-8.9	-22.9	-198 685
Total 25 major countries	65 451 506	66 391 560	63 939 966	-2.3	-3.7	-2 451 594
Total other 170 countries	14 326 675	14 856 282	15 336 882	7.1	3.2	480 600
World total	79 778 181	81 247 842	79 276 848	-0.6	-2.4	-1 970 994
Share of 25 major countries	82.0%	81.7%	80.7%			



INDONESIAN FISH CONSUMPTION AND MARKETING

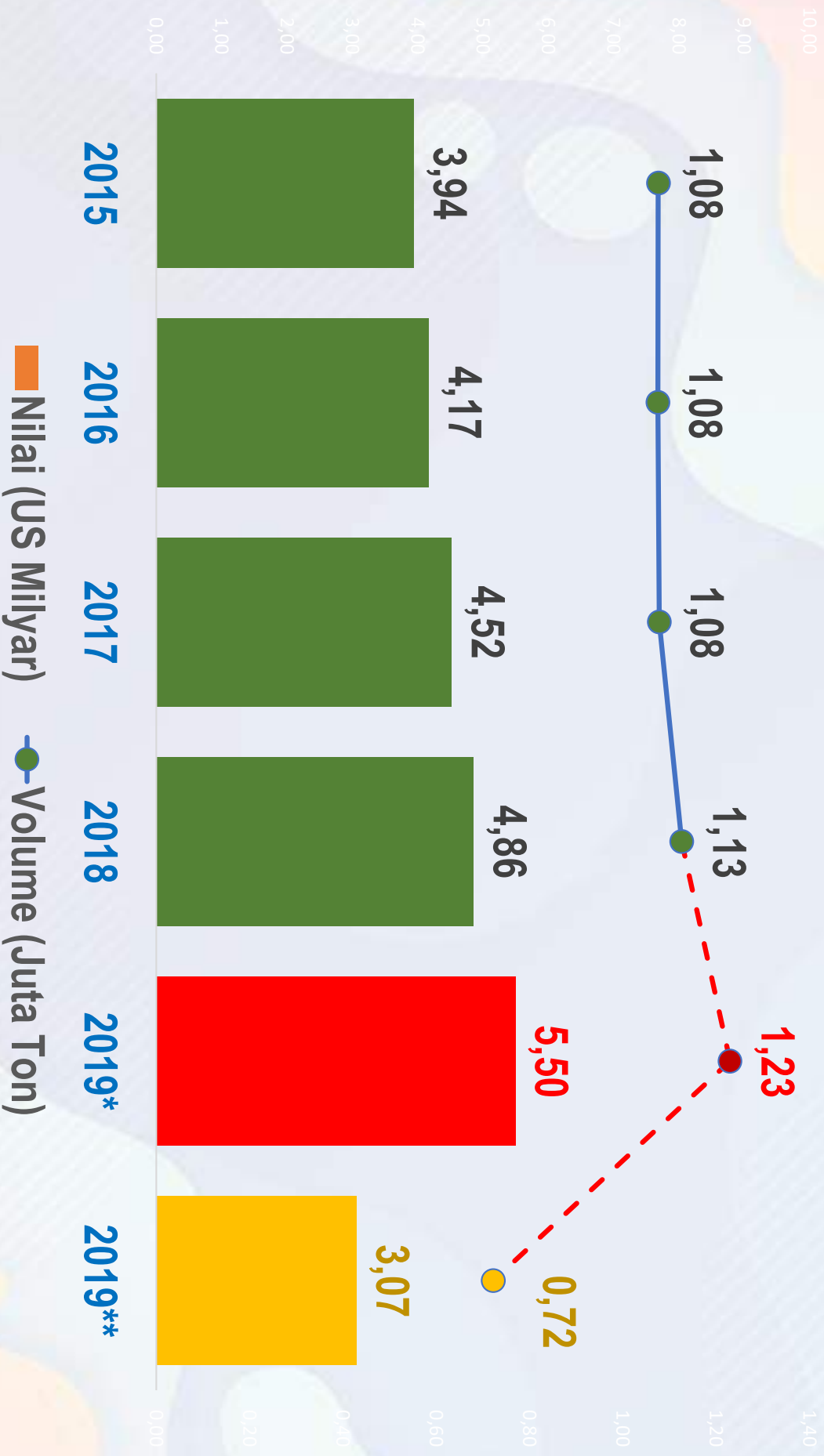
Achievement and Target of Domestic Fish Consumption, 2019 - 2024



Keterangan:
*Achievement Figure
**Target



Achievement and Target of Export Value, 2015-2019



Source: Indonesia Statistic (480 HS Code, 8 digit)

* Target in MMAF Strategic Planning 2015-2019

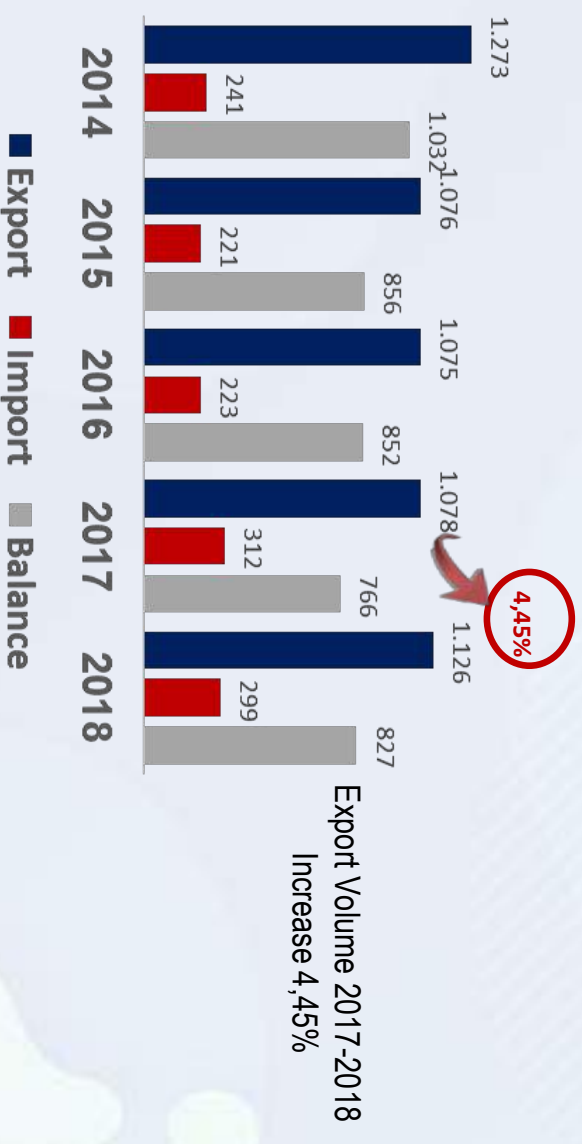
** Temporary Figure: Jan-Aug 2019

Export of Fishery Products **Increases** and Trade Balance **Surplus** (2014 – 2018)

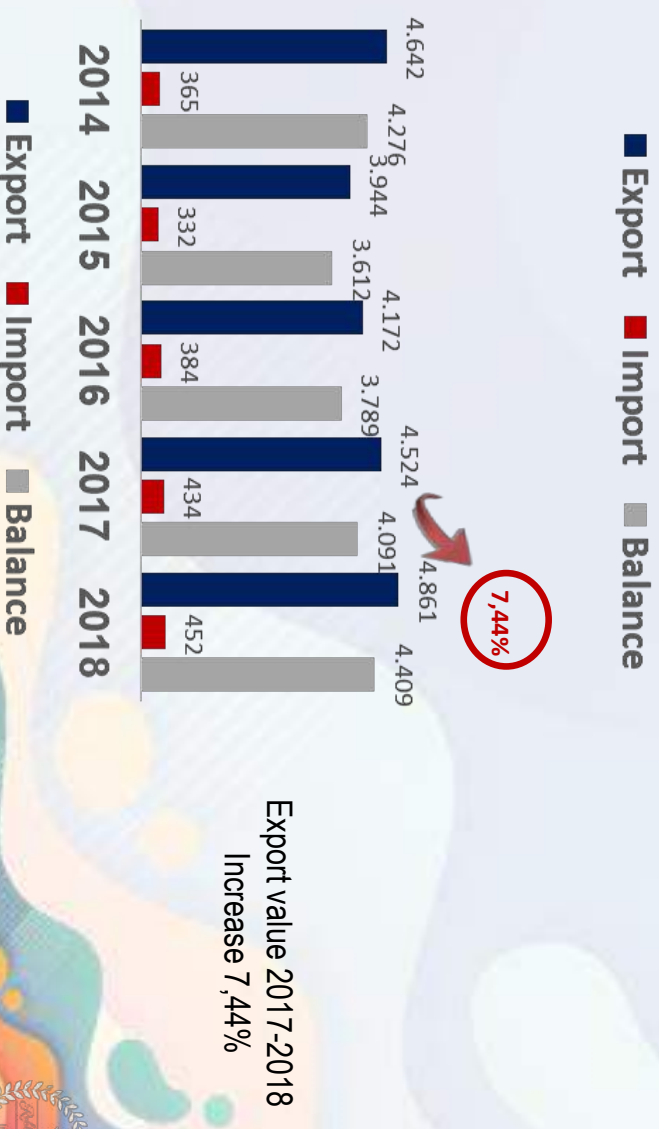
Export of fishery products in 2017-2018 shows positive performance, export **volume** increases 4.45% and **export value** increases 7.44%.

Trade balance in 2018 recorded surplus **USD 4.41 billion**

Volume
(Thousand Ton)



Value
(US\$ Million)



Export of main commodities in 2018

The export percentage (total) = $1.13/15.79 \times 100\% = 7,2\%$
 The export percentage (fish) = $0.914/15.79 \times 100\% = 6\%$





VOLUME

1,126.07
THOUSAND
TONNES

The highest
export volume
in 2018 is from
seaweed while
the highest
export value is
from **shrimp**

VALUE

US\$ 4,860.9
0 MILLION

 18,91% 212,96 THOUSAND TON	 17,53% 197,43 THOUSAND TON	 13,51% 152,11 THOUSAND TON	 10,45% 1117,65 THOUSAND TON	 2,47% 27,79 THOUSAND TON
 35,84% US\$ 1.742,12 MILLION	 12,74% US\$ 619,52 MILLION	 11,41% US\$554,59 MILLION	 9,73% US\$ 472,96 MILLION	 6,00% US\$291,84 MILLION

Source: Indonesia Statistics Bureau
 Consisting of 480 fishery products HS code 2017

Export Performance Based on Main Commodities and Top 5 Importing Countries, 2018

Shrimp is a commodity with the highest export value, accounting for **USD 1,74 billion**, exported to various countries, mostly **USA**

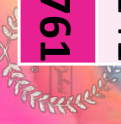


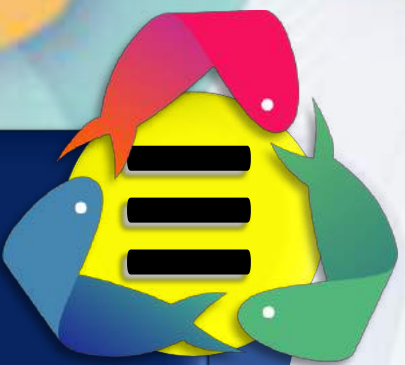
Source: Indonesia Statistics Agency, 2018



Top 15 Exporters of Fishery Product (USD Thousand)

Rank	Exporters	2015	2016	2017	2018	2019
	World	145,793,278	155,229,206	168,518,101	179,417,914	175,504,210
1	China	21,332,573	21,647,596	22,280,702	23,510,266	21,711,974
2	Norway	8,875,846	10,552,198	11,103,709	11,756,420	11,736,885
3	Thailand	7,679,250	7,933,965	8,398,101	8,548,291	8,509,163
4	Viet Nam	6,550,718	7,039,533	8,291,922	8,644,409	7,902,297
5	USA	7,386,772	7,128,843	7,555,119	7,436,181	6,946,506
6	India	4,780,835	5,501,388	7,044,836	6,827,230	6,768,819
7	Netherlands	5,231,464	5,587,992	6,119,097	6,556,598	6,724,964
8	Chile	4,399,162	4,736,153	5,635,761	6,322,550	6,175,000
9	Canada	5,031,557	5,337,222	5,697,295	5,831,862	6,101,637
10	Ecuador	3,506,062	3,753,665	4,471,023	4,804,654	5,449,318
11	Spain	4,164,516	4,532,693	5,181,089	5,616,965	5,241,346
12	Germany	4,727,549	4,850,086	5,094,158	5,388,959	5,098,293
13	Russian Federation	2,867,804	3,147,624	3,650,675	4,464,604	4,857,562
14	Sweden	3,751,536	4,509,551	4,245,094	4,927,215	4,578,141
15	Indonesia	3,602,395	3,863,090	4,203,170	4,470,599	4,497,761





DEVELOPMENT POLICIES AND PROGRAMS FOR INDONESIAN SUSTAINABLE AQUACULTURE DEVELOPMENT

The Meaning of Sustainable Aquaculture

“Sustainable aquaculture is an aquaculture production-business system which is able to produce efficient and competitive commodities and products, and make producers as well as other stakeholders prosperous on an environmentally sustainable manner”

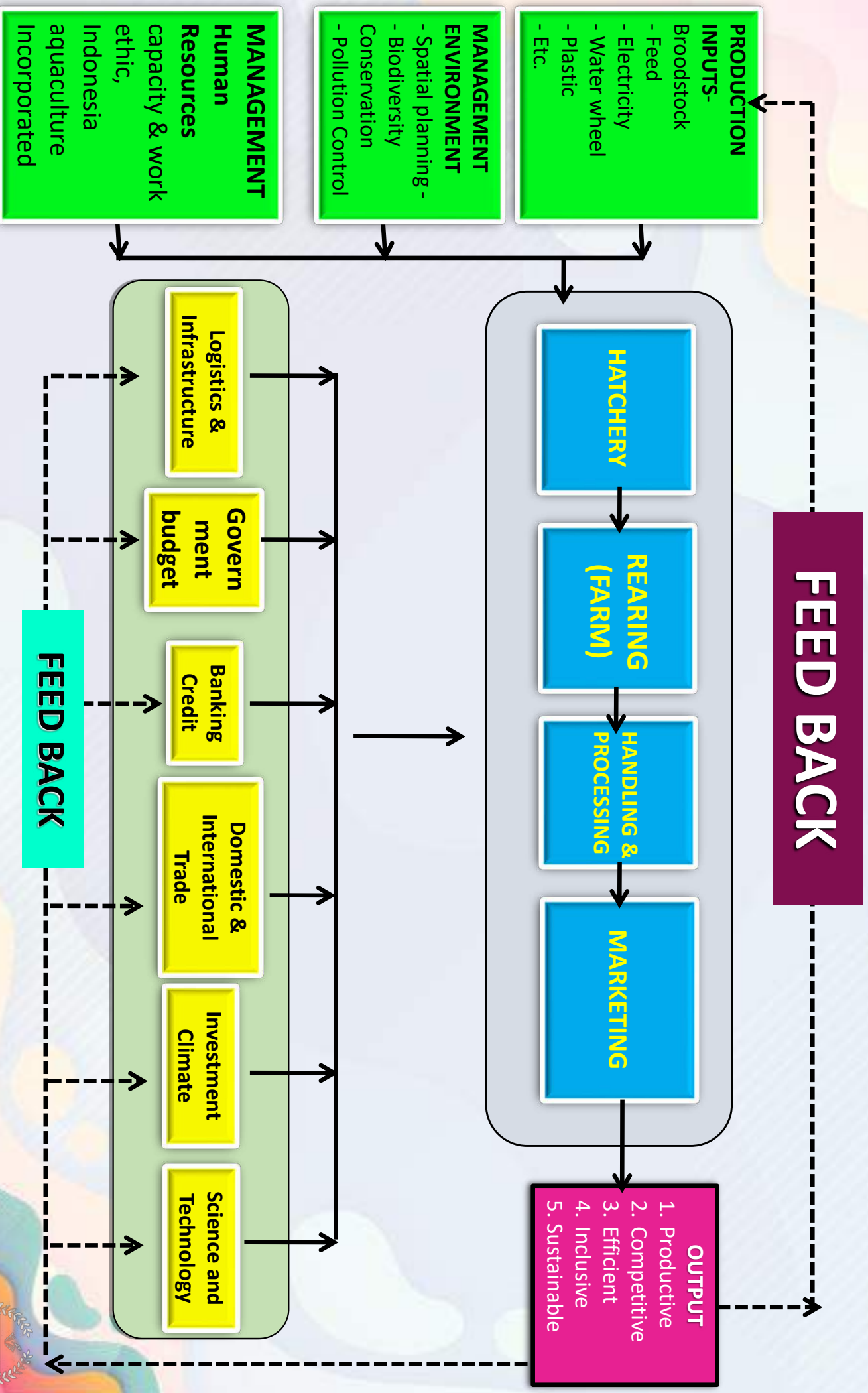
1. The rate of aquaculture development (area, and the level of aquaculture technology reflected by stocking density) in any region (a spatial unit) must not exceed its carrying capacity.

2. Each aquaculture business unit must implement: (1) economy of scale; (2) an integrated supply chain management system; (3) **Best Aquaculture Practices (BAP*), and state of the art technology such as Industry 4.0 in each chain of the supply chain system; and (4) sustainable development principles.**

***BAP: (1) the best quality of brood-stocks and seeds, (2) the best nutrition and feeding techniques, (3) pest and disease control, (4) water quality management, (5) pond (media) design and engineering, and (6) biosecurity.**



A Generic Model of Aquaculture Business (Supply Chain) System



3. Revitalization of all existing aquaculture business units (marine, coastal, and inland) to increase their productivity, efficiency (profitability), competitiveness, inclusiveness, and sustainability by applying point-2 ingredients.

4. Expansion of aquaculture production in new marine, coastal, and inland areas based on their suitability and carrying capacity.

5. Diversification of new species (commodities) for aquaculture production.

6. All technology used in aquaculture must be environmentally friendly (resource efficient, zero waste, low carbon, and less or no damage to the environment).

The Number of Aquaculture Species in China vs Indonesia

(Komar Sumantadinata, 2010)

China	Aspect	Indonesia
60 species Finfish 10 species Crustacean 10 species Mollusk 20 species Seaweed	Aquaculture species	25 species Finfish 4 species Crustacean 3 species Mollusk 4 species Seaweed
56 (1996-2004)	Certified New Species	16 (2006-2009)
37	Certified Hatchery (unit)	Broodstock Center di Bali?
1991	Certified Institutions (Starting Year)	2000
1986	GMO applications (Starting Year)	2008



Definition of Aquaculture

“Aquaculture is a production of fish, crustaceans, mollusks, invertebrates, algae, microbes, plants, and other biota through hatching and rearing in aquatic ecosystems”

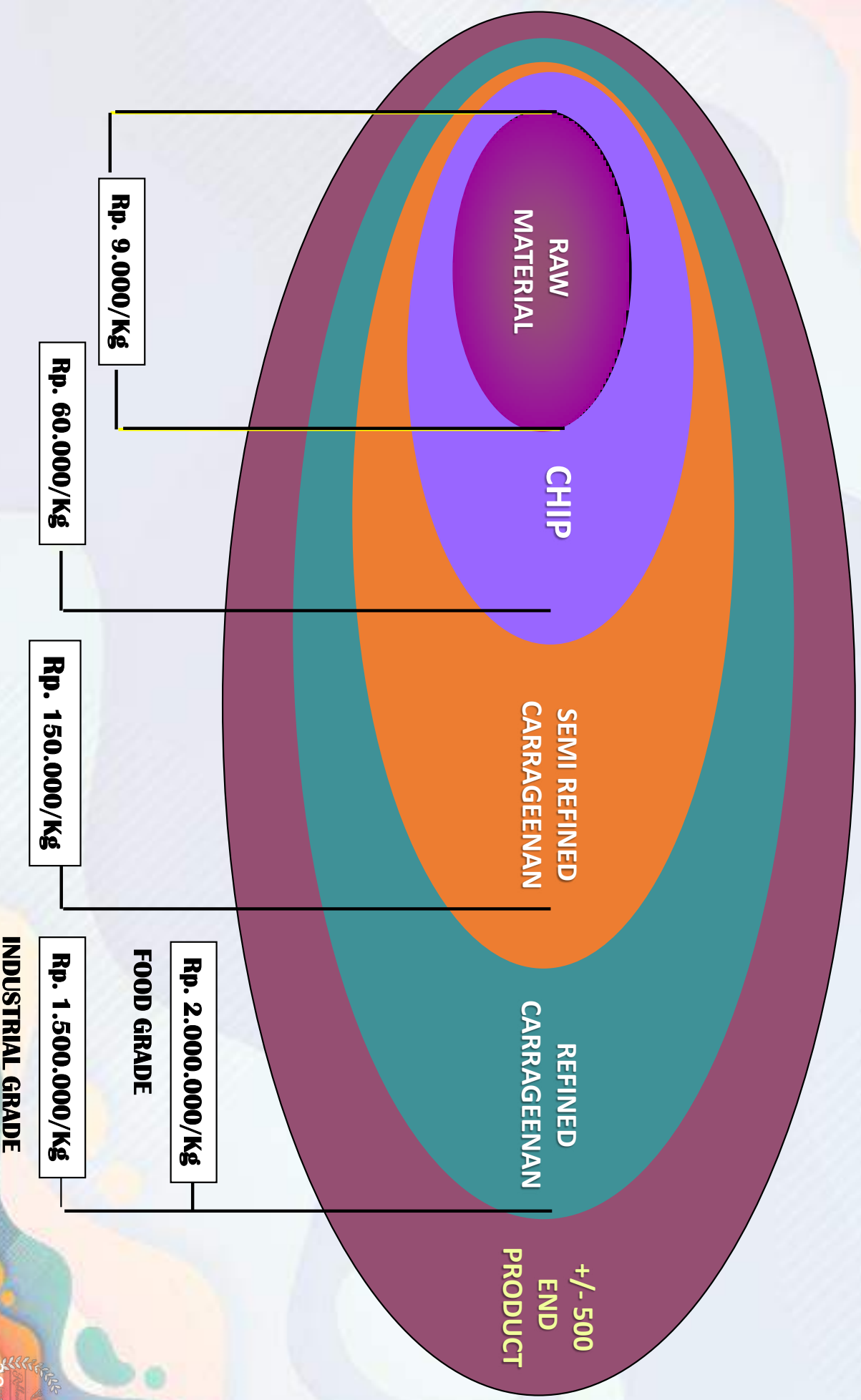
(Parker, 1998)



Commodities (Output) of Aquaculture

- a) **Conventional roles and functions of aquaculture provide:** (1) animal protein including finfish, crustaceans, mollusks, and some invertebrates; (2) seaweed; (3) ornamental fishes and other aquatic biota; and (4) jewelry such pearl oysters and other aquatic organisms.
- b) **Non-conventional (future) roles and functions of aquaculture:** (1) algae-based feed; (2) pharmaceutical and cosmetics products from bioactive compounds of microalgae, macroalgae (seaweed), and other aquatic organisms; (3) raw materials derived from aquatic biota for myriad types of industries such as paper, film, and painting; (4) biofuel from microalgae, macroalgae, and other aquatic biota; (5) aquaculture-based tourism; and (6) carbon sink which can mitigate global warming.

Added Values of Seaweed Products (*E. cottonii*)





Bioactive Compounds from Algae, and Their Medical and Nutritional Functions

No	Algae species	Bioactive Compounds	Medical and Nutritional Functions
1	<i>Laminaria japonical</i>	Fucoidan	<ol style="list-style-type: none"> 1. Active Substance in the Immune System 2. Antiviral, 3. Anticancer 4. Antitumor 5. Expenditure heavy metals, radioactive and free radicals from the body 6. Modulate glucose metabolism 7. Anticoagulant 8. Prevent from oxidation damage, delay the aging of skin cells, skin rejuvenation 9. Preventing melanogenesis and makes the skin radiant and elastic, keeping skin moisture 10. Heart Health 11. Maintaining brain health and memory, bone health
2	<i>Undaria pinnatifida</i>		antibody



No	Algae Species	Bioactive Compounds	Medical and Nutritional Functions
3.	Spirulina (micro algae)	<ol style="list-style-type: none"> 1. Pycocyanin 2. Klorofil 3. zeasantin 	<ol style="list-style-type: none"> 1. liver and kidney health 2. Eye health 3. Anti cancer 4. Antitoxin 5. lowers cholesterol 6. Lowering blood lipids
4.	seaweed (<i>Eucheuma cottonii</i> , <i>Eucheuma spinosum</i> , <i>Sargassum</i> , and <i>Gracillaria verucossa</i>)	<ol style="list-style-type: none"> 1. Alginate 2. carrageenan 3. jelly 	<ol style="list-style-type: none"> 1. As the coating material capsules and tablets 2. Creating an emulsifier, stabilizer, tablets, ointments, and filter 3. Micro-encapsulation and cell transplantation.
5.	<i>Padina sp.</i> dan <i>Halimeda sp.</i>		<ol style="list-style-type: none"> 1. Healing for sensitive skin 2. Antioxidant enzymes 3. Collagen activator 4. Anti aging 5. Anti wrinkle 6. Anti acne 7. Dental product 8. Oral health 9. Skin lightening 10. Slimming properties



- **Fucoidan is one of the key bioactive constituents of Algae and is considered to be responsible for many of its health benefits.**
- **Fucoidan, a complex sulfated polysaccharide containing substantial percentages of L-fucose and sulfate ester groups,. Besides L-fucose, it frequently contains D-xylose, D-galactose, D-mannose and D-glucuronic acid and protein.**
- **Fucoidan can be classified by material it extracted from as *Laminaria japonica* and *Undaria pinnatifida*.**



- Algae have been part of human diet and used therapeutically for millennia.
- The high intake of Algae in the Japanese diet is associated with lower incidences of cardiovascular disease, some cancers, inflammatory diseases and diabetes.
- Algae consumption has also been associated with weight-loss and youthful looking skin.

Bioactive Compounds from Invertebrates, and Their Medical and Nutritional Functions

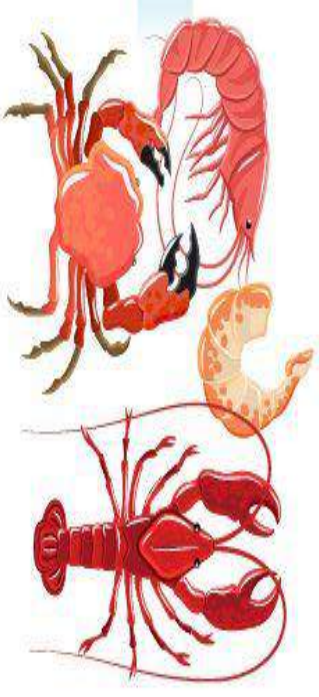
No	Types of Invertebrates	Bioactive Compounds	Nutrition and Medical Functions
1.	Tunicate (<i>Tridemannum sp</i>)	Not Available	<ol style="list-style-type: none"> 1. Healing leukemia 2. Healing B16 melanoma 3. Healing M5076 sarcoma
2.	Turtle (Part Shell)	Not Available	<ol style="list-style-type: none"> 1. Cure wounds 2. Tetanus drug
3.	Seahorses	Not Available	<ol style="list-style-type: none"> 1. Obat penenanga tau obat tidur 2. Obat kuat semacam viagra
4.	Puffer Fish (Bile)	tetrodotoksin	<ol style="list-style-type: none"> 1. Repair of damaged brain nerve 2. As an anesthetic agent for patients about to undergo surgery
5.	crustaceans (waste)	khitin dan khitosan	wound healing drug

CHITOSAN

Chitosan is actually pronounced “Kite-o-san”.



Chitosan is a Biological polysaccharide much like cellulose found in leaves. It is extracted from the exoskeletons of **crabs, lobsters and other marine life**.



It is an indigestible fibre which means it has a **calorie** content of **0kcal**.



It is advised that before taking Chitosan you take **Vitamins A, D, E and K**, as these are fat soluble vitamins that require fat to be absorbed.



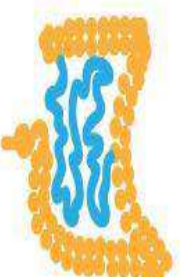
Chitosan is attracted to **Fats**, also known as lipophilic. **Chitosan** binds to dietary fats and prevents us from absorbing them.



Chitosan can help you to lose **weight**. Chitosan helps to promote the body's detoxing mechanism and promote regular bowel movements. Furthermore, due to its fibrous structure it helps to bulk the **stomach's volume** and increase satiety.



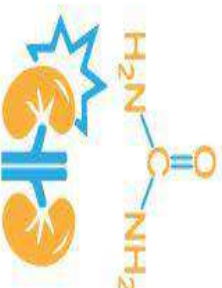
Chitosan **chewing gum**, **mouthwash or tooth paste** has been seen to be effective in reducing **dental cavities**.



It can also be used to treat **Chrons** disease. One study found that Chitosan decreased the volume of fat in faeces and increase the number of bowel movements during which time the supplement was taken.



There is some evidence to show that Chitosan can effectively **clot blood**. This **knowledge** has helped to create bandages containing Chitosan, these are used in Europe.



Chitosan has been seen to be effective in treating patients with **chronic renal disease**. It does so by targeting **haemoglobin, creatine and urea**. In addition, it helped to increase appetite of these patients.



1 kg

Sargassum spp powder

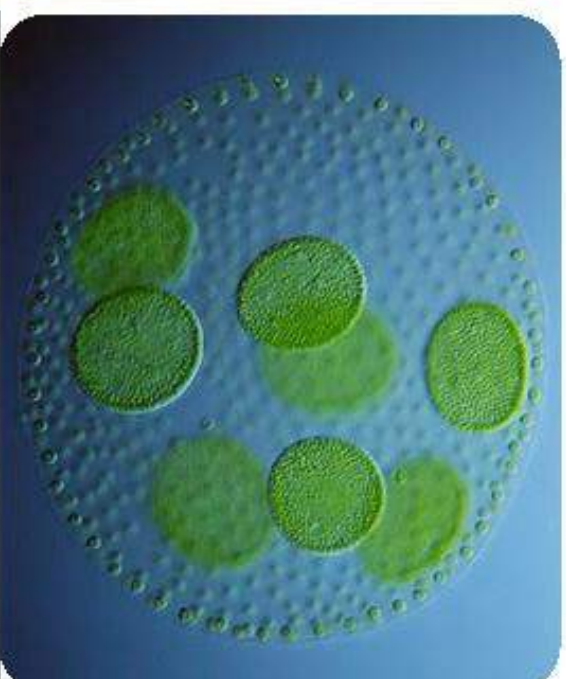
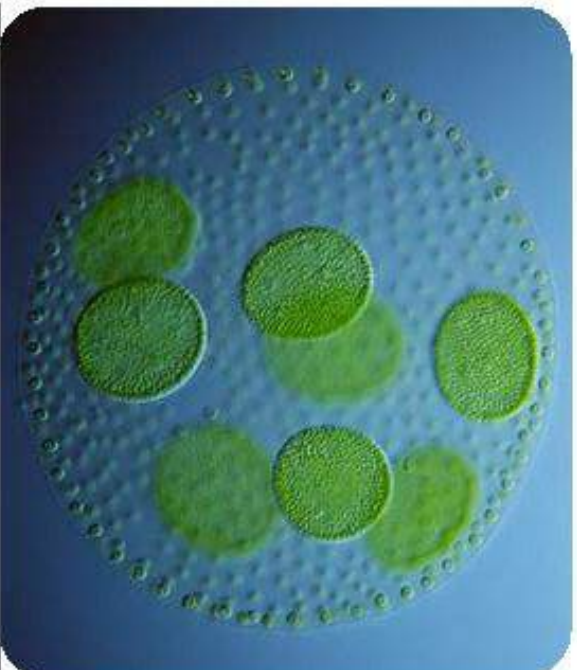
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**20 – 30
litres**

Of Concentrate Fertilizer

Algae for Biofuel

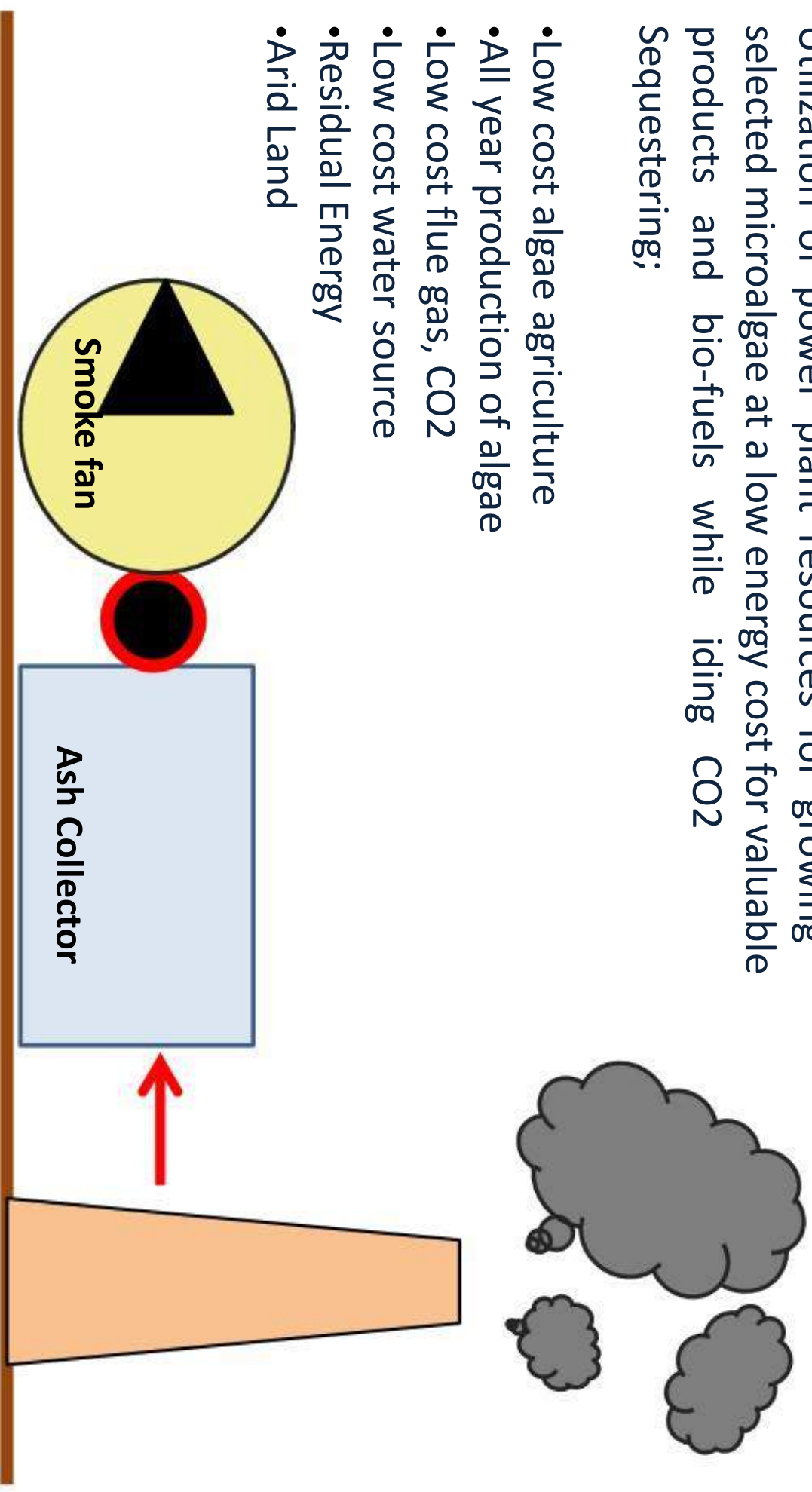
starch/polysaccharides for ethanol)





Utilization of power plant resources for growing selected microalgae at a low energy cost for valuable products and bio-fuels while fixing CO₂ Sequestering;

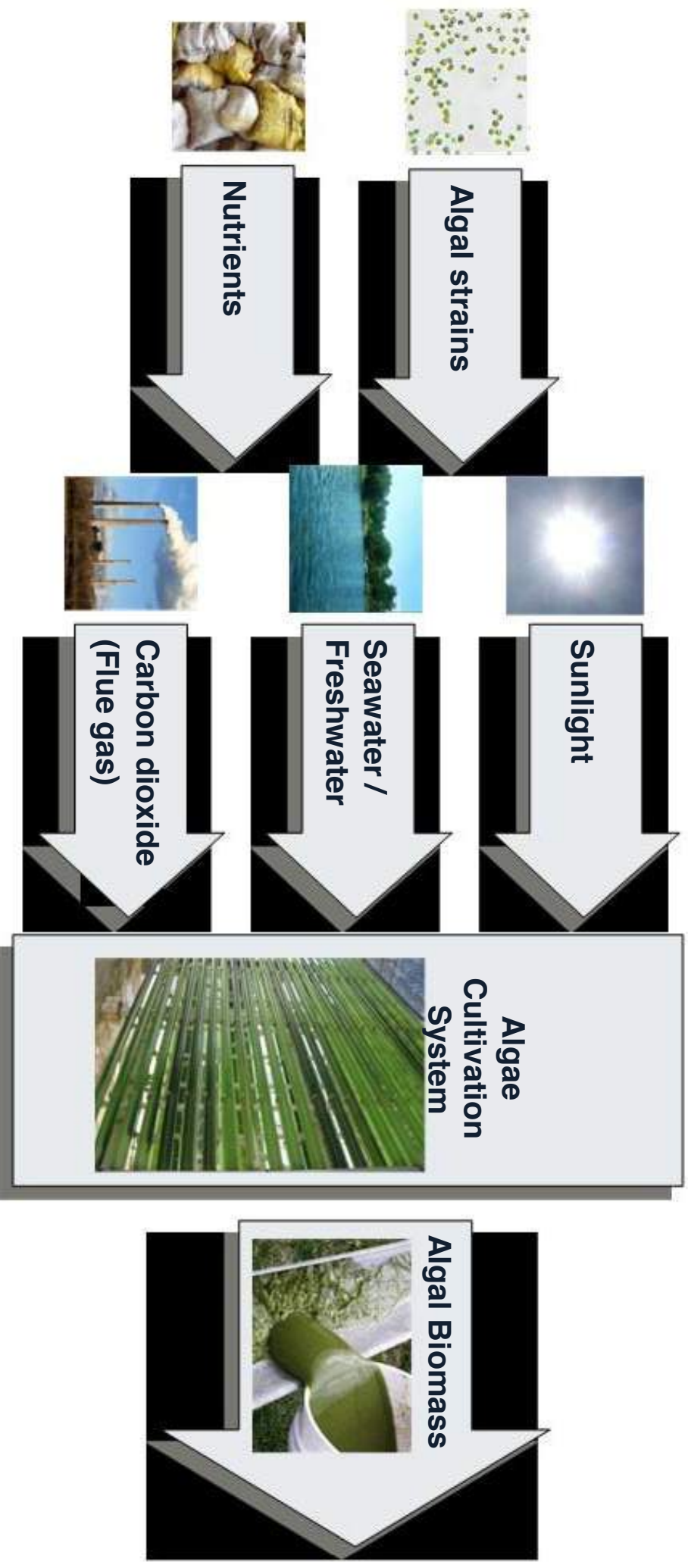
- Low cost algae agriculture
- All year production of algae
- Low cost flue gas, CO₂
- Low cost water source
- Residual Energy
- Arid Land



Microalgae Pond

Algae Cultivation

Below is an overview of the main raw materials that feed into the algae cultivation system, which are required in order to produce algal biomass.



Algae Research Centre (ARC) Malaysia

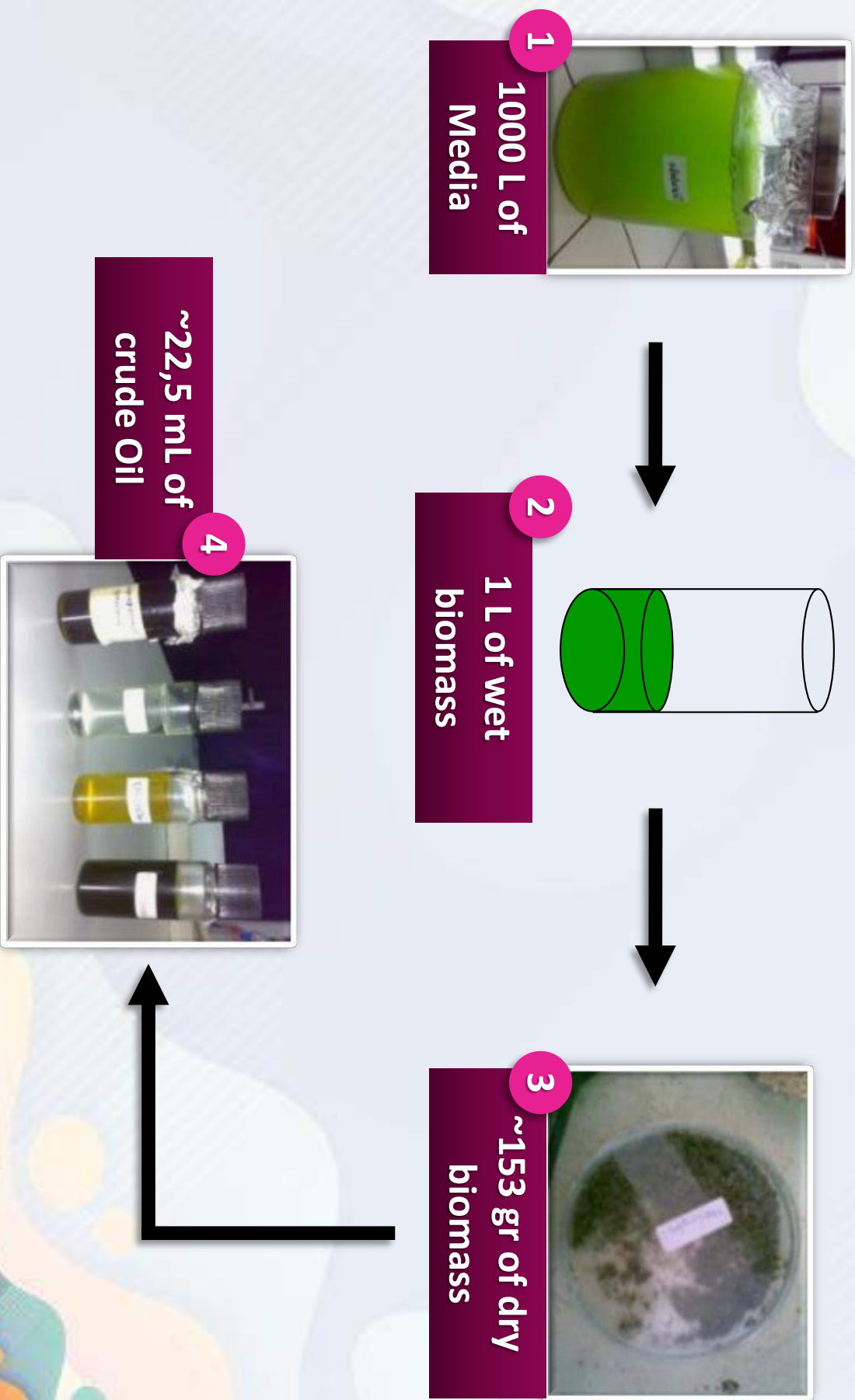


- 13 species of microalgae have been found in Indonesian marine waters containing lipids (hydrocarbon) potential for **biofuel (bio-energy)** production.
- Four main species: *Nannochloropsis oculata* (24%), *Scenedesmus* (22%), *Chlorella* (20%), dan *Dunaliella salina* (15%)

(Kawaroe, 2010)



CRUDE OIL FROM MICROALGAE



Scientists develop rice that can grow in seawater

Ben Kentish

Scientists in China have developed several types of rice that can be grown in seawater, potentially creating enough food for 200 million people. Researchers have been trying to grow the grain in salty water for decades but have only now developed varieties that could be commercially viable.

The rice was grown in a field near the Yellow Sea coastal city of Qingdao in China's Shandong province. 200 different types of the grain were planted to investigate which would grow best in salty conditions.

Sea water was pumped into the

fields, diluted and then channelled into the rice paddies.

The scientists expected to produce 4.5 tonnes of rice per hectare but the crops exceeded expectations, in one case delivering up to 9.3 tonnes per hectare. "The test results greatly exceeded our expectations," Liu Shiping, a professor of agriculture at Yangzhou University who is involved in the project, told Xinhua.

There are one million square kilometres of land in China where crops do not grow because of high salinity. Scientists hope the development of the new rice will allow some of these areas to be used for agriculture. THE INDEPENDENT

7. To ensure healthiness, safety, and environmental friendliness of all aquaculture commodities and products; the Best Practices, QA/QC, and certification programs have been implemented in each chain of the aquaculture supply chain system (**IndoGAP**): (1) feed manufacture (industry); (2) hatchery; (3) grow out (rearing) ponds, cage nets, and other aquaculture media (containers); (4) processing and packaging industry; (5) storage; (6) transportation and distribution; and (7) market and consumers.

8. Strengthening and expanding both domestic and global markets for aquaculture commodities and products.

9. Environmental management to sustain aquaculture production: spatial planning, pollution control, and conservation of biodiversity.

10. Mitigation and adaptation to Global Climate Change, tsunami, and other natural hazards.



11. Finance, infrastructures, technology, information, and other productive economic assets should be not only accessible to big corporations, but also for micro, small, and medium enterprises.

12. Develop a win-win cooperation among aquaculture stakeholders (e.g. hatchery, feed, producer, processor, and trader), enhance a share and care economy, and strengthen **Global Aquaculture Incorporated.**

13. Strengthen and develop R & D to generate innovations on a sustainable basis.

14. Government policies and regulations must be conducive for a productive, efficient, competitive, inclusive, and sustainable aquaculture.





ABOUT IndogAP

LEGAL BASIS

- Indonesian Law Nr. 31 of 2004 of Fisheries, as amended by Law Nr. 45 of 2009;
- Government Regulation Of The Republic Of Indonesia Nr. 28 Of 2017 Concerning Aquaculture;
- Ministry of Marine Affairs And Fisheries Decree Nr. 02/Kepmen-KP/2007 Concerning Good Aquaculture Practices.
- Ministry of Marine Affairs And Fisheries Regulation Nr. Per.19/MEN/2010 Concerning The Control of Quality Assurance And Safety Of Fisheries Products;
- Ministry of Marine Affairs And Fisheries Regulation Nr. 35/Permen-KP/2016 Concerning Good Hatchery Practices;
- Ministry of Marine Affairs And Fisheries Regulation Nr. 55/Permen-KP/2018 Concerning Fish Feed;
- Ministry of Marine Affairs And Fisheries Regulation Nr. 01/Permen-KP/2019 Concerning Fish Medicines;
- Ministry of Marine Affairs And Fisheries Regulation Nr. 37/Permen-KP/2019 Concerning The Residue Control on Aquaculture Consumption;
- Ministry of Marine Affairs And Fisheries Regulation Nr. 13/Permen-KP/2019 Concerning

Fish Disease Control

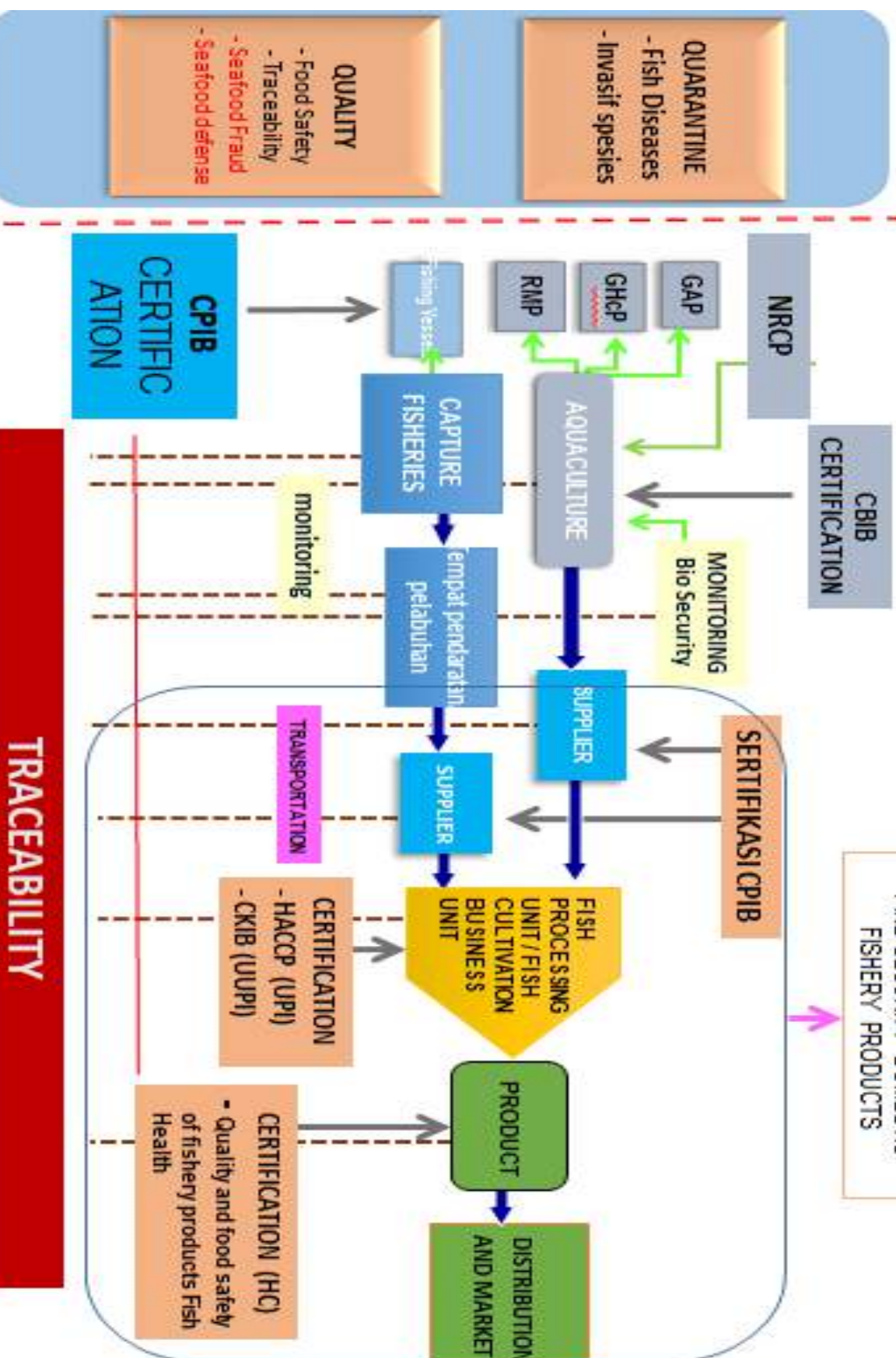


THE PROCESS OF FOOD SAFETY AND QUALITY ASSURANCE FOR FISHERIES PRODUCTS THROUGHOUT THE SUPPLY CHAIN SYSTEM

Border Inspection
Airports and Ports

Border Inspection
Airport / Port / PLBN / Tanekahan

QUALITY GUARANTEE
AND SECURITY DOMESTIC
FISHERY PRODUCTS

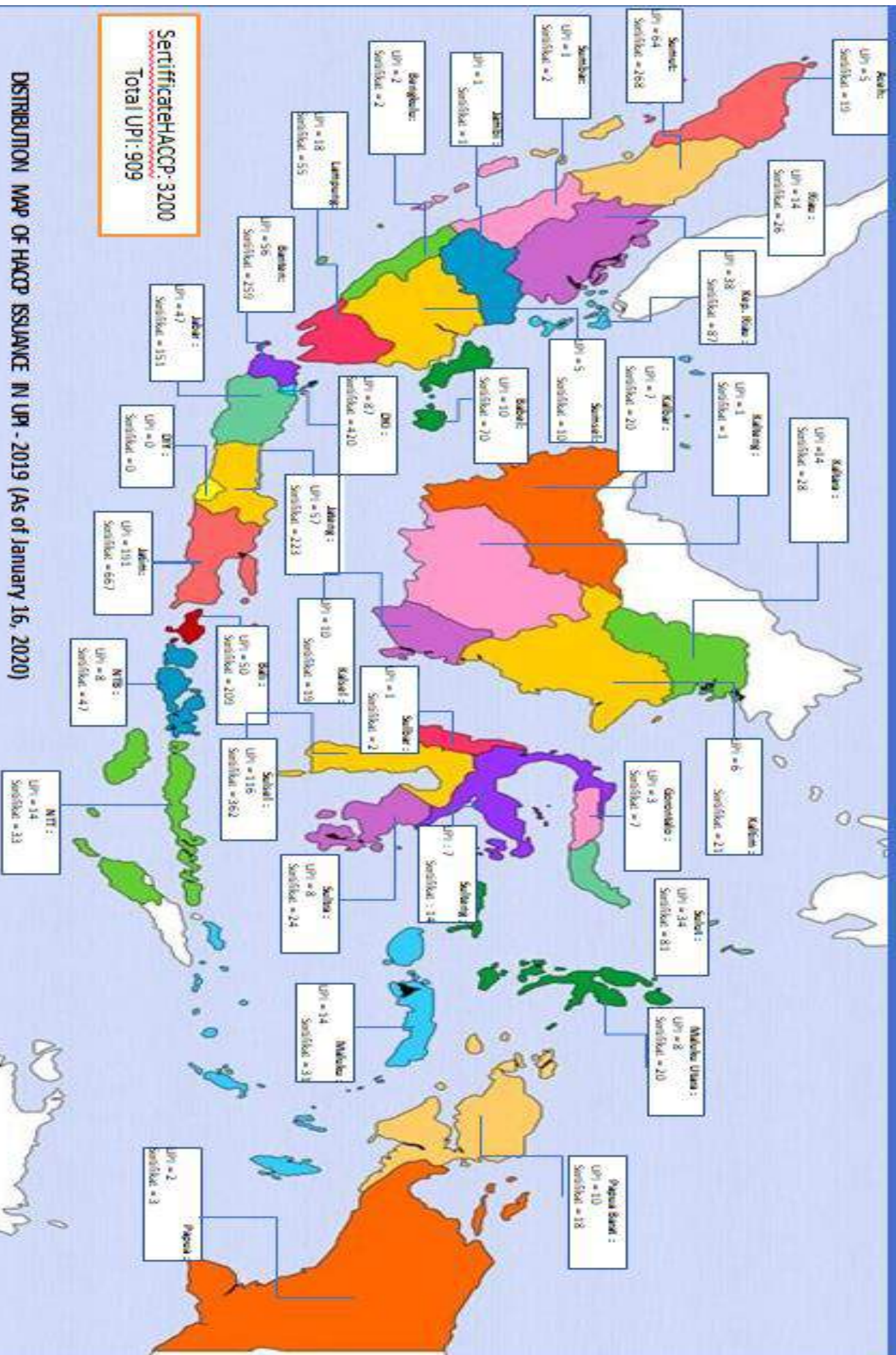


Note:

= Certification Process

= Traceability Related Activities

DISTRIBUTION MAP OF HACCP ISSUANCE IN UPI



HC Indonesia Recipient Countries

Indonesian
Fisheries Products
can be accepted in
158 countries
from 241
countries in the
world (193 UN
member
countries)



POTENTIAL MARKETS:

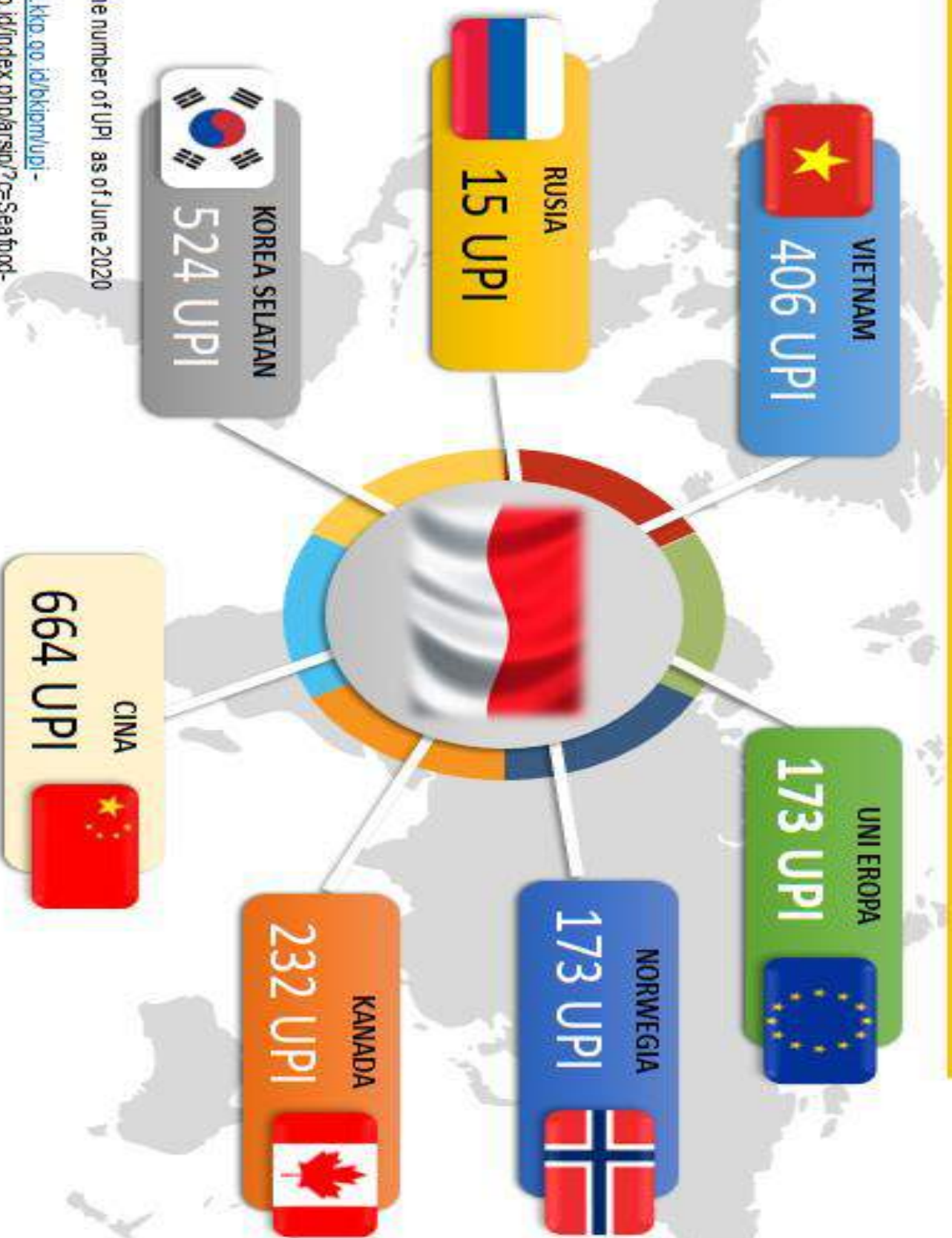
Amerika Serikat, Amerika Latin, Uni Eropa, Timur Tengah, Cina, Jepang dan Australia



HARMONIZATION SYSTEM (MRA/MOU)

NO	COUNTRY	MRA/MOU	DATE OF SIGNING
1	EUROPEAN UNION (28 NEGARA)	Special Conditions Governing Imports of Fishery And Aquaculture Products Originating In Indonesia	2001/254/EC: Commission Decision of 21 March 2001 amending Decision 94/324/EC
2	SOUTH KOREA	Arrangement on the Cooperation in Quality Control and Hygiene Safety of Import and Export Fish and Fisheries Products between The Ministry of Marine Affairs and Fisheries of The Republic of Indonesia and The Ministry of Maritime Affairs and Fisheries of The Republic of Korea	15 September 2005 <u>Diperpanjang pada</u>
		Arrangement on the Cooperation in Quality Control and Hygiene Safety of Import and Export Fish and Fisheries Products between The FQIA-Ministry of Marine Affairs and Fisheries of The Republic of Indonesia and The NFQS - Ministry of Oceans and Fisheries of The Republic of Korea	2 September 2016
3	CHINA	Cooperation Agreement between Ministry of Marine Affairs and Fisheries of The Republic of Indonesia and General Administration of Quality Supervision, Inspection, and Quarantine of The People's Republic of China on Safety Assurance In the Import and Export of Aquatic Products	11 November 2008 <u>Diperpanjang pada</u>
		Cooperation Agreement between The Ministry of Marine Affairs and Fisheries of The Republic of Indonesia and The General Administration of Customs of The People's Republic of China on Safety Assurance In the Import and Export of Aquatic Products	27 November 2019
4	EEU (RUSIA, BELARUSIA, KAZAKHTAN, ARMENIA, KYRGYZSTAN)	Arrangement on Quality Control and Hygiene Safety of Import and Export Fish and Fishery Products between The Ministry of Marine Affairs and Fisheries of The Republic of Indonesia and The Federal Service for Veterinary and Phytosanitary Surveillance (Rosselkhoznadzor) of The Russian Federation	23 April 2009
5	CANADA	Arrangement on the Mutual of Fish and Fishery Products Inspection and Control Systems between the Canadian Food Inspection Agency and the Directorate General of Capture Fisheries of the Department Of Marine Affairs and Fisheries of the Republic of Indonesia	7 Maret 2002
6	VIETNAM	Implementing Arrangement on Quality and Food Safety Control of Fish and Fishery Products between the National Agro-Forestry-Fisheries Quality Assurance Department of the Ministry of Agriculture and Rural Development of the Socialist Republic of Vietnam and Fish Quarantine and Inspection Agency of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia	22 September 2011
7	NORWEGIA	Mutual Recognition Arrangement on Quality and Food Safety of Fish and Fishery Products between the Fish Quarantine and Inspection Agency of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia and the Norwegian Food Safety Authority of the Kingdom of Norway	11 September 2013

NUMBER OF UPI INDONESIA LISTED IN PARTNER COUNTRIES MITRA



Note: * Data on the number of UPI as of June 2020

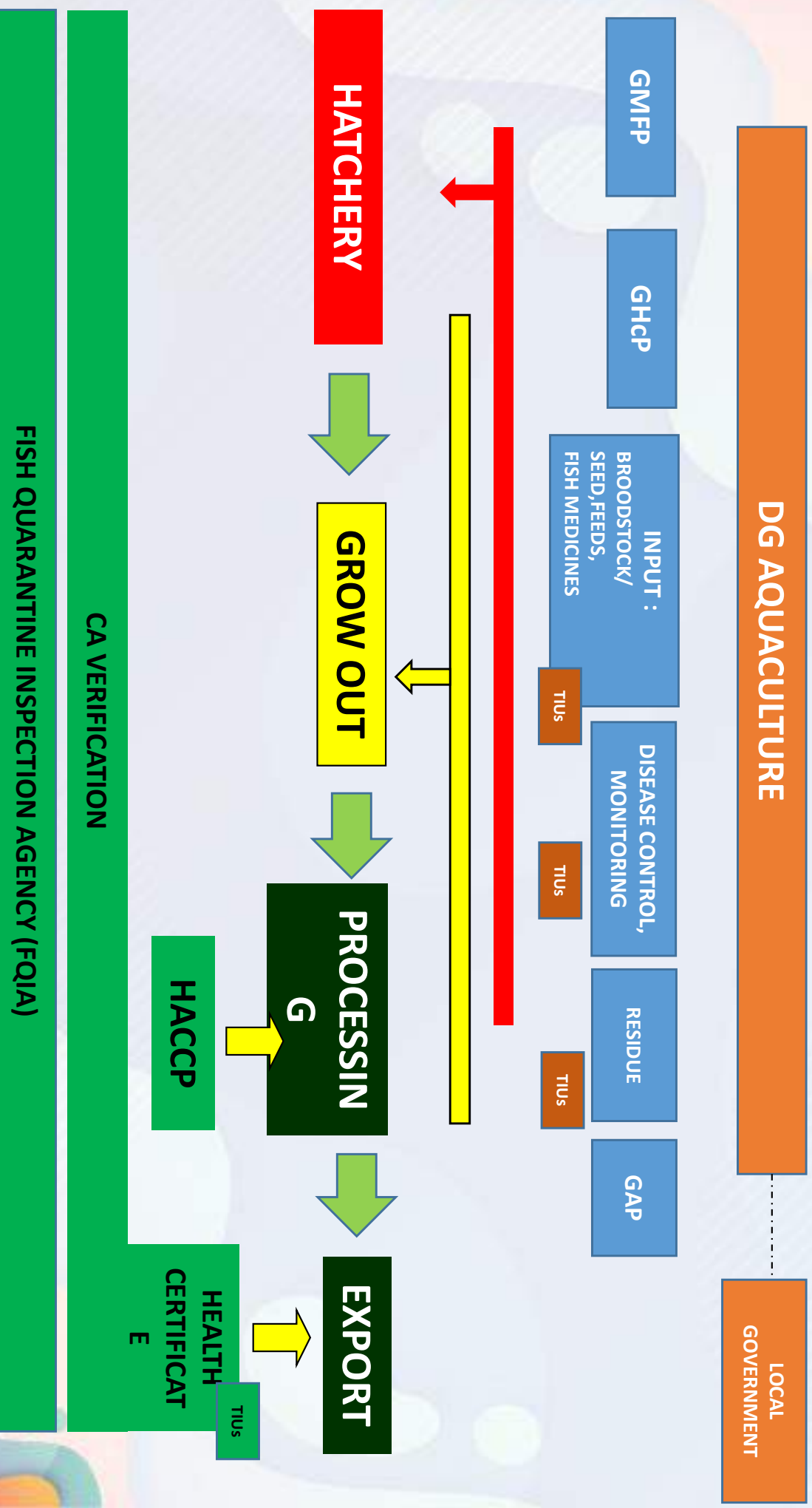
Website:

<http://www.bkpm.kkp.go.id/bkpm/upi>

[http://www.kkp.go.id/index.php/arsip/?c=Seafood-](http://www.kkp.go.id/index.php/arsip/?c=Seafood-Indonesia&category_id=114)

[Indonesia&category_id=114](http://www.kkp.go.id/index.php/arsip/?c=Seafood-Indonesia&category_id=114)

FOOD SAFETY AND QUALITY ASSURANCE SYSTEM OF AQUACULTURE PRODUCT MINISTRY OF MARINE AFFAIRS AND FISHERIES (MMAF)

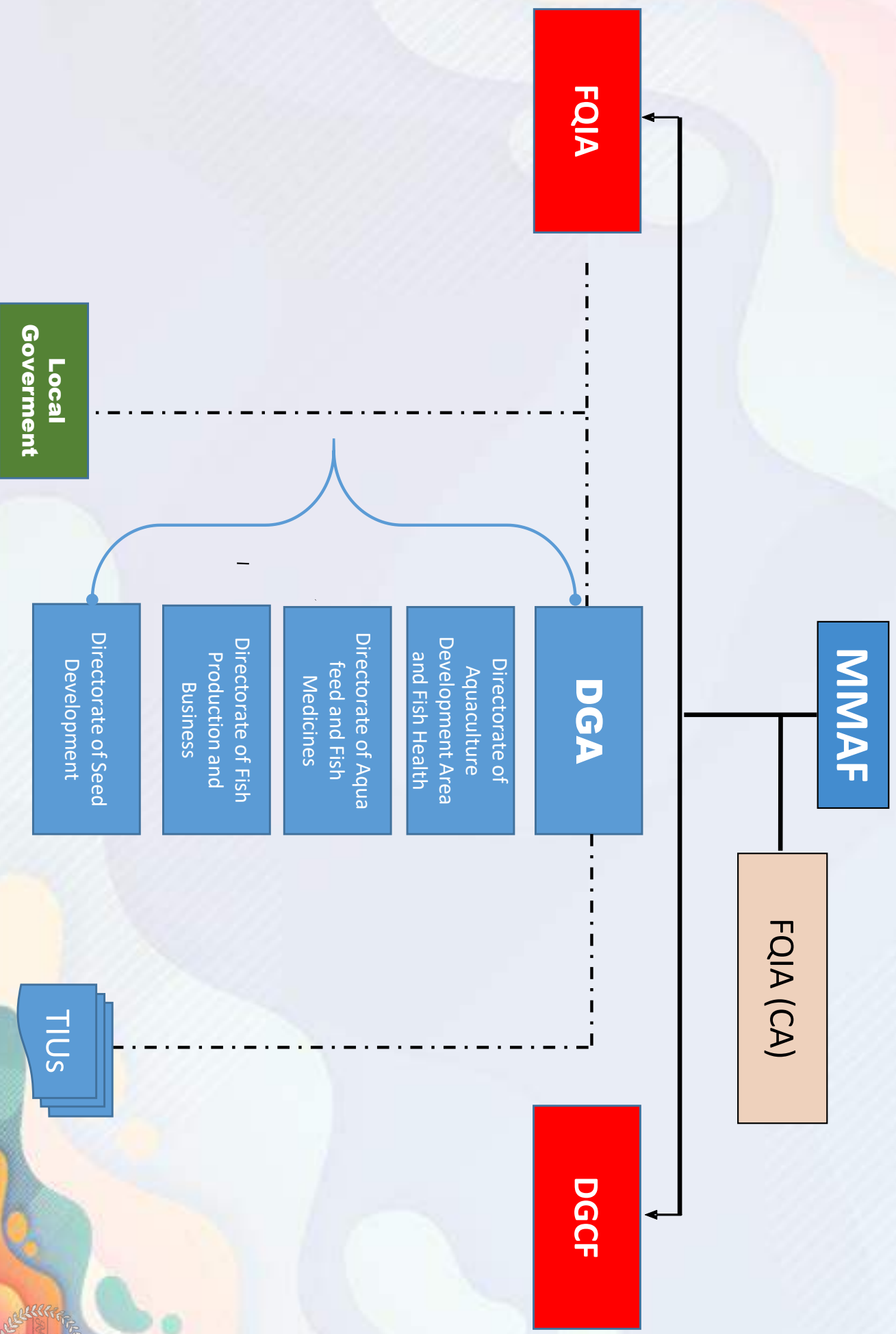


Note :

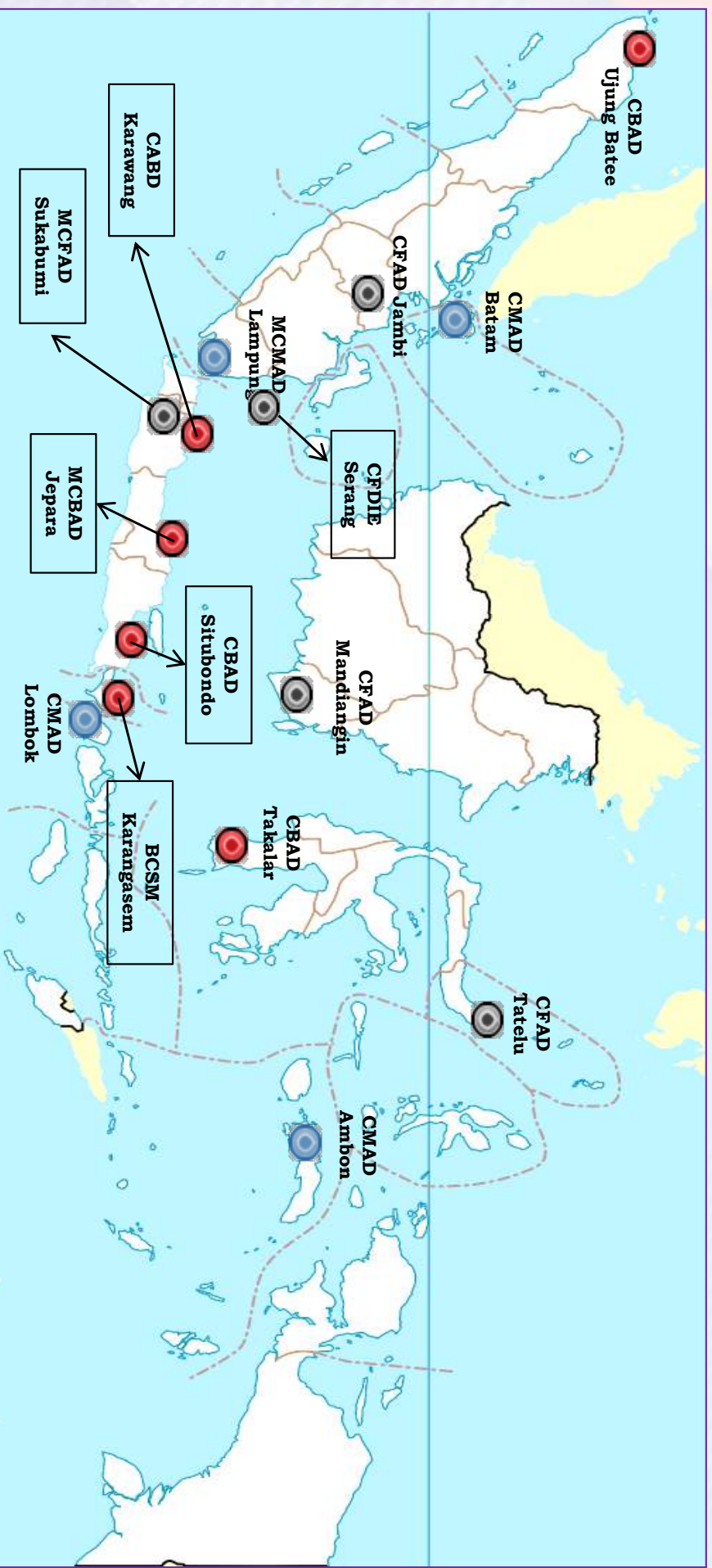
HACCP : Hazard Analysis Critical Control Point

ORGANIZATION OF FOOD SAFETY AND QUALITY ASSURANCE SYSTEM OF AQUACULTURE PRODUCT

MENTERI KP



DISTRIBUTION OF FISH HEALTH LABORATORIES OF DIRECTORATE GENERAL OF AQUACULTURE (DGA)



- Fish health laboratories located in each Technical Implementing Unit (TIU) of DGA
- All laboratories accredited ISO 17025

AQUA FEED REGISTERED

No.	Commodity	Total
1	Milkfish	82
2	Pomfret	2
3	Pompano	6
4	Fry/Seed	153
5	Snakehead	1
6	Gourame	18
7	Ornamental fish	302
8	Broodstock	4
9	Jelawat	1
10	Snaper	34
11	Grouper	27
12	Clarias	122
13	Carp	74
14	Tilapia	112
15	Pangasius	48
16	Anguilla	21
17	Giant freshwater prawn	1
18	Vaname Shrimp	340
19	Tiger Shrimp	29
GRAND TOTAL		1,377

FISH MEDICINE REGISTERED

Number	Groups	Total
1.	Premix	186
2.	Pharmaceutical	59
3.	Biological	34
4.	Probiotic	67
5.	Herbs/Natural Medicines	7
		353

AQUA FEED & FISH MEDICINE OFFICIAL CONTROL

AQUA FEED & FISH MEDICINE REGISTRATION

AQUA FEED & FISH MEDICINE MONTORING

by MMAF / PFS

2017

AQUA FEED

FISH MEDICINE

North Sumatera

Lampung

Banten

West Java

Central Java

East Java

Lampung

Di Yogyakarta

West Java

North Sumatera

South Sulawesi

East Kalimantan

Bengkulu

West Sumatera

North Sulawesi

East Java

Bali

Jambi

NTB

West Kalimantan

Riau

South Kalimantan

Banten

2018

AQUA FEED

FISH MEDICINE

North Sumatera

Lampung

Banten

West Java

East Java

North Sulawesi

DI Yogyakarta

Riau Islands

East Kalimantan

West Java

South Sulawesi

2019

AQUA FEED

FISH MEDICINE

North Sumatera

Lampung

Banten

West Java

Central Java

Banten

East Java

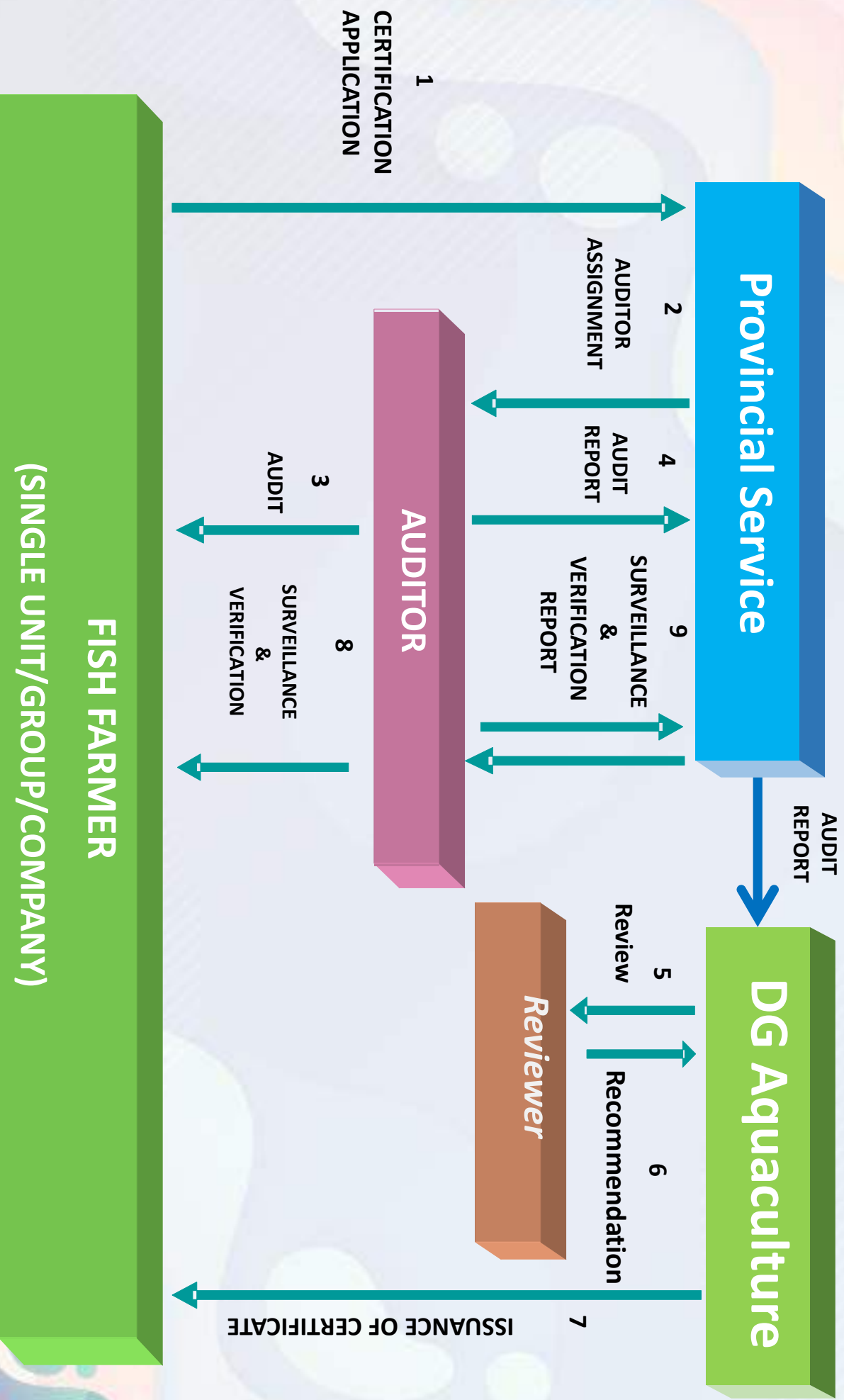
West Java

North Sumatera

South Sulawesi



GAP Certification Mechanism



GAP Certification Mechanism

Legal Base

1. Ministry MAF Nr. 02/2007 concerning GAP
2. DGA Regulation No. 14/2018 concerning Partial Delegation on GAP Certification
3. DGA Regulation Nr. 30/2013 concerning Delegation Technical Guideline
4. DGA Decree Nr. /2020 concerning GAP Certification Team

GAP Auditor

Trained by TSP EU, FDA, and DG Aquaculture Curriculum developed by TSP Experts (Mike Phillips & Novia Priyana, Vet)

Assigned GAP auditor:

Central Gov: 23
DGA TIU: 74
Provincial Service: 432

Number of GAP certified farm

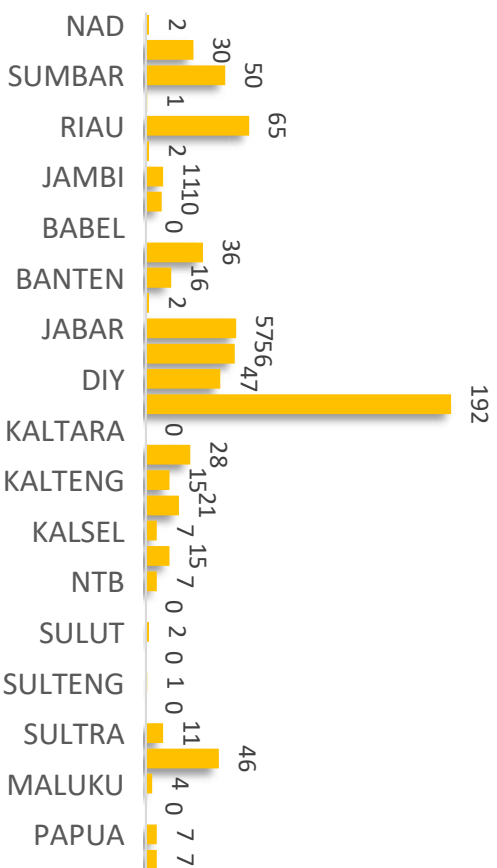


Number of GAP Auditor

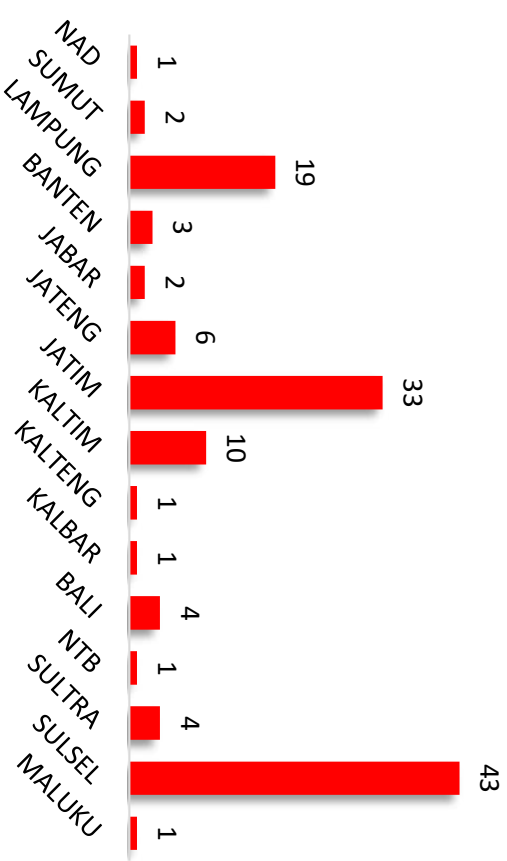


GOOD HATCHERY PRACTICES

CERTIFIED HATCHERIES BASED ON PROVINCE FEB 2020 (733 units)



SHRIMP CERTIFIED BASED ON PROVINCE FEB 2020 (131 certificates)



Total Certified Hatcheries : 733 units

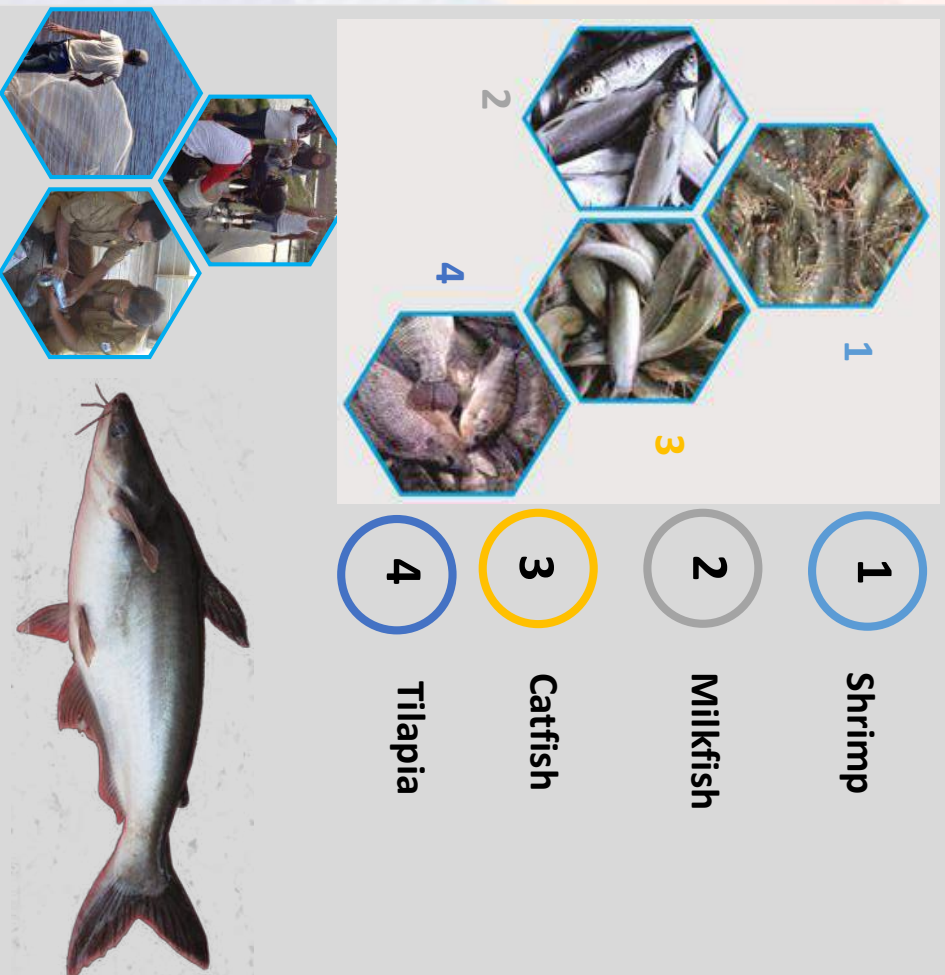
Total Issued Certificates : 843 certificates

Total Issued Certificate for Shrimp 133 certificates



Residue Monitoring

Commodities of Residue Monitoring



Location of Residue Monitoring



19 PROVINCES

1. Aceh;
2. North Sumatera;
3. South Sumatera;
4. **Lampung;**
5. Banten;
6. West Java;
7. Central Java;
8. DI Yogyakarta;
9. **East Java;**
10. Bali;
11. West Nusa Tenggara;
12. West Kalimantan;
13. East Kalimantan;
14. North Kalimantan;
15. South Kalimantan;
16. SouthEast Sulawesi;
17. Central Sulawesi;
18. West Sulawesi;
19. South Sulawesi;

SUBSTANCE OF RESIDUE MONITORING

No	Group	Substance	Parameter	Monitored Target
1	A1	Stilbenes and its derivatives	Diethyl stilbestrol (DES)	Fish
2	A3	Steroids	Methyltestosteron	Fish
3	A6	Chloramphenicol	Chloramphenicol	Fish, Shrimp and Water
		Nitrofurans	Nitrofurans metabolites : AOZ, AMOZ, SEM, AHD	
		Nitroimidazole	Dimetridazole	
4	B1	Antibacterials	Tetracyclines: Tetracycline, Oxytetracycline, and Chlortetracycline	Fish and Shrimp
			Quinolones :Enrofloxacin	
			Sulfonamides: Sulfadiazine	
			Eritromycine	Fish
5	B2a	Anthelmintics	Emmamectin	Fish and Shrimp

Continue..

6	B3a	Organochlorine Compounds Pesticides	Aldrin, Dieldrin, Chlordane, Heptachlor and Heptachlor Epoxide, Hexachlorobenzene, Lindane, Endrin, DDT and its metabolites	Fish
7	B3c	Heavy metals (Chemical elements)	Plumbum (Pb), Mercury (Hg), Cadmium (Cd)	Fish and Shrimp
8	B3e	Dyes	Total Malachite Green and Total Crystal Violet	Fish and Shrimp

LABORATORIES IN RESIDUE MONITORING

NO	Laboratory	Substance
1	Main Center of Freshwater Aquaculture Development (MCFAD) Sukabumi, West Java	A1; A3; A6; B3c
2.	Center of Fish Disease and Environmental Investigation (CFDEI) Serang	A6, B1, B2a, B3a, B3e
3.	Fish Quarantine and Inspection Standard Examination Laboratory (FQISEL) Jakarta	B3c
4.	Provincial Laboratory of Quality Control and Fisheries Product Development (PL – QCFPD) Surabaya, East Java	A6, B1, B3c
5.	Provincial Laboratory of Fish Inspection and Quality Control (PL FIQC) Banyuwangi, East Java	A6, B3c
6.	Provincial Laboratory of Fish Inspection and Quality Control (PL FIQC) Pontianak, West Kalimantan	B3c
7.	Main Centre of Mariculture Development (MCMD) Lampung	A6
8.	Main Centre of Brackishwater Aquaculture Development (MCBAD) Jepara	A6
9.	Brackishwater Aquaculture Development Center (BADC) Situbondo, East Java	A6

NO	Laboratory	Substance
10.	Provincial Laboratory of Fish Health and Environmental, Umbulan Pasuruan – East Java	A6
11.	Provincial Laboratory of Fish Inspection and Quality Control (PL FIOC) Medan, North Sumatra	B3c
12.	Provincial Laboratory of Fish Inspection and Quality Control (PL FIOC) North Jakarta, DKI Jakarta	B3c
13.	PT. Mutu Agung Lestari	A6, B1, B2a, B3a, B3c, B3e
14.	PT. SGS Indonesia	A6, B1, B2a, B3c, B3e
15.	PT. Angler BioChemlab	A1, A3, A6, B1, B2a, B3a, B3c, B3e

FISH TRADE NEGOTIATION BETWEEN INDONESIA AND SEVERAL COUNTRIES

**UPCOMING BILATERAL
NEGOTIATIONS**

**ONGOING
BILATERAL NEGOTIATIONS**

**COMPLETED/ON REVIEW
BILATERAL NEGOTIATIONS**



Indonesia-Turkey CEPA



Indonesia-Peru



Indonesia-Mozambique PTA



Indonesia-Morocco FTA



Indonesia-Iran PTA



Indonesia-European Union CEPA



Regional Comprehensive
Economic Partnership (RCEP)



Indonesia-Japan EPA
(ongoing review)



Indonesia-Australia CEPA
(completed)



Indonesia-Chile CEPA
(TIG completed)



Indonesia-EFTA CEPA
(Completed)



ASEAN-Hong Kong FTA
(Completed)



ASEAN Economic Community
(Deepening Integration,
target conclude in 2025)



Indonesia-Nigeria (ECOWAS)
PTA



Indonesia-Kenya (EAC)
PTA



Indonesia-SACU
PTA



Indonesia-Sri Lanka
PTA



Indonesia-Bangladesh PTA



Indonesia-Taiwan PTA



Indonesia-EAEU



Indonesia-GCC



ASEAN-Canada FTA

TERIMA KASIH !
THANK YOU!



KAIMANA-WEST PAPUA

INDONESIA