

DEVELOPING OUR COASTAL AND OCEANIC AQUACULTURE FOR FOOD SECURITY AND LIVELIHOOD GENERATION

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WE LIVE IN A “BLUE PLANET.”



THE OCEANS

- Cover 71% of the Earth's surface
- Source of minerals, seafood, pharmaceuticals, energy, etc.
- Primary source of protein for 3 billion people
- “Lungs of the Earth” producing about 70% of our oxygen supply and absorbing more than 50% of carbon dioxide from man-made sources

- Transport route for 80% of world's goods
- Provide many ecological services - climate regulation, ocean energy, tourism, etc.



“The last and most unexplored frontier on Earth”

WORLD FISHERIES PRODUCTION

- 167.2 million metric tons in 2014
 - 59% of production from capture fisheries (inland and marine) and 41% from aquaculture (UNFAO, 2016)



- Production of finfish (46%), aquatic plants (25%), mollusks (15%), crustaceans (6%), and other aquatic animals (7%)
- 90% of world's wild fish stocks fully overfished
 - 31.4 % exploited at “biologically unsustainable level”

- Aquaculture – the “fastest growing food-producing sector in the world”
 - Average growth rate of 8.8% annually
 - Expected to overtake capture fisheries production by 2020

Peter Drucker – Management Guru/Economist:

“Aquaculture, not the Internet, is the most promising investment opportunity in the 21st Century.”

PHILIPPINE FISHERIES

The Philippines – an archipelago with more than 7,000 islands, coastline of 18,500 km, 26.6 million hectares of coastal (inshore) waters , 193.4 million hectares of oceanic (offshore) waters and 30 million hectares of land



- Philippine fisheries production
 - 4.317 million metric tons in 2017
 - 51.9% from aquaculture and 48.1% from capture fisheries (inland and marine)
- Major aquaculture products: seaweeds (62.5%), milkfish (18.6%), tilapia (11.9%), tiger prawn (2.0%) oyster (1%), and mussel (0.08%)



- Fish is the primary source of animal protein in the diet of Filipinos with per capita fish consumption of 34.1 kg.
- There is high poverty incidence of 39.29% among the more than 1.5 million coastal fisherfolk in the country.
- Aquaculture contributes to our food security and livelihoods of our coastal communities.



PHILIPPINE COASTAL AQUACULTURE OR MARICULTURE

- Contributes 73% of total aquaculture production in the country



Mariculture Park – a concept similar to an Industrial or Science Park on land

- First mariculture park introduced by DA/BFAR in 2001 in the coastal waters of Samal Island (Davao del Norte) with demonstration of floating cages for milkfish culture



- Panabo City Mariculture Park (PCMP)
 - Established in 2006 with partnership of City Government of Panabo (Davao del Norte) and DA/BFAR
 - LGU provides local governance and regulations; BFAR provides technical/advisory services.
 - Infrastructure facilities and support services are provided to attract private investors.
 - For sustainability, only four cages (100 sq.m. each) are kept per hectare and regular monitoring of bottom sediment is done.
 - Multi-trophic culture system of milkfish and rabbit fish

- Total Investment Cost (2006-2013)- PhP467.6M
 - BFAR Seed Money (PhP35.5 M)
 - LGU (PhP21.5 M)
 - LBP Davao (PhP72.0 M)
 - Private Investment (PhP340 M)

- Socio-economic Impact (2006-2013)
 - Contribution to food security (8,389.59 mt with a value of PhP 839M)
 - Jobs provided (514)



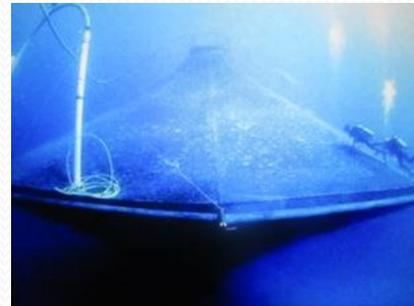


- Limitations of Coastal Aquaculture

- Lack of fingerlings (mainly milkfish) for culture in cages
- High cost of commercial feeds for fish production
- Pollution of shallow coastal waters with poor water circulation that causes “fish kills”
- Competition with navigation, tourism, etc.

OCEANIC AQUACULTURE

- Open ocean aquaculture (farming in oceanic or offshore waters) is an option for the future.
 - Environmental impact of large-scale commercial farming can be avoided with stronger currents in the high seas.
 - Limited by high cost of investment, exposure to storms, piracy and obstruction of shipping lanes



RECOMMENDATIONS

- (1) A comprehensive and integrated program for the development of coastal and oceanic aquaculture in the country is needed.
- (2) Policy for National Mariculture Program is recommended.
 - The NAST is advocating for the creation of a Department of Fisheries and Oceans to fully harness our coastal and oceanic waters.
- (3) Major R & D areas:
 - Setting up of more hatcheries for production of fry/fingerlings for culture
 - Development of commercial feeds that are efficient and cost-effective using fish meal/soybean alternatives
(Substitution of land-produced feedstuffs with sea-produced feedstuffs by 50% in 2025?)

OUR MOST IMPORTANT AND VALUABLE RESOURCES

- People
- Land & Water
- Oceans (seas)

