Development of Indonesia-Papua New Guinea border, Muara Tami District, Jayapura City through agropolitan concept

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Abstract. The border of RI-PNG Muara Tami district is located on the eastern part of Jayapura city, which has agricultural potential. The past paradigm put the border as the backyard caused underdevelopment in border RI-PNG Muara Tami district, so that needed acceleration development through agropolitan concept. The purpose of the research is to define the aspect of physical, social, economic and border security to support agropolitan concept in border RI-PNG Muara Tami district. The analytical research method are border interaction analysis, border security analysis, land capability analysis, land availability analysis, schallogram analysis, institutional analysis, leading comodity analysis (LQ and Growth Share), agribusiness linkage system analysis, accessibility analysis and A’WOT analysis. The result shown that mobilization from PNG to Muara Tami district could increase the economic opportunities with agricultural based. Border security of RI-PNG Muara Tami district is vulnerable, yet still conducive to mobilization. There is 12,977.94 Ha potensial land for agricultural (20.93%). There are six leading commodities to developed are rice, watermelon, banana, coconut, areca nut and cocoa. The border of RI-PNG Muara Tami district is ready enough to support agropolitan concept, but still have problems in social and economy aspect.

1. Introduction
The paradigm of the past put the border area as a backyard implications Muara Tami district border are under development in Jayapura city. Under development in Muara Tami district border as a result of the development of the region in Jayapura leads to the central city can be seen from the limited facilities and infrastructure services and low quality of human resources (RTRW Jayapura 2008-2027). Based on preliminary studies, the quality of human resources in Muara Tami district border is measured by the Human Development Index (HDI). HDI Muara Tami District border about 66.3 is still lower than the achievement of HDI Jayapura City. Muara Tami District border is located on the eastern part of Jayapura city with farmland, 68.38% of the population work in the agricultural sector and as a food supplier at Jayapura, but agriculture has not followed the development of agribusiness.

The Development of border areas currently is done by changing the direction of development policy in the past that is inward looking as the defense area being more outward looking approach by taking into account the community welfare, so that in addition to be the defense region is also to increase economic activities [1].

Border development model that can be developed in accordance with the conditions and potentials can be a fast-growing area, agropolitan area, transit area and tourist areas [2]. One of the concepts can be applied in Indonesia-PNG border Muara Tami District Jayapura City in accordance with the
conditions and potential in the agricultural sector is agropolitan concept. Based on Nugroho and Rokhim (2012: 270), Agropolitan is a concept and development methodology that planned and integrated to a particular area, which is based on agriculture sector in terms of on-farm and off-farm and all supporting with the aim of enhancing region economic growth, increasing revenue, improve and maintain the quality of natural resources and the environment, and improve the function and effectiveness of government institutions and social in the region.

Development in Indonesia-PNG border Muara Tami District through agropolitan concept that should be encouraged to improve the economy and increase social welfare without compromising the security aspect as a crucial issue at the border. Therefore, this study aims to determine the support of physical, social, economic and border security in favor agropolitan concept.

2. Methods

Research location included 8 villages/towns on the border between Indonesia and PNG Muara Tami District in Jayapura city are Skow Mabo village, Skow Sae village, Skow Yambe village, East Koya town, Middle Koya town, West Koya town, Hotekamp village, and Mosso village. The collecting data used primary survey and secondary survey. Primary survey is conducted by direct observation, semi-structured interview, and questionnaire techniques. Besides, secondary survey is conducted by literature studies and doing surveys to some institutes to obtain data. The analyzing data used in this research namely.

1. Descriptive analysis consisted of border interaction analysis, border security analysis, and potential analysis (identification of the strengths, opportunities) and problems (identification of weaknesses, threats).

2. Evaluative analysis consisted of land capability analysis, land availability analysis, central analysis and services sub central (schallogram), institutional analysis (Venn diagram), superior commodity determination analysis (LQ and Growth Share), agribusiness system linkage analysis, and accessibility analysis.

3. Analysis of Development is using A’WOT analysis.

3. Methods

3.1. The Supporting of Physical, Social, Economic Aspects and Border Security Encouraging the Agropolitan Concept

The ability of land between Indonesia and PNG Muara border Muara Tami District refers to the standard decision letter of Minister of Agriculture No. 837 / KPTS / MU / 1980 based on the data of topography, soil type, and rainfall intensity. The broad area functions in border area between Indonesia and PNG Muara Tami District Jayapura City based on the land ability that is owned are the season cultivation / settlements zones about 23277.36 hectares (37.32%), annual year cultivation zones covering of 12110.7 hectares (19.42%), buffer zones covering of 14050.74 hectares (22.53%) and protected zones covering of 12923.17 hectares (20.73).

The availability of land aims to know the broad area of agricultural land that can be developed for the application of the agropolitan concept at RI-PNG border Muara Tami District Jayapura city. The existing of land use is dominated by forest area of 37421.76 ha so we need a review of Government Regulation No. 10, 2010 about Procedures of allocation changing and the functions of forest area. Based on the regulation, forest can be changed the allocation by the conversion of production forest, while production forests and production forest which is limited is still maintained as forest area.

Agricultural land that can be developed based on the existing of land use and land capability that is an area of 12 977 ha, or 20.81% of the total area. Agricultural land in Indonesia-PNG border Muara Tami District need more attention to the land governance status on customary rights (hak ulayat) in order to avoid a conflict ownership in land utilization. Kinship between RI-PNG populations that still in one tribe cause the customary rights of PNG population is claimed in Tami River Skow Sae village Muara Tami District. The customary land ownership of PNG population does not affect the availability of land.
for agricultural development because it based on the existing of land use are in production forests used for farming subsystem.

3.2. Border Interaction

Internal mobility which is done by the residents in Muara Tami district border sell agricultural products, education and health. External Mobility inter-district that conducted by resident in RI-PNG border Muara Tami District is to sell agricultural products to Youtefa market in Abepepa district, while External Mobility between countries that did by the residents at Muara Tami District border is to visit member relatives in PNG country as a form of social networking. The mobility of PNG Population at border is much compared with the border of Muara Tami District. The mobility of PNG population going to the Muara Tami District border is also to visiting members of relatives in Muara Tami District border also did to demand the economies need at market of Muara Tami district border, in addition, so it can be said the relationship between residents of both countries is not balanced that residents of PNG border relative tend to be oriented to the Muara Tami district.

3.3. Border Security

Border region potentially cause a conflict that will have an impact on security stability. Criminality behavior that occurred from 2009-2013 in Indonesia-PNG border Muara Tami District is carried out by the group of security disturber movement, but the current condition of peacefulness in Indonesia-PNG border is conducive to do cross-border activities. Security system / supervision on RI-PNG border Muara Tami District is characterized by the existence of Cross Border Inspection Post (PPLB) official, border control posts and the construction of the border monument. The problems that exist now is the role of Skow PPLB as the place for go in and out of people and goods to and from the border of Muara Tami District that is not optimal because there is no supporting facilities and infrastructure completely and there is illegal trade at Lhoncin market that break the provisions of buffer area 5 km.

3.4. Superior Commodities

The determination of superior commodities in RI-PNG border Muara Tami District used LQ analysis method and Growth Share. Based on the LQ calculation, a basis commodity (LQ> 1), namely commodity paddy rice, string beans and bandeng fish. Based on the result of growth share calculation, the superior commodity is paddy rice and rambutan. After the comparation between LQ and share growth calculation, then it can be found the valuable commodity LQ> 1 and a valuable growth (+) is paddy rice.

In this research, the researchers considered the potential commodities on the result of growth share calculation becomes the superior commodity based on the criteria of government support, the selling price, the endurance of products and the connectedness other sectors in order to get the superior commodity in RI-PNG border Muara Tami District, namely rice, watermelon, banana, coconut, cocoa and areca nuts.

3.5. Development of Agropolitan Concept

The border region of RI-PNG on Muara Tami District Jayapura City has full support on physical aspect for the application of agropolitan concept namely the available of agricultural land of 12977.94 hectares for agricultural development with the area function is season cultivation zones covering an area of 23277.36 hectares (37.32%), annual year cultivation zones covering an area of 12110.7 hectares (19.42%), a buffer zones covering an area of 14050.74 hectares (22.53%) and protected zones covering an area of 12923.17 hectares (20.72%). The border of RI-PNG on Muara Tami District Jayapura city has a support and an obstacle on the social aspects for the implementation of agropolitan concept. The support of social aspect is communities’activities that is dominated by agricultural (68.38% of the population work as farmers). The obstacle on social aspects for the implementation of agropolitan concept is the low quality of human resources in order to develop the agricultural activities on
agribusiness and farmers have a low ability to support the agropolitan development. The RI-PNG border on Muara Tami District Jayapura city have a support and an obstacle on the economic aspects for the implementation of agropolitan concept. The support of economic aspects has six commodities that can be as a superior. However, the obstacle on economic aspects for the implementation of agropolitan concept, namely trade in agricultural products is still in a local scale and have not been supported by adequate infrastructure to support the agropolitan development. The RI-PNG border on Muara Tami District Jayapura city has enough support in security aspects, namely the security between Indonesia and PNG border Muara Tami District that relatively stable to conduct cross-border activities. The application of agropolitan concept on RI-PNG border Muara Tami District Jayapura city to eclipsed the lagging of development can be concluded quite ready to be developed but the current situation still has a constraint on the supporting of social and economic aspects. Agropolitan on the border of RI-PNG Muara Tami District that the development need to be encouraged based on the conditions and the potential of superior commodities that is owned can be the characteristics for the district in order to improve the economic growth in borderland with competitiveness, so it can realize the development of border as the front porch of the state concerning the aspect of well-being in addition to security aspects that become a crucial issue in that region.

3.6. Recommendations of Border Development through Agropolitan Concept

The development on RI-PNG border Muara Tami District Jayapura city through the agropolitan concept on the result of space matrix analysis are in quadrant II room C that is developing strategies actively and aggressive. Therefore, the strategies that used in SWOT matrix using WO (Weakness-Opportunities) strategy as the main strategy. The focus on the main strategy targets in this study are:

1. Support the border cooperation opportunities between Indonesia and PNG in agriculture so it can increase the reach on agricultural marketing with exports scale that can encourage the economic development Muara Tami district border.
2. Develop the industry of agricultural product processing in Muara Tami district border to capture the market opportunities that the PNG population orientation is more attracted to Muara Tami District border.
3. Utilize the support of government policy through efforts to increase the development of supporting infrastructure such as roads, irrigation, storage of infrastructure for agricultural production and agriculture products in Muara Tami district border and supply the modal for farmers to be able manage the farm.

Recommendations of the development on Agropolitan space pattern divided into cultivated zones and protected zones, those are:

1. Cultivation zones of agricultural allocation
   Zoning superior commodity in agriculture cultivation zones is based on the physical condition of the land, namely:
   a. Slope 0-8% prioritized for the development of rice plants, watermelon and bananas, while for the existing land use that are perennial crops, will be defended.
   b. Slope 8-15% prioritized for the development of coconut, cocoa and areca nuts, whereas for the existing land use which are annuals cultivation that padiakan is retained by terracing management.
   c. Slope 25-45% prioritized for the development of coconut, cocoa and areca nuts that already exist on the existing land use as a buffer between the cultivated and protected zones.
2. The cultivation zones of production forests and limited production forest will be defended as forest area. Those zones need the intercropping pattern between cocoa, coconut and areca nuts in the limited production forest zones with agroforestry system in Mosso village so that farmers in Mosso village still have an income without destroying the production forest.
3. Protected zones such as protected forests, sempadan river area and beach are not allowed doing agriculture activities to prevent land degradation and land resources intrusive.
4. Settlement zones for farmers in Holtekamp village, Middle Koya, Skow Mabo, Skow Yambe, Skow Sae and Mosso.

3.7. Recommendations on the Development of Superior Commodities
The development of superior commodities can improve the economy of the citizenry by integrating the agribusiness subsystems

1. Sub system on upstream agribusiness
   It needs for supply the superior local seed and certified to ensure the quality and the yield by planting the excellent seeds in the central and sub-central agropolitan.

2. Sub system on farming agribusiness
   Farmers have limited modal to develop their agricultural business, so the government needs to provide the modal assistance to farmers with educative principle. The direct aid to community and the aid for village empowerment strategic plan that is given should be selective based on the needs and right target.

3. Sub system on downstream agribusiness
   Recommendations on the development of sub systems downstream agribusiness is procurement and increment of processing industries except rice. However, it will be retained for national food defense.

3.8. Recommendations on the Development of Infrastructure Net
The adequate of facilities and infrastructure is necessary to support the agropolitan development on RI-PNG border Muara Tami District Jayapura city. Hence it needs for recommendations on infrastructure development such as:

1. The need to increase the easier access to the market on the road network which have low accessibility through road widening, pavement improvement and the provision of public transportation which is equipped with the procurement of terminals to support the distribution and marketing the agricultural products to the market.

2. Operationalize agribusiness sub-terminal and Sehito markets that does not work, water supply, maintenance of technical irrigation network by the related institution and the development of electricity networks to Skow Mabo village, Skow Yambe village and Mosso village.

3.9. Recommendations on Institution Improvement
The employee of Agricultural extension need to make the counseling system more effective through the approachment to local farmers in village of Muara Tami District border with learning system that more easier accepted by farmers on cultivation techniques, product marketing and agribusiness.

3.10. Recommendations on Human Resources Development
Recommendations for human resources development are to improve the ability and independence to do with farmers’ empowerment individually although groups through formal and informal education, apprenticeship and training to change the mindset of local farmers particularly.

3.11. Security Recommendations in RI-PNG Border Muara Tami District
Security approach needs to be noticed in agropolitan development in Indonesia-PNG border Muara Tami District Jayapura city to support economic activities over there. Based on Jayapura City RTRW security development is by establishing the command belt of state border along the ± 5km as defense space and state safety that supported by the addition of control posts and the provision of facilities and infrastructure to support the Skow PPLB.

4. Conclusion
1. The border of RI-PNG Muara Tami District has a border characteristic that is not much different from other land border in Indonesia. Special characteristic possessed by Muara Tami District
border is the orientation potential of PNG population that is more attracted to Muara Tami district border to fulfill the economy needs.

2. Agropolitan concept is already to be developed in RI-PNG border Muara Tami District by full support on physical aspect with the available of agriculture land covering area of 0.977,94 Hectares (20,93%) and have land capability of cultivation functions covering area of 35388.06 (56.74%). RI-PNG border Muara Tami district has full support and obstacle on social aspect that is the citizenry mostly work as farmer (68.38%), but the ability of farmers and farmer groups are still low. The border of RI-PNG Muara Tami district also have support and obstacle on economic aspect that can be found six superior commodities but the marketing of yields is still in local scale and have not be supported by an adequate facilities and infrastructures. This district also has full support on security aspect that is the safety in borderland is relatively stabil to conduct cross-border activities.

3. Agropolitan in Indonesia-PNG border Muara Tami District need to be encouraged the development based on the condition and the potential superior commodity that be possessed can be their own characteristics to increase the border economic growth with competitiveness, so it can realize the border development as the front porch of the state concerning the aspect of welfare in addition to the security aspect that becomes a crucial issue in that region.

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