

POTENTIAL OF ECOSOCIAL-BASED AQUAFARMING TO INCREASE COASTAL LAND UTILIZATION AND FISHERMEN'S ECONOMIC LIVELIHOOD

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Fishermen



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INTRODUCTION

Coastal areas and coastal villages are villages / wards including other villages or have an area directly adjacent to the shoreline / sea (or an island village) with a pattern of people's lives depend on the sea potential.

Among 75,410 villages in Indonesia, 10,664 villages, or 14% of them are coastal villages.

Most of villagers in these coastal villages are fishermen



Poverty is still a challenges for fishermen

A Fisherman is someone who does the fishing as his daily activity. The term “Fishermen” includes their families. We could also use the term fisherfolk.

Muflikhati (2010); BPS (2011) report that 32% (5.28 million) from 16.42 million coastal people still live below the poverty line with indicators revenues of US \$ 1 per day.



What are the main causes of economic inequality among fishermen ?



INTRODUCTION

Expert scientists: fishermen's life remains in poverty due to socio-economic factors related to the characteristics of the resources and the technology that they use.



INTRODUCTION

Rigidity of assets in fisheries sector (fixity and rigidity of fishing assets) are the main reasons why fishermen still live in poverty.

Fisheries assets have low liquidity

When asset productivity decreases, in this case fishermen still engage in fishing operations although it is no longer economically efficient.



INTRODUCTION

Subade and Abdullah (1993) report fishermen remained in the fishing industry because of the low opportunity cost they have.

The opportunity cost of fishing is an activity / business better alternative than catching fish. In other words, the opportunity cost is another attempt to do when they do not catch. Opportunity cost can be another example of aquaculture businesses, but the fishermen do not have access to it.



INTRODUCTION

Fishermen also have a strong sense of tolerance to live in poverty. Fishermen argue that they are not poor and it encourages them not to change. They feel satisfied with their things and thus they make no more effort to pursue other welfare including increasing income levels.



Traditions

Sabenan (2007) said that fishing is a profession adapted from the ancestors, and it is rarely comes as a result of long study or scientific. Characteristics of this profession are very dependent on the pattern of resources, and depend on nature so that creates high risks and a high level of uncertainty of success in business.

Fishing is not a skill gained from study, but a traditional experience.



Discussion: fisherman Profile (BPS 2011) National statistic base

Only 87% use, whereas in the non-coastal village 92% use.

Percentage of fisherman who use electricity at their home
Pesisir: coastal area; Bukan pesisir: non coastal



Discussion: fisherman Profile (BPS 2011)

Fisherman or coastal area kerosene use is higher than non-coastal areas

Percentage of fisherman (coastal areas) using kerosene as the primary fuel for cooking



Discussion: fisherman Profile (BPS 2011)

Fisherman spent 67% of their income for food whereas non fisherman only 65 %.

Percentage of population expenditures on foods



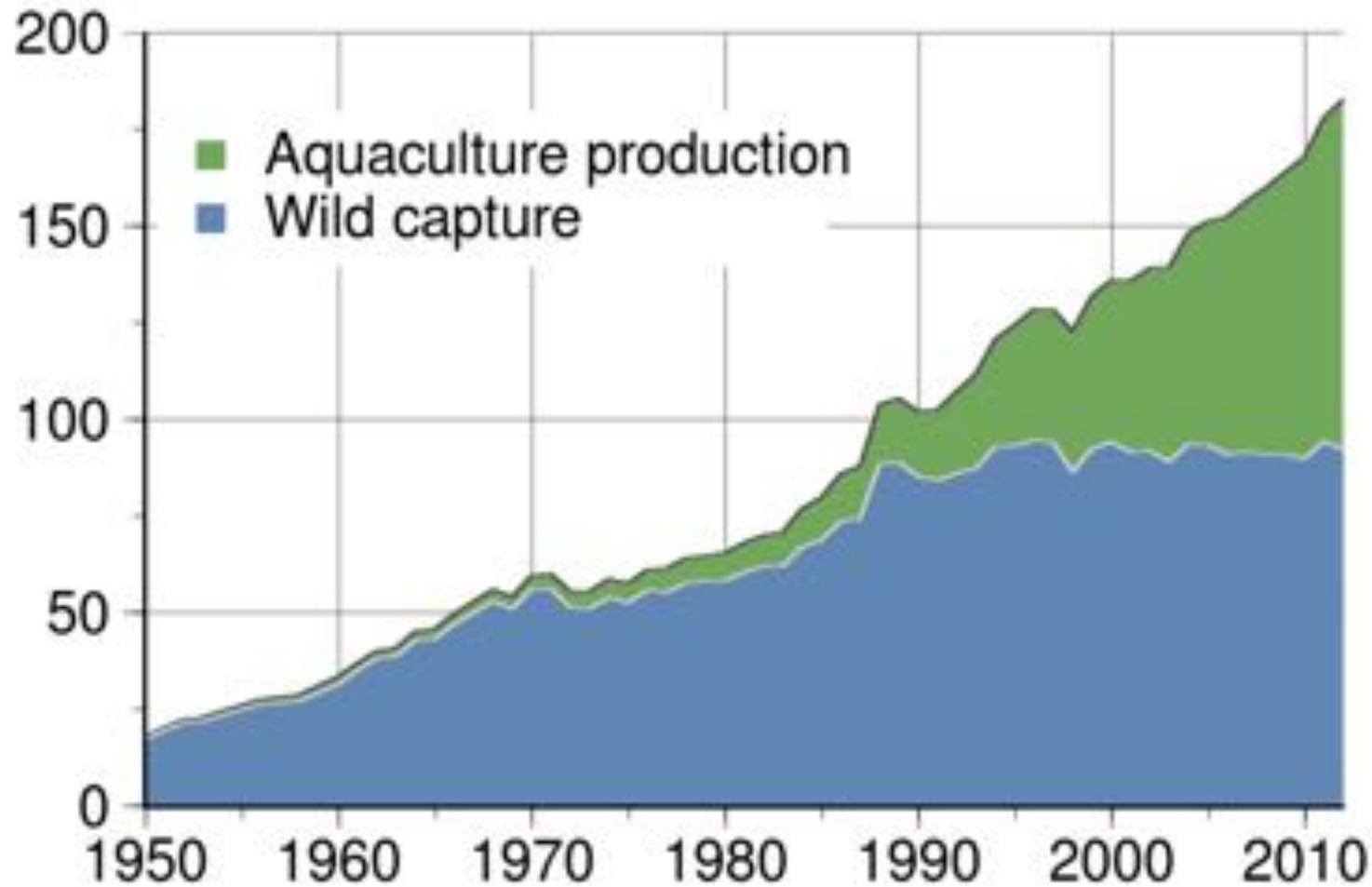
Discussion: fisherman Profile (BPS 2011)

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Percentage of population expenditures on foods



Global view of fish sources (FAO 2011)



Government policy

Nasution (2005): "Failure of KUD caused by elements that are not transparent on the financial management (morality issues), so that public trust in the cooperative to be lost." This condition makes people become disappointed of the existence of cooperatives. And they are still poor.



The impact of poverty

Overall poverty is viewed as dependence on coastal and marine resources, which often result in people doing activities that degrade the quality of resources, such as mangrove logging (for firewood and for sale), fishing which damages the ecosystem, fishing with unsustainable fishing gear (Lasabuda R. 2013).



Solution

Based on some of these cases then aquaculture is seen to have the potential to be applied for improving the welfare of coastal fisherman. Aquaculture mentioned is Aqua-farming ESE (economic, social and ecology)- based.



Action plan

Shrimp (*Macrobrachium rosenbergii*) cultivation using African catfish (*Clarias gariepinus*) waste water for increasing Fisherman economic.

BIOFLOCK Technology



Action plan

BIOFLOCK TECHNOLOGY

Is a technique of enhancing water quality in aquaculture through balancing carbon and nitrogen in the system.

Heterotropic bacteria is the primary element of this technique.

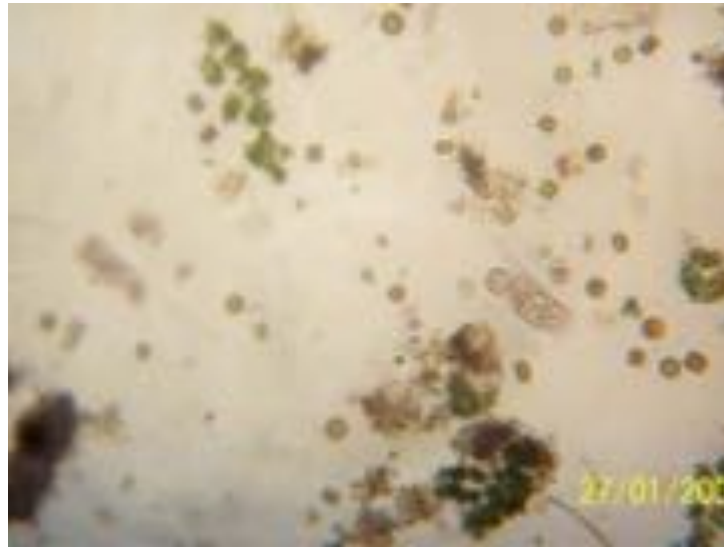


Action plan Goal is to make

Aquafarming communities.



Bioflock (algal and bacteri) diameter : 10 μm .



Catfish



Shrimp



Energy source

Growth profile of heterotrophic bacteria is greatly influenced by the C / N ratio.

C sources: wheat flour, tapioca, and molasses.

Catfish stocking density was 100 fish/m³ and the prawns density is 20 prawns/m²

Shrimp that are kept do not need to be fed because it can take advantage of bioflock as energy source.



Team members and responsibilities

Donovan Simaungkalit
Enggar Yulia Wardani

IGAF LC IPB



Target community and size

3 communities with 5 persons per group

Location

Around Jakarta and Jepara



Target harvest each cycle (5-6 months)

1. Catfish : 8 tonnes each community
2. Shrimp : 4 tonnes each community



Funding

Collecting money by making a proposal to:

1. Indonesian Ministry of Fisheries
2. Institute of Research and Community Service,
Bogor agricultural University
3. Faculty of Fisheries and Marine Technology
Bogor Agricultural University.



Confirmed Partners

1. IGAF LC IPB
2. IGAF SBSs
3. Institut of Research and Community Service
4. Youth Peace Ambassadors International
5. Laboratorium of Fish Health
6. Laboratorium of Fish Nutrition



Potential Partners

1. Department of Technology and Management of Aquaculture, IPB
2. Career development and alumni affairs, Bogor
3. IPB, aquaculture student community.
4. Bogor Agriculture University
5. Businessmen and Companies
6. Kirana Bussiness Inkubator.



Expected challenges:

- Fish markets
- Motile Aeromonas Septicemia (fish disease caused by infection with bacteria (Aeromonas hydrophilla))



Timeline (2015)

June to September : legal aspects

September 2015 : survey and action

February 2016 : harvest and marketing

March 2016 : after evaluation: next cycle of production and so on



Indicators of success

1. Fisherman income
2. Feed conversion ratio of shrimp on this business lower than other aquafarming
3. Number of communities increase each year and total production each year increase
4. We got included in kirana bussines incubator



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