



Marine product's intensification for regional economy development: business plan for sustainable fishery of East Sumba, Indonesia

Benny Osta Nababan*[^], Yoppie Christian*, Andy Afandy*

*Center for Coastal and Marine Resources Study IPB University, Bogor, Indonesia

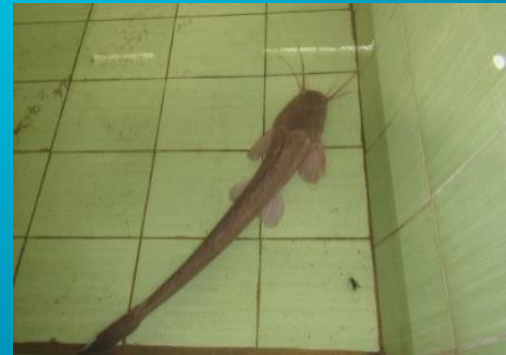
[^] School of Economic Science Dewantara, Bogor, Indonesia

mail: bennyosta11@gmail.com

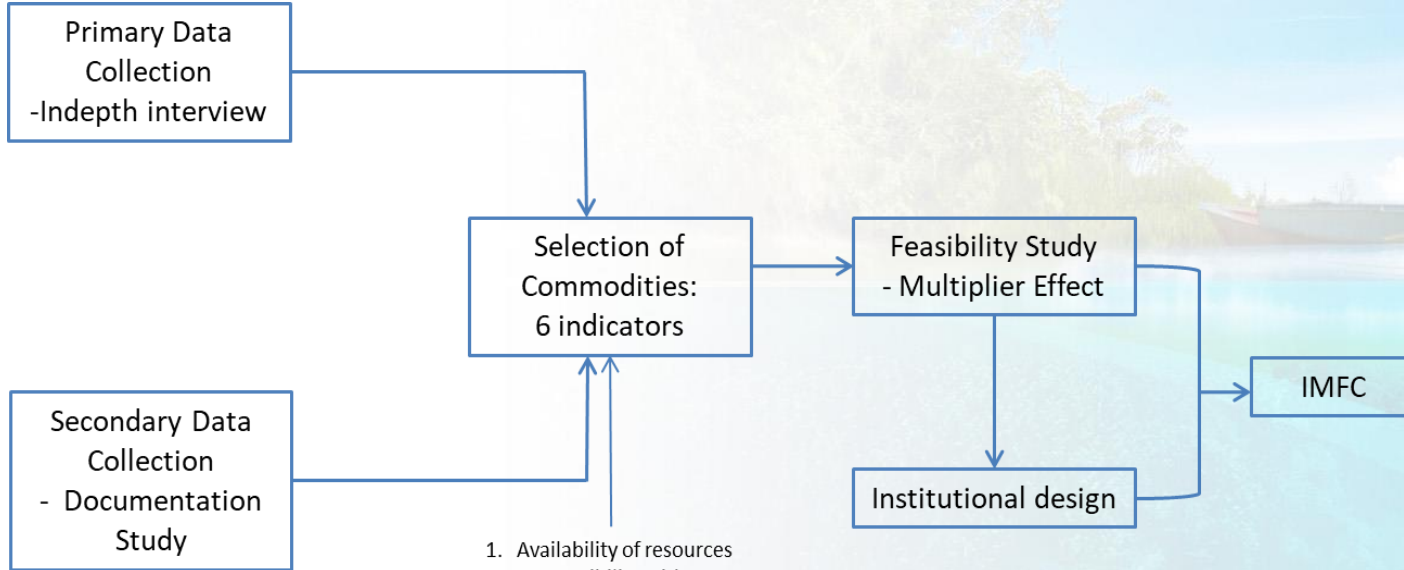
Outline



- Background and profile of East Sumba, Indonesia
- Result of study and SDG's achievement
- Conclusions



Flow of study



1. Availability of resources
2. Compatibility with locations
3. Ability and willingness of local community.
4. Inline with regional government policies.
5. Leave from existing activities
6. Market opportunities.





Integrated Marine and Fisheries Center (IMFC)

- IMFC is part of Joko Widodo's administration jargon **“to build Indonesia from frontier”** and to be achieved through three missions in marine and fishery sectors: Sovereignty, Sustainability, and Prosperity.
- IMFC is designated as spatial based marine and fisheries management with the principles of: **integration, efficient, high quality and high acceleration.**
- IMFC is concept of **four integrated elements**: development of infrastructure ; institutional design; marine and fishery business development; and sustainable management of marine and fisheries resources.
- There area **20 IMFC** initiated in Indonesia with particular priorities respectively, meanwhile East Sumba IMFC projected as gate for **fishery's export and a backbone of National Fisheries Logistic System.**

Result of study and achievement of SDG's

1. Seaweed (Mariculture, Processing, and Storage) "Focus"
2. Capture Fisheries (Local Driven)
3. Fresh water farming (Local Driven)
4. Boiled Salt (Local Driven)
5. Artemia farming integrated with Salt Pond (Challenge and Piloting)
6. Ecotourism (Promising)

Seaweed Culture: the activities developed are seaweed cultivation, industrial scale seaweed processing (Chips

Capture Fisheries: capture fisheries development in the next 3-5 years is still directed on a small scale, with the development of production to supply the demands of local market (Sumba Island). The development focus is on increasing the volume of catches by motorizing the fishing fleet ($CFCT$) and improving fishing gear technologies well

Freshwater Fish Farming: the potential for developing freshwater fish in East Sumba is quite promising, in some districts are very suitable for freshwater aquaculture, supported by the consumption patterns of the people who also

Boiled Salt Processing: The development of boiled salt processing in East Sumba Regency is still focused on supplying the demand of the local market (Sumba Island) by improving the production process (Technical Processing and Hieginity and

Artemia cultivation in salt ponds: The development of artemia cultivation is planned to be integrated with pond salt processing activities. In the initial stages of development, still on the scale of pilot scale and demosite.

Ecotourism (Marine Tourism): East Sumba has many world quality tourism objects and attractions, on this phase, ecotourism (marine tourism) is still as the potential and opportunities



Feasibility Study on each strategic commodity

No	Item of analysis	Seaweed	Capture Fisheries	Freshwater farming	Salt	Artemia
1	NPV (Net Present Value) in Rp	20.308.466	8.211.000.000	data	13.641.611,33	522.267,552
2	IRR (Internal Rate Return) in %	49,54	32,17		98,50	185,17
3	Net B/C Ratio	1,74	3,11		3,60	6,66

Item of analysis	<i>Tilapia</i>	<i>Catfish</i>	<i>Carp</i>
NPV (Rp)	218.943,078	361.798.461	305.312.311
B/C Ratio (<i>Ratio</i>)	2,98	2,05	6,18
IRR (%)	78,25	48,04	172,41

Multiplier effect for regional economy

Data Input of Multiplier Effect of Seaweed for Regional Economy

Data Input of Multiplier Effect on Capture Fisheries for Regional Economy.

Comparison of Multiplier Effect of Seaweed and Capture Fisheries.

Year	Cultivators of Seaweed (person)**	Total Workforce (person)*	Production (Ton)**	Value of Production seaweed (Rp)***	GRDP (million rupiah)*
2010	3160	98.779	703,8	5,022,076,30	2.556.846.900.000
Year	Fishers (person)**	Total Workforce (people)*	Production of Fish (Ton)**	Value of production of fish (Rp)***	GRDP (Rp)*
2011	2,852	101,711	11,075	99,060,179,875	2,689,887,800,000
2012	2.852	100.000	11.000	100.000.000.000	2.689.887.800.000
2013					
2014					
2015					
2016					
Indicator	Seaweed		Capture Fisheries		
	Revenue	Workforce	Revenue	Workforce	
A	$2,49 \times 10^{12}$	90.333,6	$1,51 \times 10^{12}$	17730,84	
B	28,5	3,05	11,92	29,17	
R	98,84	93,18	97,57	88,02	
R ²	97,69	86,82	95,20	77,48	
Error	52×10^9	1659,47	$5,85 \times 10^{12}$	1970,06	
F _{hit} (F _{sign})	211,80 ($2,76 \times 10^{-5}$)	32,95 ($2,25 \times 10^{-3}$)	59,48 ($4,5 \times 10^{-3}$)	13,76 (0,02)	
t _{hit} (t _{sign})	14,55 ($2,76 \times 10^{-5}$)	5,74 ($2,25 \times 10^{-3}$)	7,72 ($4,5 \times 10^{-3}$)	3,71 (0,02)	



The contribution toward achievement of SDG 2030:

1. To achieve sustainable development of fisheries by implement control on the exploitation of resources under IMFC measure.
2. To promote small-scale fishers' access to productive resources, services and markets, and also develop institutional frameworks for fishery enterprises.
3. The collaborative management of regional fishery as mitigation to destructive and IUU Fishing
4. Indonesia forward: Reducing regional disparities through connectivity and maritime development (VNR 2019)

Impelementing National Development Program
=
Implementing Sustainable Development Goals

Provincial and Regional Development Planning

Conclusions



- In the short term, there are three strategic leading commodities that form the backbone of maritime development in East Sumba IMFC, namely: Seaweed, Capture Fishery, and Freshwater Farming.
- Seaweed is a strategic commodity and is a focus for the development of the East Sumba maritime economy because it has significant impact on regional economic and employment. With the support of institutional communal-based cooperatives, this effort is able to contribute optimally to regional development
- Capture fisheries is the second strategic commodity managed by IMFC to encourage sustainable economic growth by Total Allowable Catch and selection of catches on high value fish only (reducing bycatch)
- Freshwater farming is the third strategic commodity to boost the regional economy and labor absorption, the available land is also still very broad.
- Salt, Artemia, and Tourism are still in the framework of studies and experiments so that development in the medium term is needed to be developed into strategic competitive commodities.
- The existence of East Sumba IMFC as an acceleration program on marine and fisheries sector has contributed to the achievement of the SDG's national target on point 14, namely Life Below Water in 2030



We gratitude for the support from Ministry of Marine and Fisheries for the financial support, data and cooperation during the research, Center for Coastal and Marine Resources Study IPB for facilitating the dissemination of this research, and not least, all the fishers, cultivators, and residents and government of East Sumba for the remarkable knowledge they have shared to team during the research