



## Sustainable Blue Economy Establishes Social Justice Based on Ecology, Preserves Local Wisdom, Environmental and Marine Conservation as the Future

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### ABSTRACT

The initiation of the local economic development program originated from the International Labour Organization (ILO) program under the United Nations. This program has been widely replicated across various regions in Indonesia, including its adaptation for coastal area development. Sustainable blue economy development places social justice based on ecology by preserving local wisdom and environmental conservation. Communities should be treated according to their cultural heritage and regional potential, both as cultivation communities and conservation areas. Efficiency and optimization of resource utilization using environmentally friendly methods and ecological parameters must be prioritized. Regulations and technological advancements, both in marine resource utilization and in developing and preserving marine potential, should be maximized for community welfare. This contribution serves as the framework of the "Maritime Cluster" created by the Government. The design of strategies and policies for marine potential must be adhered to in its implementation to ensure effectiveness, making this local economic development a unifying tool and a means to achieve prosperity, especially for marine business actors, coastal communities, and fishermen

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## **INTRODUCTION**

The development and enhancement of the institutional framework for sustainable development and the advancement of the "Green Economy Concept" resulted from the United Nations Conference on Sustainable Development (June 20–22, 2012). "Eradicating poverty is the greatest global challenge facing the world today, and an absolute necessity for sustainable development. In this regard, we are committed to freeing humanity from poverty and hunger as a matter of urgency," the conference declared. The "Blue Economy" approach has broad relevance as the utilization of marine resources for community prosperity, considering that the marine sector plays a crucial role for humanity's future. The blue economy offers a more sustainable development approach. Oceans provide a large portion of global population needs, including food and transportation services, which account for 80% of global trade. Additionally, marine and coastal environments are key resources for the global tourism industry.

The concept of oceans as a "Development Space," where integrated planning combines conservation, oil extraction, bioprospecting, sustainable energy production, and marine transport, must consider the environmental impact. The blue economy treats oceans as economic resources that must be preserved for future generations. Many islands or regions in Indonesia require tailored approaches based on their unique cultural, societal, and geographical conditions. This makes Indonesia distinct from other countries. The nation's governance should be entrusted to competent individuals capable of uniting the archipelago and ensuring community welfare.

A welfare-based approach should view each region's potential as an opportunity for prosperity. Local economic development must act as a unifying tool and a means of achieving welfare, with a multiplier effect on policy implementation. Government policies must arise from community participation, avoiding overlapping regulations, anti-people policies, or environmental destruction. For example, marine sand mining in the Riau Islands should be substituted with natural resource-based economic alternatives, such as fisheries and small island tourism, with long-term, continuous planning to create added value and development opportunities. The government's policy on 1.2 million hectares of new agricultural land in Papua has harmed local communities by forcing them to transition from traditional practices to cultivation. Modernization is inevitable, but welfare must be accessible to all citizens. The Jakarta reclamation project and abandoned mining pits in Pontianak exemplify policies that prioritize economic gain over environmental sustainability, potentially leading to ecological disasters.

## **LITERATURE REVIEW**

As the largest archipelagic country with 17,504 islands and the second-longest coastline in the world (95,181 km), Indonesia's marine wealth must be continuously explored. Marine tourism requires lower investment than other sectors and should become a priority for driving local economies. An integrated tourism approach, supported by the surrounding environment, can transform marine activities into a new economic force that fosters community welfare. Sovereign nations bear responsibility for their resources and sustainable

development. Therefore, a science-based approach is essential for marine economic development, providing a foundation for decision-making and adaptive management.

## METHODOLOGY

In this study, the method used is the potential exploration method, with data collection on each potential from all stakeholders. This data serves as material for further discussion, requiring feedback from all layers of society, across all ages and business sectors, using an empowerment technique according to their respective clusters.

From this process, community groups will be classified based on age, gender, education, and type of work/occupation according to their conditions and needs. These groups will then generate various types of empowerment, including business types, community social activities, and public interests, with different solutions tailored to the potential and aspirations of the community based on agreements made at the outset.

The government, acting as a facilitator and regulator, applies the principle of “Ing ngarso sung tulodho, ing madyo mangun karso, tut wuri handayani” – setting an example in front, building initiative in the middle, and providing encouragement from behind. Through this community empowerment concept, guidance is provided starting from the framework of thinking, the emergence of ideas, the realization of actions, and how the process is carried out until the evaluation of what has been done. This process requires collaboration between the government and related stakeholders to ensure that activities align with the set goals, especially in the marine and coastal sectors, which still require adequate infrastructure and have low levels of education within the community.

This primary effort must continuously be refined and improved in line with changing circumstances and technological advancements. Based on the issues mentioned above, the application of an economy-based concept on the development of the marine sector offers several opportunities to utilize the sea as an economic resource.

## RESULTS AND DISCUSSION

### **Exploration and Data Collection of Community-Developed Potentials, Including:**

- a. Shipping and Port Facilities, as 80% of global trade, with more than 70% conducted by sea and facilitated by ports. Globally, around 350 million people are engaged in marine fisheries-related jobs, with 90% of them living in developing countries.
- b. Regarding marine fisheries, 90% of fishermen in developing countries depend on their respective marine potential. Therefore, proper marine management practices will lead to sustainable catch increases, which will also secure livelihoods and enhance global food security.
- c. Tourism is a major global industry. In 2012, international tourist arrivals increased by 4%, despite the global economic crisis. Given the significant global tourism potential, there is a need for an economy-based approach to the marine sector to ensure its sustainability.

- d. Aquaculture is the fastest-growing global food sector, now providing 47% of fish for human consumption. Aquaculture is expected to surpass capture fisheries as the primary provider of protein for the global population, as this system is environmentally friendly and aligns with the marine-based economic concept.

The marine economic sectors include capture fisheries, aquaculture, fish processing industry, biotechnology industry, mining and energy, marine tourism, maritime transportation, maritime industries and services, small island resources, coastal forestry (mangrove forests), and non-conventional resources.

Table 1. Estimated Economic Value of Marine Economic Sectors in Indonesia.

NO	ECONOMIC SECTOR	ECONOMIC VALUE (BILLION USD/YEAR)
1.	Capture Fisheries	12
2.	Aquaculture	80
3.	Fish Processing Industry	100
4.	Marine Biotechnology Industry	180
5.	Energy and Mineral Resources (ESDM)	210
6.	Marine Tourism	60
7.	Sea Transportation	30
8.	Maritime Industry and Services	200
9.	Coastal Forestry	8
10.	Small Island Resources	120
11.	Non-Conventional Resources	200
<b>Total</b>		<b>1,200</b>

The total economic potential of Indonesia's eleven marine sectors amounts to US\$ 1.2 trillion per year, which is seven times the 2015 State Budget (APBN) (Rp 2,000 trillion = US\$ 170 billion) or 1.2 times the current National GDP. This sector provides employment for 40 million people, or one-third of Indonesia's total workforce, as shown in the table above. The non-conventional resources sector includes industries such as deep-sea water, gas hydrates, freshwater beneath the seabed, wave energy, tidal energy, current energy, Ocean Thermal Energy Conversion (OTEC), marine minerals, and marine fisheries resources. Capture Fisheries: The sustainable production potential and utilization rate of Indonesia's fishery resources cover marine fisheries with a marine area of 5.8 million km<sup>2</sup>, Maximum Sustainable Yield (MSY) of 6.5-7.3 million tons per year, and 2013 production of 5.34 million tons – with a utilization rate of 73-82%. Meanwhile, for inland fisheries with an area of 0.54 million km<sup>2</sup>, the MSY is 0.9 million tons per year, with 2013 production of 0.36 million tons and a utilization rate of 40%.

Table 2. Sustainable Production Potential and Utilization Rate of Fishery Resources.

Type of Fisheries Activity	Water Area (million km <sup>2</sup> )	MSY (million tons/year)	Production 2013 (million tons)	Utilization Rate (%)
<b>A. Capture Fisheries</b>				
1. Marine	5.8	6.5 - 7.3	5.34	73 - 82
2. Public Waters	0.54	0.9	0.36	40
<b>B. Aquaculture</b>				
1. Marine	0.24	42.0	4.6	10.95
2. Brackish Water (Pond)	0.012	10.0	1.6	16
3. Public and Freshwater	0.137	5.7	1.72	30.17
<b>TOTAL</b>	<b>6.729</b>	<b>65.0</b>	<b>13.62</b>	<b>20.95</b>

Source: Marine and Fisheries Statistics 2013

**Aquaculture Fisheries:** The sustainable production potential and utilization rate of Indonesia's fishery resources in aquaculture activities covers marine areas with a total area of 0.24 million km<sup>2</sup>, with a Maximum Sustainable Yield (MSY) of 42 million tons per year. In 2013, production reached 4.6 million tons, with a utilization rate of 10.95%. Similarly, brackish water aquaculture (pond fisheries) has a total area of 0.012 million km<sup>2</sup>, with an MSY of 10 million tons per year. In 2013, production reached 1.6 million tons, with a utilization rate of 16%. For inland and freshwater aquaculture, with an area of 0.137 million km<sup>2</sup>, the MSY is 5.7 million tons per year. In 2013, production reached 1.72 million tons, with a utilization rate of 30.17%. Aquaculture development remains suboptimal (only 15% of the total potential land is utilized), with relatively low productivity, efficiency, and sustainability. The industry faces several challenges, such as: Lack of superior broodstock and seeds (SPF, SPR, and fast-growing species), Rising feed prices and production costs, Outbreaks of diseases, Water pollution, Conflicts in space utilization with other sectors, Poor infrastructure to and from aquaculture production centers, Limited electricity availability, Unstable supply chain systems (hatchery, feed mills, grow-out, post-harvest, and market), Most businesses still do not apply best aquaculture practices or professional management.

**Fishery Product Processing Industry:** The fish processing industry faces challenges in raw material supply shortages and continuity of supply (such as fish, shrimp, crabs, and seaweed). The competitiveness of Indonesian fishery products is generally still behind those from Singapore, Malaysia, Thailand, and Vietnam in terms of quality, price, and delivery continuity. Additionally, there is a lack of innovation in product development, weak international standardization and certification, and low seafood consumption among Indonesians (34 kg per person per year). The domestic market remains small, and Indonesia's market dominance in exports is still weak. However, there are several leading export

commodities in Indonesian fishery products, as shown in the table and chart below.

Table 3. Indonesian Fishery Export by Leading Commodities (2012-2014)

Commodities	2012		2013		2014		Trend 2012-2014	
	Volume (Ton)	Value (000 Usd)	Volume (Ton)	Value (000 Usd)	Volume (Ton)	Value (000 Usd)		
Shrimps	156,773	1,253,575	162,417	1,614,170	193,303	2,098,036	11.31	29.37
Tunas, Tonggol, Skipjack	201,160	749,992	209,072	764,791	206,553	692,281	1.36	-3.75
Crabs & Swimming Crabs	28,212	329,724	34,173	359,304	28,091	414,372	1.67	12.15
Seaweeds And Other Algae	174,011	177,922	181,924	209,701	206,452	279,540	9.01	25.58
Cuttlefish, Squid, Octopus	73,265	167,685	79,993	145,166	77,718	154,914	3.17	-3.36
Others	606,202	1,189,131	590,600	1,088,724	562,861	1,002,762	-3.64	-8.17
<b>Total</b>	<b>1,239,622</b>	<b>3,868,029</b>	<b>1,258,179</b>	<b>4,181,856</b>	<b>1,274,979</b>	<b>4,641,905</b>	<b>1.42</b>	<b>9.56</b>

Source: BPS Processed by Directorate General of P2HP

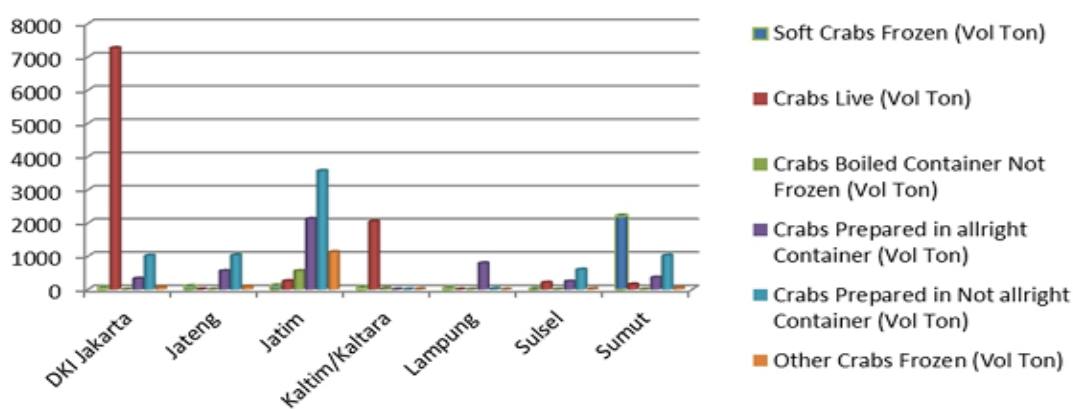


Figure 1. Provincial Export Data Based on Leading Commodities

In addition to several opportunities that can be utilized from marine potential, there are still other potentials that can be explored, such as energy, biotechnology, and others. However, all of these must consider the sustainability of marine utilization, as the ocean is seen as a source of economy that can prosper the global community. The marine biotechnology industry, in processing to produce various pharmaceutical, cosmetic, enzyme, and other biotechnology products (from bio-prospecting, screening, and extracting bioactive compounds to manufacturing) requires a considerable amount of time (on average about 5 years), significant costs, and specific expertise. Most national entrepreneurs have an instant culture and merchant mentality, not industrialists who love their country and nation, and there is a lack of incentives from the government for infant (frontier) industries. On a macro-structural level (political-economic), threats to the sovereignty of the NKRI (Republic of Indonesia), illegal economic activities (fishing, logging, mining, and trading), piracy, illegal immigrants, drugs, and weapons, maritime accidents, and pollution, such as the destruction of coastal ecosystems (mangroves, coral reefs, estuaries, and seagrass beds) and biodiversity loss, as well as other environmental damage, continue to persist. The conflict over coastal and maritime spatial planning (RTRW) is generally not conducive. Coastal and marine areas receive various negative externalities (pollutants, sediments, and changes in water regimes) from various human activities and developments occurring in the upstream areas (upland areas) and offshore areas. Regional leakages almost affect all large and modern maritime industries (energy, ports, and tourism), but coastal communities and small islands remain poor.

The implementation of the globalization regime and free trade (MEA starting in December 2015, and APEC in 2020) requires that all goods and services with high competitiveness be applied to all member countries. Indonesia will become the market for goods and services from other countries, leading to a trade deficit and current account deficit, poor infrastructure, energy supply issues, logistics, maritime connectivity, global climate change, tsunamis, earthquakes, lack of banking support due to high interest rates and stringent requirements, sectoral egos, regional egos, and weak coordination and synchronization. These issues need to be addressed and adjusted to the free market. The poor investment climate, the difficulty in doing business, and the shortage of qualified and dedicated human resources in the maritime sector must also be prioritized by the government in policy-making.

Given these conditions, Indonesia must immediately play an active role in the international arena to ensure the welfare of its people in general. Indonesia should not just be an object but must act as a subject—an actor capable of becoming a hope and pillar of national prosperity. The tendency towards implementing a sustainable blue economy concept is not new. History has shown that major countries such as Greece, Portugal, the Netherlands, England, the United States, and many others have strived to maintain maritime strength as a means to dominate the world. Indonesia also has a strong maritime tradition, a mindset based on dependence on the marine sector, which has been a potential held by the Indonesian nation for generations. We do this by integrating

ecosystem values into macroeconomic performance, such as contributions to GDP, employment, and the balance of payments. This is to prevent mistakes or the loss of potential due to poor management. However, it is not enough just to estimate values; the distribution of benefits is crucial, both for sector-level management and macroeconomic performance.

Regulations for the development of local economies and a sustainable blue economy require the implementation of integrated national maritime policies. To that end, the national maritime strategy will also allow regions to set their own policies under an integrated structure to promote sustainable maritime development. Policy recommendations for accelerating the realization of these goals include improving coordination, integration, synergy, and simplification of maritime development at the planning and controlling stages (monitoring and evaluation). Creating or improving the “economic playing field” (such as fiscal policies, banking, subsidies, taxes, investment climate, and ease of doing business) in Indonesia’s maritime sectors to match those of more advanced and prosperous countries. The preparation and implementation of an integrated spatial planning (RTRW) from upland to coastal and marine areas, with coastal zone activities as its basis. Pollution control, the use of environmentally friendly technology, and adherence to zero-waste management principles are essential. Accelerating the development of productive, efficient, competitive, inclusive, and environmentally friendly marine economy sectors is crucial. However, these efforts are insufficient without supporting regulations that provide synergy and integration, such as the Minister of Marine Affairs and Fisheries Regulation Number KEP/50/MEN/2012 on the national action plan to prevent and combat illegal, unreported, and unregulated fishing (IUU Fishing). Regulation KEP/50/MEN/2012 is a form of the Code of Conduct for Responsible Fisheries (CCRF) agreed upon in 1995 by the Food and Agriculture Organization (FAO) member countries for orderly, responsible, and sustainable fisheries management and development and the implementation of international action to combat IUU Fishing, which is outlined in the International Plan of Action to Prevent, Deter, and Eliminate IUU Fishing (IPOA-IUU Fishing) in 2001. The IPOA-IUU Fishing must be followed by every country, including Indonesia, by preparing an action plan for the prevention and handling of IUU Fishing at the national level.

Ministerial Regulation Number 56/PERMEN-KP/2014 on the moratorium of fishing business permits in the marine fisheries management area of the Republic of Indonesia stems from the fact that Indonesia consists of two-thirds sea and one-third land, making it the second largest country in terms of coastline in the world. With this potential, Indonesia’s fish exports should be at the top of the global ranking, but currently, Indonesia lags behind countries like Thailand, the Philippines, and Malaysia. Indonesia’s export volume is not more than 15 thousand tons per year, while Thailand or Malaysia exports over 50 thousand tons per year. If we look into this issue, it is clear that the management of our seas is problematic. To improve fish catches, small fishermen should be empowered, meaning their skills should be enhanced, and their practices must reflect sustainability. Small fishermen should be encouraged by ensuring they

have access to fuel, simplified permits, and guaranteed livelihoods. This ministerial regulation was introduced due to rampant illegal fishing in Indonesia's waters, including using advanced technologies and both large and small vessels, often under Indonesian flags but manned by foreign crews, as in the table below:

Table 4. Human Development Index

No	Countries	Year		
		2011	2012	2013
1	Norway	1	1	1
2	Australia	2	2	2
3	Netherlands	3	4	4
4	Singapore	26	18	9
5	Brunei Darussalam	33	30	30
6	Malaysia	61	64	62
7	Thailand	103	103	89
8	Philippines	112	114	117
9	Indonesia	124	121	108
10	Vietnam	128	127	121
11	Lao People's Democratic Republic	138	138	139
12	Cambodia	139	138	136
13	Myanmar	149	149	150
14	Niger	186	186	186
15	Congo, Democratic Republic of the	187	186	187

Source: Human Development Report 2011, 2012, 2013; in 3<sup>rd</sup> rank of HDI: Switzerland

At the level of prosperity among ASEAN countries, Indonesia ranks 5th, with an area of 1,904,569 km<sup>2</sup> and a population of 251,160,124 people. With a competitiveness score of 4.53, it holds the 38th position with a GDP of 1,000.4 billion USD. The GDP per capita is 4,500 USD, with a Human Development Index (HDI) of 0.629, as shown in the table below.

Table 5. Prosperity Levels of ASEAN Countries

N O	Negara	Luas Wilayah (km2)	Jumlah Penduduk (jiwa)	Daya saing (peringkat)	GDP (billion US\$)	GDP per Kapita (US)	IPM
1	Singapura	697	5.460.302	5,61 (2)	286,9	52.179	0,895
2	Malaysia	329.847	29.628.392	5,03 (25)	327,9	10.946	0,769
3	Brunei Darussalam	5.765	415.717	4,96 (26)	16,5	40.647	0,855
4	Thailand	513.120	67.448.120	4,54 (37)	425,0	6.572	0,690
5	Indonesia	1.904.569	251.160.124	4,53 (38)	1.000,4	4.500	0,629
6	Filipina	300.000	105.720.644	4,29 (59)	284,5	2.918	0,654
7	Vietnam	331,210	92.477.857	4,18 (70)	156,0	1.705	0,617
8	Laos	236,800	15.205.539	4,08 (81)	10,3	1.587	0,543
9	Kamboja	181.035	6.695.166	4,01 (88)	15,7	1.017	0,543
10	Myanmar	676,578	55.167.330	3,23 (139)	57,4	884	0,498

With a per capita income of 4,500 USD, Indonesia is classified as a lower-middle-income country. Community participation in the development of the local economy and sustainable blue economy is introduced to address the

shortcomings of the aforementioned factors, aiming to improve conditions for economic growth and job creation. The essence of this concept is not only to optimize maritime potential but also to learn from nature, using the ecosystem's operational methods where ecosystems continuously work towards higher levels of efficiency, flowing nutrients and energy without emissions and waste to meet basic needs. This concept does not diminish but rather enriches nature. The concept of developing a sustainable blue economy for local economic development, if implemented properly with all stakeholders collaborating within the framework of government policies as regulators and facilitators, will achieve Indonesia's noble goal of living in harmony and prosperity.

The direct economic impact can be seen in the labor sector, value-added, etc., as a result of port activities and industries related to the marine sector. The indirect economic impact includes activities from various sectors that are not directly connected to port activities but whose results, in terms of distribution, require or go through port services. The induction economic impact is the creation of private businesses or entrepreneurs as a result of the direct and indirect effects of port sector activities. These three factors should serve as bargaining power for policymakers in attracting investors to participate in the advancement and welfare of society.

These frameworks provide a great opportunity to create developmental potential that directly impacts the welfare of the community. With the emergence of new local economic development potentials that can drive domestic economic sectors, driven by political will and support from the government, and the increasing synergy of all stakeholders and the established regulations and business systems.

## **CONCLUSION AND RECOMMENDATION**

The idea of developing a sustainable blue economy for local economic development places social justice, ecology-based principles, the preservation of local wisdom, and environmental conservation at its core. The community involved in processing should not be treated as a farming community, and conservation areas must not be exploited. At the heart of this concept is the decoupling of socio-economic development from environmental degradation. To achieve this, the approach to sustainable blue economy local economic development is based on assessing and incorporating the true value of nature (blue) as capital into all aspects of economic activities related to conceptualization, planning, infrastructure development, trade, tourism, renewable resource exploitation, and energy production/consumption. Efficiency and optimization of resource use are very important, but they must also respect the environment and ecological parameters.

## **FUTHER STUDY**

This research is still delayed, so further research is needed related to the topic Sustainable Blue Economy Establishes Social Justice Based on Ecology, Preserves Local Wisdom, Environmental and Marine Conservation as the Future in order to improve this research and add insights for readers

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