

STUDY OF SUPERIOR COMMODITIES AND ITS SPATIAL DISTRIBUTION IN BANGKA BELITUNG ARCHIPELAGO PROVINCES

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ABSTRACT

Economic development in decentralization era, presumably, will not be sustainable if only supported by non-renewable resources. Then, local government need to change from mining to non-mining based economic development. The non-renewable resources themselves are used as capital in the transformation process. In supporting these endeavours, study of superior commodities in Bangka Belitung Archipelago Provinces is need to be conducted as efforts to increase society's welfare or other stakeholders post decreasing of tin production this province.

Keywords: superior commodities, comparative advantages, competitive, advantages

INTRODUCTION

Bangka Belitung Archipelago Province is one of provinces in Indonesia which relies on mining sector, particularly tin ore mining as a source of revenue and one of the basic capitals of regional development efforts in the era of decentralization. This sector significantly contributes to GDP and employment in this "Serumpun Sebalai" province. However, the rises of tin mining, whether legal or illegal (unconventional mining), resulted in high rates of tin ore exploitation which give impacts on high environmental damage in this province. Now, the mining sector, particularly tin ore should be no longer to be excellent because of its getting less quantity and significant impacts on environmental damage.

According [Kuncoro, 2004], economic development will not be sustainable if it is only supported by non-renewable resources. Therefore, provincial and re-gency governments in Bangka Belitung Archipelago Province need to change the economic base, from mining-based economy toward non-mining-based economy. Furthermore, available non-renewable resources are used as capital in the process of transformation. The transformation process is in line with the Long Term Development Vision of Bangka Belitung Archipelago Province (2005-2025) "The realization of Bangka Belitung Archipelago Province as advanced agri-nautical and environmentally sound region, powered by reliable human resources and the trustful government towards prosperous society". Quantitatively, the size of the achievement of this vision must be seen in the extent to which this province is able to change the composition of its population GDP from mining sector into agricultural and associated sectors. Furthermore, qualitatively, the successful achievement of this vision can be seen from the changing attitude of society that is more oriented to long term development, from thinking only how to exploit natural resources and profit oriented to owned-natural resources preservation minded; moved from neglectful environmental attitudes into fancier sustainability [Bappeda, 2007b]. In connection with these efforts, it is needed endeavors of commodities recognition and evaluation contained in the region. With the recognition of regional superior commodities, accompanied by the creation of conducive investment climate, it is expected that more investors will invest in the Bangka Belitung Archipelago Province. Furthermore, commodities development activities can have positive impacts, particularly on regional economic growth, providing employment for residents in an area, and even more important is concrete improvement of farmers and other stakeholders' welfare.

This study aims to answer the questions as follows:

1. How does the variety of commodities owned by Bangka Belitung Archipelago Province and its spatial distribution?
2. How does the variety of superior commodities in the Bangka Belitung Archipelago Province and its spatial distribution?
3. How does the competitiveness of superior commodities in Bangka Belitung Archipelago Province?
4. How do policy directions related superior commodities in Bangka Belitung Archipelago Province?

According to [Timothy, 2000], Geography may be defined as the study or analysis of the locational attributes and spatial variation of phenomena on the earth's surface. Geography science is essentially studying the earth's and its contents and the relationship between the two. However, increasing demands and needs of people, making scientific geography does not stop at recognizing and learning, but also should be prosecuted able to exploit the earth and its contents to meet the needs and development in general [Sujali, 1989]. Utilization of the earth and its contents in this case is a form of resource utilization in a region known as regional potencies.

[Nugroha. et. al., 2009] revealed that the development in each region is certainly not always the same, or even completely different, because of its potential may also differ so that the regional development should be based on this potential in order to create targeted, effective, and efficient development. [Solihin et. al., 2006] added that the development based on potencies of the region is useful in providing the description of the condition from different perspectives or related aspects as well as the spatial distribution so that regional comparative and competitive advantages can be seen. The suitability of supported natural resource potencies become determinant of a superior product emergence from a region that has competitive advantages, therefore forming a special feature in the international markets (brand image), and also be a determinant for the successful regional development [Burhanuddin, 2008]. [Abdullah et al, 2002] added that the main challenge of the empowerment of decentralization is the understanding of the regional-owned potential competitiveness completely and accurately, so that the government can easily formulate good policies and in turn will create a conducive climate for businesses in the concerned region.

Hirschman in [Todaro, 1983] states that development carried out in a country (region) should ideally be conducted simultaneously in all sectors, however, it can only be made to the countries (regions) that have advanced economies (developed country), where the ability of capital (investment) becomes a matter that plays an important role. While in developing countries (regions), economic development should not be done simultaneously (unbalanced) and gradually, but by defining the superior sector. The assumption with a concentration in the leading sectors that are specifically focused on commodities, the region can maximize its revenue ultimately therefore could be used for the development of non-leading sectors. On the other hand, the strategy is also directly implicated in the creation of forward linkages and backward linkages among development sectors. Furthermore, due to these linkages, it is expected may lead to the creation of employment opportunities and economic activities (multiplier effects) in other sectors.

According [Sumaryadi, 2005], before the plan is prepared, the assessment of superior commodities and the possibility of increasing value-added strategy will determine the future direction of regional development. Superior commodities to be developed are the superior commodities that refer to the amount of market share, competitive advantages, have economic values, the distribution of production areas and agro ecosystem suitability. Superior commodities are directed to meet the needs of the domestic market such as for consumption, industrial raw materials, increasing exports and import substitution needs. Thus, increased production, quality and competitiveness of superior commodities are the main activities to be done coupled with market development and promotion efforts. Determination of superior commodities in a region becomes a necessity with the consideration of these commodities can compete on an ongoing basis with the same commodities produced by other regions, cultivated efficiently in terms of technological and socio-economic and have both comparative and competitive advantages [Kristiyanto, 2007].

THE METHODS

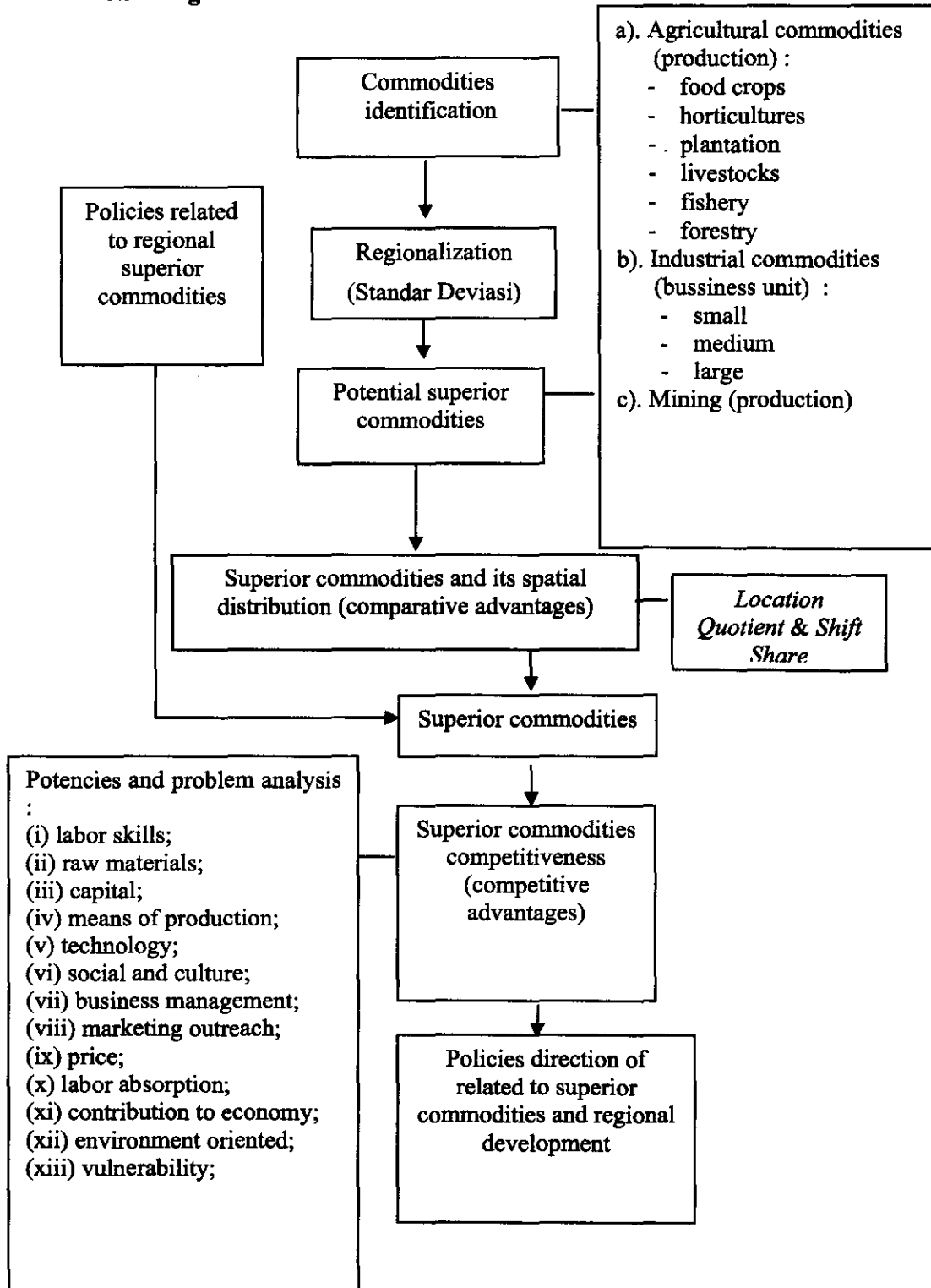
Research Analysis Unit

This research was conducted in Bangka Belitung Archipelago Province by using the six regencies and one municipality as the unit of analysis.

Research Target

This research has targets: *first*, identify the range of commodities and arrange its regionalization, *second*, to know the variety and distribution of superior commodities as the basis for regional development, *third*, to identify the competitiveness of superior commodities, *fourth*, to recommend regional development policy direction related to superior commodities.

Research Design



Data Analysis Techniques

Objective 1

Identification of commodities types and distribution used secondary data analysis methods to analyze obtained data from institutions. Varieties of commodities are presented in Commodities Variety Table. If one regency or more has specific commodities sub-sectors which have a percentage of the type 50% =< (less than or equal to 50%) compared to total commodities in sub-sector, then diverse types of commodities is occurred on the sub-sectors in the study area, otherwise there is no variation of diverse types of commodities in the study area.

The variables used in the commodity zoning have different units so that standardization is made with scaling techniques. Commodity zoning data were analyzed based on production (agriculture and mining) and the number of business units (industry) for the period 2004 - 2008 by using the technique of standard deviation to determine the hierarchy of commodity production. Hierarchies are mapped for commodity production can be explored and presented spatially.

- | | |
|------------------|--|
| High Hierarchy | = if area have the scale or the total scale $> \mu f + \sigma f / 2$;
μf : average value and σf : standard deviation; |
| Medium Hierarchy | = if it has a total value of the scale or scales between $\mu f + \sigma f / 2$ and $\mu f - \sigma f / 2$; |
| Low Hierarchy | = if it has a total value of the scale or scales $< \mu f - \sigma f / 2$ |

Objective 2

Identified data of commodities types and production in the study area on the first objective was analyzed using Location Quotient (LQ) and Shift Share (SS) to understand whether the commodity is included in the priority superior, potentially superior, or not superior (priorities potential and long-term potential) category. Sectors within a region can be grouped into 4 categories namely:

- a. Category I, sectors/subsectors are considered to have an important role in the economy of the regions and also to the economy of the province (priority superior);
- b. Category II, sector/subsector only increase the economic system that is more provincial (potentially superior);
- c. Category III, sectors/sub-sector can only increase its role in the internal region (regency), but cannot boost the economy more provinces (priority potential);
- d. Category IV, sector/subsector does not have a role in improving the district and provincial economy (long term potential).

In the results map are shown only priority superior and potentially superior commodities category.

Objectives 3

Furthermore, sub-sector commodities were identified on its competitiveness in each region so that comparisons of commodity level excellencies per sub-sector can be recognized.

a. Analysis of potential (Strength) and problems (weakness).

Determination of competitive advantage is initialed by defining statements that will set the benchmark on how the competitiveness of a commodity in the study area. These statements obtained under the study of literature related to various sources of competitiveness and superior commodities which in turn developed in order to illustrate the competitiveness of commodities in the study area. These statements include:

1. Labor Skills: superior commodities have employed a skilled workforce in manufacturing process. High-skill labor are marked "+", otherwise low-skill labor are marked "-".
2. Raw materials: superior commodities have linkages with other regions, both in terms of both market and supply of raw material. Enough raw materials available are marked "+", otherwise the raw materials are not available are marked "-".
3. Capital: superior commodities do not require large capital in their production. Relatively small capital marked "+", otherwise relatively large capital marked "-".
4. Means of production: superior commodities have strong and diverse product diversification. Commodities have varied derived products are marked "+", otherwise do not have vary leading commodity derivative products marked "-".
5. Technology: used technology is relatively high (using machines) and stable. Relatively technology high and stable supporting utilities existence are marked "+", otherwise the technology is relatively low and unstable supporting utilities existence are marked "-".
6. Social culture: the views and habits of the general public toward the development of specific commodities. The existence of commodities has been a part of community life, marked "+", otherwise commodities were not part of community life, marked "-".
7. Business management: superior commodities have managed a relatively good start of the stage production to marketing. Relatively well managed commodities are marked "+", otherwise relatively poorly managed commodities are marked "-".
8. Marketing outreach: superior commodities have been marketed outside the region and compete with similar products in other regions, both the regional and international markets. High marketing outreach (regional and international scale) marked "+", otherwise the small/locally marketing outreach scale marked "-".

9. Price: price of superior commodities can be reached by the majority of people and is relatively stable. Affordable price marked "+", otherwise relatively affordable prices are marked "-".
10. The absorption of labor: superior commodities can absorb optimally qualified workforce in accordance with the scale of production, marked "+", otherwise not absorb labor optimally marked "-".
11. Contribution to the economy: superior commodities can make a significant contribution to production, income, and expenditure, and able to become a major driver of regional economic development. High contribution to the economy marked "+", otherwise low contribution to the economy are marked "-".
12. Environmental-oriented: This indicator is related to commodities development in resource conservation and environmental functions oriented. Superior commodities maintain and develop environmental sustainability are marked "+", otherwise tend to environmentally damaging superior commodities are marked "-".
13. Vulnerability: superior commodities can survive in a certain period, ranging from the phases of introduction, growth, maturity, or declining. Low susceptibility to external factors are marked "+", otherwise a high vulnerability to external factors are marked "-".

The facts related to the defined statements on commodities obtained through indepth interviews and other information related to the objective of research.

Descriptive analysis - Qualitative

This analysis is used to strengthen the research results by adding descriptive information on qualitative and quantitative data in order to explain phenomena and issues raised in the research area, especially related to the width of commodities competitiveness.

Objective 4

This analysis concerned the results have been obtained based on the previous research questions, the first, the second, the third, characteristics of the environment, and government policies in areas related to commodities research in its formulation.

Data collection techniques

Data collection of this research used instantional data collection (secondary data) as well as observation and interviews with related stakeholders (primary data).

Secondary Data

Secondary data consist of location and condition of residence, condition of the physical environment, agricultural, industrial, mining, and commodities trading data of research area. These data were obtained from Central Bureau of Statistics (BPS), department of agriculture, forestry, marine and fisheries, industry and commerce, mining and energy of Bangka Belitung Archipelago Provinces.

Primary Data

Primary data were useful for supporting secondary data analysis. Primary data in this study obtained by:

- a. RDA (Rapid Appraisal District). The tools used in the RDA research, i.e. map of the area, seasonal calendars, regional potential data, implemented development reports.
- a. Semi-Structured Interview (indepth interviews). Semi-structured interviews with key persons from related agencies, such as: agriculture, industry, mining, and other agencies.
- b. Documentation. Performed by images capturing to support the research objectives.

RESULTS AND DISCUSSION

Agricultural Commodities

Identified agricultural commodities covered in food crops, horticulture, plantation, fishery, livestock, and forestry. Identified food crops were 8 species, including wet field paddy, dry field paddy, maize, cassava, sweet potatoes, peanuts, taro, and soybeans. Identified vegetables commodities were 14 species, including scallion, mustard, long beans, great chili, cayenne pepper, tomato, eggplant, beans, squash, cucumber, kale, spinach, and watermelon. Identified fruit commodities were 20 species, including avocado, starfruit, duku, durian, guava, water guava, siam citrus, mango, mangosteen, jackfruit, pineapple, papaya, banana, rambutan, snake fruit, sapodilla, soursop, breadfruit, melinjo, and petai. Identified herbal plant commodities were 6 commodities, such as ginger, laos/galangal, kencur, turmeric, and lempuyang. Identified ornamental plants commodities were 9 commodities, such as orchids, anthurium, carnation, gladiolus, heliconia, rose, tuberose, jasmine, and palm. Identified plantation commodities were 10 commodities, including pepper, rubber, coconut, oil palm, palm sugar, clove, cashew nuts, chocolate, hazelnut, and coffee. Identified livestock commodities were 11 commodities, including buffaloes, cows, goats, horses, sheep, pigs, chicken, broiler, laying hens, quail, and ducks. Fishery commodities consist of capture fisheries and aquaculture. Identified fishery commodities were 47 species. The identification results show there was no variety of diverse range of capture fisheries commodities. Identified aquaculture commodities were 19 commodities. Identified forestry commodities

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were 15 species, including wood poles, wood fire, wood (stand for pepper), khiau thung, charcoal, ai chiang, wangtam, chart wood, resin, honey water, madang bark, sengon, BBS acacia mangium, timber, and rubber wood.

Furthermore, the identification results of commodity varieties of vegetables, fruits, herbal plants, plantations, and livestock show that there was no variation of diverse types of commodities between regencies in the study area. However, the identification of varieties of food crops, ornamental horticulture, aquaculture, and forestry shows that there were variations of diverse types of commodities between regencies in the study area.

South Bangka and Bangka have high hierarchy in the production of agricultural commodities. Medium hierarchy of production is owned by Belitung, Central Bangka and Western Bangka, while low hierarchy of the production of agricultural commodities owned by East Belitung and Pangkalpinang.

Most agricultural commodities experienced limitations in the use of appropriate technology in producing commodities, production of capital, labor skills, marketing outreach, and diversification of agricultural development. Agricultural commodities which are still largely imported from other areas make relatively high price of agricultural commodities and vulnerabilities to environmental and socio-economic changes whether in its own or original region of imported commodities. Agricultural sub-sectors which have high competitiveness were plantation and fisheries sub-sectors with a value proportional to the competitiveness of 61%. It indicates that both the agricultural sub-sectors have better competitive advantages than any other agricultural sub-sectors to compete in the global competition.

The main things can be suggested as directions of development of food crops are efforts to instill the mindset and motivation of farmers in the Bangka Belitung Archipelago Province to dive into agriculture, especially food crops to increase production and productivity, using environmentally friendly technologies considering the needs of local food is still met by imports from outside the area. The spirit of a small farmer who is now engaged in agriculture, especially food crops should be a priority of the government by providing good support in the form of incentives, protection, and periodic counseling to improve farmers' quality and quantity of agricultural production.

Development direction that can be suggested to the vegetable commodities, fruits herbal plants, and ornamental plants is to make regencies which have comparative advantages for commodities of vegetables, fruits, herbal plants, and certain ornamental plants become production centers of Bangka Belitung Archipelago Province. It needs to increase production and productivity of vegetables, fruits, herbal plants, and ornamental plants commodities by encouraging people, especially farmers use environmentally friendly technology with the aim of meeting domestic demand and begin exporting to other regions.

Efforts that can be taken to improve the productivity of plantation commodities, especially pepper are to limit the use of chemical fertilizers by intensifying the use of organic fertilizer in order to restore nutrients in the soil in the long run, do commodity zoning based on land to prevent pests or nuisance plants organisms' development. Quality improvement of pepper farmers through businesses coaching to be able to produce refined products from pepper, setting a healthy trade system and the protection of government against the price of pepper was needed to maintain stable commodity prices, especially pepper in the domestic market needs. In addition, the development of illegal mining having the possibility to influence the development of plantation commodities need to be addressed by limiting even the revocation of mining permits, especially on lands that are potential for agricultural development plantation.

Direction of development that can be suggest in livestock commodities development is efforts to increase interest and motivation to start a breeding business as a form of livelihood and investment. This effort also represents efforts to create jobs so that people can begin to switch from the mining sector.

Furthermore, the directions in the development of fisheries commodities need to be supported by efforts to improve infrastructure to support increased production of capture fisheries, including the availability of facilities and infrastructure in fish auction in every place that has the potential as a commodity producer of capture fisheries. In addition, local governments need to take a firm stance on mining activities in the surrounding ocean waters along Bangka Belitung Archipelago coastal area which affects the productivity of fishing catches by limiting the presence of floating Inconventional Mining or granting permission to the legal mining, but with a reclamation guarantee of mined locations across the Bangka Belitung Archipelago Province especially tin mining near coastal region.

Related agencies need to motivate people who have developed aquaculture commodities as their livelihood, whether through mentoring, provision of soft loans, as well as the formation of business groups to improve the quantity and quality of production of aquaculture commodities. It is at once an attempt to meet the market demand for fresh water fish that until now has not met. Another point of concerns in the direction of aquaculture development are the availability of useful aquaculture supporting infrastructure and utilities in the process of aquaculture commodity production to marketing.

Direction can be recommended to revive forests of Bangka Belitung Archipelago Province that have been ultimately decrease due to act of irresponsible hands is the reclamation or reforestation, especially on mined land. The number of forestry agents and rangers which are very less in the Bangka Belitung Archipelago Province is a matter that cannot be compromised in order to maintain forest sustainability and optimal utilization of forest products and forest byproduct. The number of rangers that very little was the main constraint is the responsibility of governments/relevant organizations to be completed in an effort to preserve forests in Bangka Belitung Archipelago Province.

Industrial Commodities

Identified industrial commodity business units consists of small industrial commodity business unit as many as 5 types, including food, clothing, chemicals and building materials, metals and electronics, and handicrafts, medium industrial commodity business unit as many as 3 types, including food, chemicals and building materials, and metals and electronics, large industrial commodity business unit as many as 3 types, including food, chemicals and building materials, and metals and electronics.

The identification results show there is no variety of diverse types of small industries commodities business units. However, variety of diverse types of medium and large industrial commodity business units in the study area is occurred. Belitung and Pangkalpinang have high hierarchy in the number of industrial commodities units. Medium hierarchy of business units are owned by Bangka and East Belitung, while low hierarchy of the number of units of industrial commodities owned by South Bangka, Central Bangka, and West Bangka.

Existing industries in the Bangka Belitung Archipelago Province are still dominated by small industries at household industrial scale. The development limitations of industrial sector in the research area are the provision of supporting utility, i.e. power grid and the procurement of supporting raw materials for industrial activities that make the industrial sectors in the study area have vulnerabilities in their production processes. Industrial sub-sectors which have high competitiveness are large and medium industries with competitiveness proportional value of 69%. This indicates that both sub-industries have better competitive advantage than small industry sub-sector to compete in the global competition.

Direction of development that can be recommended in developing small industrial commodities is to make regencies that have a comparative advantage against certain small industrial commodities into central production of Bangka Belitung Archipelago Province which is supported by the establishment of joint ventures to accelerate the development of small industrial commodities. Creation of small industry groups need to be supported and facilitated by the government until the end of each member of the group can be independent and experienced business development.

Direction that can be suggested in the development of medium and large industries is in creating conducive climate for development of medium and large industries, through the availability of sufficient power, ease of business licensing, and other incentives to support the sustainability of the industry which can become attractions for investors to invest in Bangka Belitung Archipelago Province.

Mining Commodities

Identified mining commodities were in 8 species, including kaolin, quartz sand, granite, clay, sand building, brick sand, tin ore, and tin. The identification results show that variety of diverse type of mining commodities in the study area is occurred. Bangka and Belitung have high hierarchy in the number of mining commodities production.

The mining sector, although no longer offered as superior commodities because of the negative effects of massive environmental damage, still become a high competitiveness sector that has competitiveness proportional value by 76%. It shows that the mining sector is still a sector that became the foundation of life most people in the study area. In addition, the proportional value indicates that the competitiveness of the mining sector has better competitive advantages than other goods-producing subsector to compete in the global competition. Mining potencies that is still pretty prospective now to be developed in the research area is the category C mineral, i.e. kaolin, quartz sand, granite, clay, building sand, and diabase rock. Excavation materials are spread evenly throughout the district of Bangka and Belitung.

Direction of development that can be given is to make regions that have comparative advantages against certain mining commodities into central production Bangka Belitung Archipelago Province. In addition, enforcement of illegal miners operating in the whole area of Bangka Belitung Archipelago Province should be done in stages, determining and implementing legislation that decisively limit the emergence of new unconventional mine. Furthermore, direction which can be related to mining potencies is inventory of mining pitfalls that is ready to be cultivated for specific utilization. It certainly requires the support of the academic community to continue to research and development on former mining land use for other potential usage, i.e. former mining land leaving abundant sand resources which can be exploited by starting to encourage industry mainly for the manufacture of bricks to increase the added value of these resources, but in the supervision by the authorities because it involves the use of non renewable resources.

CONCLUSION

1. Variety of commodity subsectors of vegetable, fruit, herbal plant, plantation, livestock, and small industry showed no signs of variation, while the range of commodity subsectors of food crop, ornamental plant, aquaculture, forestry, medium industry, large industry, and mining showed variation of diverse types of commodities among regions in the study area which cause comparative advantages in each region.
2. Agricultural sector experienced limitations in the use of appropriate technology in producing commodities, production of capital, labor skills, marketing outreach, and diversification of agricultural development. Limitations in industrial sector development are the provision of supporting utility, i.e. power grid and the procurement of raw materials supporting industrial activities that make the industrial sectors have vulnerabilities in their production processes. Mining sector has limitations because of the intensive use of capital and negative effects on the environment in its production process.
3. Recommended development directions of agricultural commodities are motivating people in plunging into agriculture sector, especially food crops, as an effort to increase commodities production which followed by creation of linkages between sectors and regions and supported by development of human resources and policies to related sectors considering the need local food in the area of research is still met by imports from outside the area. Recommended development directions of industrial commodities is improvement of industrial supporting infrastructure facilities, especially electric utilities that encourage the activities of industry. Recommended development direction of mining commodities are implementation of environmentally sound mining and utility of former mining for other potential landuse usages.

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Attachment. Superior Commodities	Superior commodities competitiveness in Bangka Belitung Archipelago Province													Indicator	Proportional value (Potential)
	1	2	3	4	5	6	7	8	9	10	11	12	13		
Food Crops	-	+	-	-	-	-	-	-	+	+	+	+	-	5/13*100%=38%	
Fruits	+	+	-	-	-	+	+	-	-	+	+	+	-	7/13*100%=54%	
Vegetables	-	+	-	-	+	+	+	-	-	+	+	+	-	7/13*100%=54%	
Herbal Plants	-	-	+	-	-	-	-	-	+	+	-	+	+	5/13*100%=38%	
Ornamental Plants	+	+	-	-	-	-	+	-	-	-	+	+	-	5/13*100%=38%	
Plantation	+	+	-	-	-	+	-	+	-	+	+	+	-	7/13*100%=54%	
Livestocks	-	-	-	-	-	-	-	-	+	+	-	+	-	3/13*100%=23%	
Catch Fishery	-	+	+	-	+	-	+	-	+	+	+	+	-	9/13*100%=69%	
Aquaculture	-	-	-	-	-	-	-	-	+	+	+	+	+	5/13*100%=38%	
Forestry	-	-	-	-	+	-	-	-	-	-	+	-	-	2/13*100%=23%	
Small Industry	+	+	+	+	-	+	-	-	-	+	+	-	+	8/13*100%=61%	
Medium Industry	+	-	-	+	+	-	+	+	+	+	+	-	-	8/13*100%=61%	
Large Industry	+	-	-	+	+	-	+	+	+	+	+	-	-	8/13*100%=61%	
Mining	+	+	-	+	+	+	+	+	+	+	+	-	-	10/13*100%=76%	

Sources: From many sources

Information:

Number: 1.Labor Skills, 2.Raw materials, 3.Capital, 4.Means of business, 5. Technology, 6.Social Culture, 7.Business management, 8.Marketing outreach, 9.Price, 10.Labor absorption, 11.Contribution to economy, 12.Environment oriented, 13.Vulnerability.

Marks: '+' = strength or potencies ; '-' = weaknesses or problems