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DEVELOPMENT OF THE PENTAHELIX ECOSYSTEM AS A STRATEGY FOR OPTIMIZING LEADING MARINE COMMODITIES AND VILLAGE FISHERIES IN INDONESIA

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Abstrak
This paper discusses the Development of the Pentahelix Ecosystem as a Strategy in Optimizing the leading commodities of marine and village Fisheries in Indonesia. The potential of Indonesia's fisheries sector is the largest in the world, both capture fisheries and aquaculture so a strategy is needed to be able to optimize this potential. The Pentahelix model can be used as a strategy to encourage continuous collaboration in an effort to optimize the potential of marine and fisheries commodities in Indonesia. The problem examined in this study is how to develop a pentahelix collaboration model in encouraging the optimization of marine commodities and village fisheries in Indonesia. The method used is qualitative descriptive regarding model development analysis by referring to information obtained from various reliable sources referred to based on research objectives. Based on the data obtained, there are three problems in optimizing marine and fisheries commodities, namely limited market access and connection, limited technology and competence (HR) and lack of capital or funding. Based on these problems, it is urgent that the collaboration ecosystem model developed should be able to overcome these challenges.

INTRODUCTION

Indonesia's status as an archipelagic state has been established since the Djuanda Declaration in 1957 and strengthened by the United Nations Convention on the Law of the Sea (UNCLOS). Indonesia has about 17,500 islands, with a coastline of 81,000 km. About 62% of Indonesia's area is sea and water, this is confirmed from MMAF data, the land area is 1.91 million km2 while the water area reaches 6.32 million km2.

With such a landscape, Indonesia inevitably has the potential for extraordinary wealth of marine resources, especially in the fisheries sector. The growth of the export value of marine and fishery products is one of the main concerns of the government, in this case the Ministry of Marine Affairs and Fisheries (MMAF). The Ministry of Maritime Affairs and Fisheries (MMAF) noted that until the third quarter or January-September 2023 that exports of Indonesian fishery products reached US $ 4.1 billion or equivalent to Rp 64.3 trillion (Exchange Rate Rp 15,700/US$). This achievement is 53% of the target set this year which is US $ 7.6 billion. Meanwhile, Non-Tax State Revenue (PNBP) from the fisheries sector amounted to Rp 1.1 trillion.

However, this abundance has not been optimized for its potential in terms of economic equality for the welfare of its people. Currently, almost 50% of Indonesia's population lives in rural areas (BPS, 2023a). The village is also a producer of various leading commodities with export quality. However, along with changes in economic patterns, economic agglomeration is more towards urban areas (Sari & Mulyana, 2021). The rapid urbanization process, known as the rural-urban migration phenomenon, leads to a decrease in economic activity in rural areas. As a result, the event creates a cycle that leaves the rural economy further behind.

The imbalance in the pattern of economic transformation is closely correlated with various problems related to the Sustainable Development Goals (SDGs), including consistent regional poverty (12.22% in March 2023) (BPS, 2023b), which is almost twice as much as urban areas (Goal 1 No Poverty). The second is the problem of poor employment where rural areas are often associated with conditions of informality such as professions with working hours and salaries below the regional minimum wage (Goal 8 Decent Work). This gap is also marked by the large number of rural workers who migrate to urban areas to get more quality jobs. Finally, economic conditions in villages are also associated with science and technology gaps such as industrial underdevelopment, innovation, and infrastructure (Goal 9 Inclusive Industry, Sustainable Innovation).

Coastal villages are one of the pockets of poverty in Indonesia. The Central Statistics Agency noted that the number of poor people in Indonesia's coastal areas in 2022 reached 17.74 million people. As many as 3.9 million of them fall into the category of extreme poor. If the poor population in Indonesia in 2022 is 26 million people (March 2022 data is 26.16 million people and September 2022 is 26.16 million people). One of the sources of livelihood for residents of coastal areas is the capture fisheries sector. Fishermen, the main actors in the capture fisheries sector, are

one of the low-income groups. Coastal poverty accounts for 68 percent of Indonesia's total poverty rate.

On the other hand, Indonesia is also trying to face various challenges in the economic sector. One of them is the middle income trap, a condition where Indonesia's per capita income stagnates among countries with middle income levels but cannot get out of that category. According to an analysis from the Asia Development Bank (ADB), this condition is caused by the lack of development of domestic innovation capabilities which causes a lack of productivity to produce standardized commodities and can compete internationally.

Based on the background stated above, the author considers the need for efforts in the form of formulating strategies to optimize the potential of marine and fisheries commodities to overcome the problem of economic inequality. The strategy model developed by the author is outlined in an article entitled "Development of the Pentahelix Ecosystem as a Strategy for Optimizing Leading Marine Commodities and Village Fisheries in Indonesia".

LITERATURE REVIEW

Indonesian Government Efforts

In various efforts to overcome economic disparities in rural areas, the government has realized breakthroughs such as Village Funds allocated by the central government to 74,961 villages in Indonesia with an average of 907 million rupiah each village (BPS, 2018c). In its realization, most Village Funds are allocated for physical development such as infrastructure while only a few are used for non-physical development such as empowerment and improving community competence. During 2015 to 2020, the Village Fund has provided infrastructure development outputs in the form of village roads, bridges, and irrigation to support economic activities. However, after the pandemic, the government has given an ultimatum directing the use of Village Funds to focus more on economic recovery and priority sectors through capacity building and empowerment of rural communities (Ministry of Finance, 2022). So that new breakthroughs are needed for the allocation of human resource empowerment to absorb Village Funds. The Ministry of Industry has also pioneered the One Village One Product (OVOP) Program to stimulate village productivity in producing superior commodities with large market share potential. This program provides various facilities in the form of coaching, promotion, and capacity building for MSMEs. However, the marketing of MSME products from the OVOP program still tends to depend on government facilities, especially exhibitions and product dissemination.

Franchise Development in Indonesia

The marketing system in Indonesia is currently being disrupted by the development of franchises (franchises) with massive growth in Indonesia. Until 2023, there are 31,188 brands from various franchises with an average turnover increase of

172 T/year before the pandemic and employment of more than 53,670 people. Currently, there are only 138 domestic franchisees, of which 44.3% come from food and beverage products, 11.5% from informal education services, and retail by 15% (Sindonews, 2023) This number is still relatively small compared to the potential of various types of products that can be franchised. One of the successful franchises in Indonesia today is Indomaret which is shaded by the Salim Group. Since 1988 until now it has had more than 18 thousand outlets throughout Indonesia with a variety of product target markets and a market share of around 43.16% of the total minimarket retail in Indonesia (Gramedia, 2023). By seeing this potential, there is a great opportunity to take advantage of franchising, especially as a new destination market for marine and fishery products from rural areas in Indonesia.

Economic Opportunities in Capital Relocation Discourse

Indonesia is currently facing a transition, namely the realization of the discourse of moving the capital to IKN. When viewed from various perspectives, the transition has the potential to provide new hope for economic development in various sectors. The potential in the marketing sector or market share can be viewed from the formation plan and supply of manpower to IKN. According to Presidential Regulation 63/2022 regarding the IKN Master Plan, the workforce from various fields will be gradually transferred to IKN from 2022 to 2024 with a projected workforce of up to 1.9 million people (BI, 2023a). This large displacement will stimulate a shift in economic activity, especially in the IKN area itself and its surroundings. This condition will also increase the need for food supply and other basic needs. This projection can be proven based on the results of a survey from Bank Indonesia that the transfer of IKN will stimulate East Kalimantan's economic growth to 27.7% (BI, 2023b). To answer these opportunities and challenges, a special strategy is needed, primarily through collaboration with other strategic areas that have the potential to become partners to buffer the needs of IKN.

Establishment of Holding in Stimulating Economic Growth

The establishment of the holding, especially in the field of marketing, has actually been in line with the government's efforts. This can be seen from the government's efforts to intensify the synergy of State-Owned Enterprises. Some of the holdings that have been formed are PT Perkebunan Nusantara, PT Pertamina and Trading Holding and many more. The government even continues to encourage the formation of new holdings and even superholdings. The government hopes that the formation of multisectoral holding can boost economic growth as has been implemented by developed countries such as Singapore which has succeeded in synergizing several companies. The establishment of holdings in some of these sectors can also avoid market monopolies so that the government and private sector can expand synergistically. This is a great opportunity for the formation of a new

ecosystem in marketing that contributes to the country's economy (Ministry of Finance, 2023)

Pentahelix Collaboration Model in Optimizing Fisheries Potential

The pentahelix collaboration model is a collaboration model based on the triple helix collaboration initiated by Etzkowitz and Leyesdorff (2000). In the second concept, networks between academics, entrepreneurs, and governments collaborate to take advantage and benefit from innovative research programs developed in educational institutions and make these programs more economically and commercially viable. In the process, the triple helix model was developed again into the pentahelix model. Where the second element is civil society groups and the media. On paper, both elements can drive greater impact in the efforts of academics, entrepreneurs and the government in an effort to realize welfare and encourage the improvement of the local economy (Rampersad, Quester, & Troshani, 2010). Socio-economic progress in a region. According to Von Stamm (2004) the best innovation will be achieved when all major actors have built a strong network of collaboration and partnership, where all parties give their best efforts in accordance with the capacity and resources owned and needed in the cooperation scheme.

RESEARCH METHODS

This article uses a descriptive qualitative approach to analytics. The research focuses on the discussion of the analysis of strategy model development by referring to information obtained from various reliable sources referred to based on research objectives. The type of data obtained varies, qualitative and quantitative. Conclusions are obtained after referring back to the problem statement, purpose of writing, and discussion. The conclusions drawn represent the subject matter of the paper, and are supported by practical suggestions as further recommendations.

RESULTS AND ANALYSIS

When viewed statistically, one of the characteristics of developed countries is the ratio of entrepreneurs who are at 10-12%. While the ratio of entrepreneurs in Indonesia is currently only at 3.47%. Start-ups from entrepreneurs have a great contribution in increasing the country's GDP. As an illustration, Gojek and Tokopedia transactions in 2021 reached IDR 249 trillion or contributed 1.6% of Indonesia's GDP that year. Interestingly, the 50 richest entrepreneurs in Indonesia managed to contribute 13.6 GDP in 2022, what if there are 100,1000 or more rich people? So Indonesia's current GDP will grow dozens of times (CBCB, 2023). That means that to become a developed country, Indonesia must strive to create new entrepreneurs in various sectors. Comprehensive strategies across sectors and institutions should be encouraged, especially those related to innovation, through strategic policies in maximizing production factors systemically in order to stimulate an increase in entrepreneurship in terms of quantity and quality. Coastal areas in this case as

suppliers of raw materials with various potential natural resources can be further optimized in the upstream to downstream process in order to create high selling value products.

The economic joints of rural areas, especially coastal areas, need to be mobilized not only as suppliers of raw materials but also as inclusive production centers for business actors (MSMEs) and local communities in order to get out of the poverty chain and contribute to the country's economy. The momentum of moving IKN can be an opportunity for long-term solutions in driving the economy in rural areas. For this reason, the author formulates a strategic solution, namely the development of rural MSME commodity clusters through the establishment of partnerships with franchises under the auspices of the One Village One Product (OVOP) program and the Village Fund Ceiling. This program stimulates coastal communities to utilize marine and fisheries commodities. The new breakthrough that the author initiated in realizing this ecosystem is the establishment of strategic partnerships with retail marketers of superior marine and fishery products and commodities from villages. Some stakeholders who can play a role in this ecosystem include SOEs, Local Governments, BI, KUD, village youth and logistics services.

One of the strategies that can be done in writing the above opportunities is through the development of a downstream-based sector of resource potential in rural areas so that villages can become production centers based on local potential. Downstream, especially in the agrocomplex sector, can increase income and open new job opportunities. The agrocomplex sector is prioritized in industrialization because in general rural potential mostly comes from animal husbandry, fisheries, agriculture to plantations as raw materials. It can be said that the more developed a country is, the greater its income from the marine and fisheries sector as an output of agrocomplex products (Johansson & Ronnås, 1995). Therefore, downstream in rural areas is needed to stimulate income from the marine and fisheries sector where Indonesia is currently still below countries such as China in terms of income in the sector. As a first step, the author has mapped several problems that become obstacles to the development of agribusiness in rural areas, including limited market access, technology and competence, and financing. Through the pentahelix partnership strategy, the strategy initiated can answer these challenges.

Problem 1: Limited Market Access and Connection According to Briones (2017), the stagnation of the agrocomplex sector in rural areas is caused by limited local-scale markets only. Almost 80% of commodities from rural areas are marketed in the same area (Rokhma & Yahya, 2020). This is because MSMEs generally do not have the capability to access their consumers. The lack of information also causes them to rely on market intermediaries such as middlemen so they tend to be prone to exploitation. As a solution, the Nusantara Holding Corporate Program will present a franchise in the form of retail outlets (supermarkets) at IKN that specialize in marketing marine and fishery commodities from rural areas. With this franchise, producers from the village can easily connect to the market with a wider reach. This

Nusantara Holding Corporate franchise will be a partner for village MSMEs with a sell-off mechanism and the cost of delivering commodities to outlets at IKN is borne by the operational costs of outlets. With this partnership strategy, outlets will become consumers as well as permanent marketers for marine and fishery commodities from villages so that the sustainability of production and marketing will be guaranteed.

Problem 2: Limited Technology and Competence The biggest obstacle for downstream in rural areas today is limited resources, both technology and competence. People in general still use traditional methods in their production process (Samaloisa, 2016). Furthermore, villagers do not yet know that the commodities they cultivate can be processed and diversified to generate added value. To respond to these challenges, the Nusantara Holding Corporate Program will collaborate with village youth to be facilitated in improving the ability of entrepreneurial competence. As pioneers, in each partner village, local young people will be selected who will play a role in the program. This strategy is expected to contribute not only limited to knowledge but also practically as in terms of the ability to process commodities produced into processed products of economic value. Meanwhile, in terms of technology fulfillment, it can be realized through the use of Village Funds in collaboration with the local government.

Problem 3: Absence of Capital or Financing Apart from market access, limited information also creates problems related to access to capital. This is also due to geographical isolation and limited formal documents so that lending agencies are reluctant to provide loans and provide high interest rates (Izzati, 2016). For this reason, through the Nusantara Holding Corporate Project, the author will encourage the utilization of existing state resources. This access to capital can be allocated from Village Funds through BUMDes, further can also be obtained through savings and loan cooperatives. For capital in the form of raw materials, the government can also cooperate with Village Unit Cooperatives (KUD) so that it is more economical in terms of operational costs. Today, some of the country's resources are not functioning properly. Nusantara Holding Corporate is expected to provide new roles as well as revitalize the function of resources.

Empowering Village Youth as Entrepreneurial Pioneers based on Research and Innovation

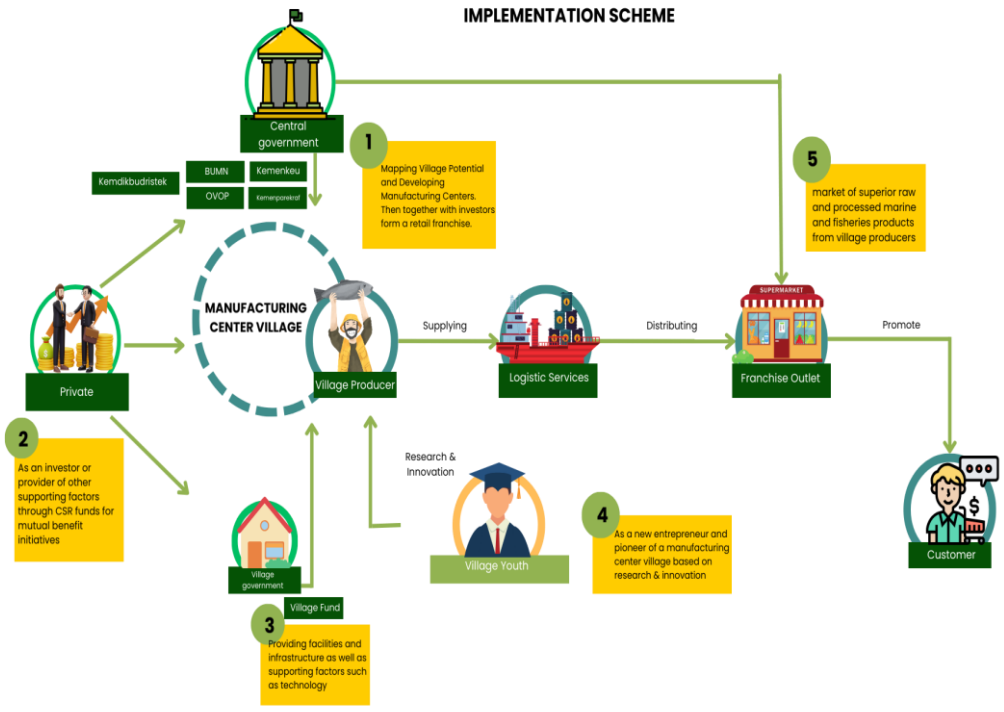
When viewed from its potential, according to a survey from APYE 2021, 72% of Gen Z and Millennials have the desire to do business so that this can be a reference for the government in facilitating youth to become entrepreneurs. In line with this fact at present, the government under the Ministry of Education and Culture and Technology has tried to capture ideas and innovations for science and technology-based youth through the Student Creativity Program (PKM) through funding schemes. Each year the government funds an average of around 4500-5000 student innovation proposals in various fields. The proposals came from thousands of universities throughout Indonesia. The PKM event consists of 8 fields but there are 4

fields that produce innovations in the form of products/services, both prototype and full-scale. The four fields are Exact Research (PKM-RE), Entrepreneurship (PKM-K), Karsa Cipta (PKM-KC), and Innovative Work (PKM-KI). Because it is based on science and technology and is motivated by contemporary problems. Most of the funded ideas also have their own characteristics, for example SDGs-based such as biodegredable packaging, IoT-based and so on. Research-based innovations from these four fields can be used as a source to create new start-ups and support pre-existing start-ups with broad market potential.

The existence of Economic Superhub clustering at IKN can be a way for these ideas to be commercialized. This idea is expected to absorb the potential of research and innovation from youth in Indonesia. In the scheme designed, village youth who meet the criteria will be empowered with their potential through increasing capacity for entrepreneurship, especially in the field of agrocomplex. Where in the status quo, rural youth, especially graduates of agrocomplex study programs, are less interested in professionally plunging in accordance with their fields.

With this scheme, they will be encouraged through the provision of facilities and infrastructure, moral and material so that they are interested in becoming producers in their respective villages. Furthermore, rural youth are expected to become pioneers driving economic joints in rural areas through the utilization of their local potential. For the initial stage, the government can cooperate with existing programs such as PKM under the Ministry of Culture and Technology to be the initial approach in identifying potential youths who will be given facilities for the development of innovation.

Figure 1. Implementation Scheme



Comprehensive Strategic Partnership Implementation System

In actualizing the Nusantara Holding Corporate Program, the biggest challenge is how to connect the parties who will be involved both from the government, private sector, and rural communities. At present, when talking about the market, these parties on the status quo tend not to be integrated and move sporadically. For this reason, in the implementation system of the Nusantara Holding Corporate Program, the author will collaborate with these parties into an ecosystem scheme so that strategic and sustainable partnerships can be established. The government under SOEs is in control in terms of allocation, development and establishment of a franchise system that has been designed as a marketer of products from rural areas.

In addition, several ministries will also be involved, especially those with the authority to be involved in the OVOP program such as the Ministry of Tourism and Creative Economy, the Ministry of Industry, and the Ministry of Finance. While investors can invest in franchises with a profit-sharing mechanism. In terms of allocation at the village level, the Village Fund disbursed by the government will be optimized to succeed the program through increasing the capacity of rural producers and providing facilities/infrastructure.

In this scheme, village youth will be joined as local village representatives to become a bridge between the government and the community. Not only that, village youth in this case will also be equipped with special skills to help village communities in mastering supporting aspects ranging from knowledge to marketing practices in this program. Meanwhile, the private sector in this program will act as a logistics service provider for the transportation of products from village partners to franchise outlets at IKN.

Rural Development as a Manufacturing Center Based on Local Potential

In the designed ecosystem, the government will proactively stimulate and encourage the pioneering of local potential-based manufacturing center villages which will then become commodity suppliers to the franchises formed. The initial strategy that can be done by the government is to identify and map villages that have the potential for marine and fisheries commodity-based manufacturing to become program partners.

Furthermore, the government can conduct market analysis through market feasibility surveys to see production potential from the demand and supply sides. For bidding, village potential can be mapped through BPS databases, local governments, and other survey results that have been available before. The demand aspect can partner with other survey institutions such as Brand Award to obtain a database that shows a graph of consumer interest in manufactured products from agrocomplexes.

Finally, the government can determine the criteria for areas that can be partnered to become partners of Nusantara Holding Corporate as follows:

Table 1. Regional Partner Criteria (Source: Author)

Potential of Marine and Fisheries Commodities	It has advantages in the marine and fisheries sector in terms of its productivity level.
	The products produced can be downstreamed and classified into commodities with high market demand
	The resulting product has its own characteristic advantages that can be used as a bargaining position in marketing
	There are MSME players with products made from marine and fishery products
Strategic Position	Proximity and Accessibility to IKN seen from the transportation network and geographical location
	Adequate Freight Network Infrastructure such as ports
	Commutation current to high IKN

One of the areas that fits the above criteria is South Sulawesi Province which is located in the golden triangle area with the closest position from IKN. This strategic position provides a great opportunity to participate in supporting the fulfillment of supply chains at IKN. Judging from its potential supply, South Sulawesi is known as a province with rural areas producing superior commodities from agriculture and fisheries including rice, coconut, corn, vaname shrimp, milkfish and so on. One example is Wajo Regency with an average fishery output of 61 thousand tons annually (BPS, 2023). Judging from its transportation network, South Sulawesi has several ports located in the Makassar Strait which is one of the busiest sea lanes in Indonesia. As a form of implementation, South Sulawesi can be used as a pilot project partner in program implementation.

CONCLUSION

The program initiated can provide benefits to various parties. The scheme provided will provide a fixed market for marine and fishery commodities so as to guarantee and spur the productivity of rural producers. Macroeconomically, this program not only increases income, but also has the potential to stimulate transformation in rural areas that originally focused on raw materials to manufacturing finished goods with high selling value. If the village discourse of manufacturing centers is successful, it will open up new job opportunities. In its realization, the government should encourage strategic partnerships with multi-stakeholder collaboration to make this program a success.

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