Baltarural Area Face to Metropolitan City (Case Study: Barito Kuala, South Kalimantan, Indonesia)

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SUMMARY

Barito Kuala is a district located in South Kalimantan, Indonesia. This district is categorized as one of the underdeveloped districts in South Kalimantan Province by the Ministry of Rural Development, Republic of Indonesia. This district is located on the coast of the great river, called Barito, with an average width of 500 m and a length of about 900 km. Since 2008, the river has become the main transport coal for exportation. Besides the Barito River, there are many other small rivers that cross the area, so the Barito Kuala become fertile and is an area that has the largest agriculture income in the province of South Kalimantan. Besides having a wide area of agriculture (49% of the total area, in 2007), the total area of forest is its second largest area, which is 18% of its total area, followed later plantations (10%), reeds (9%), housing (3%), and other (11%, including rivers, ponds and bush). In 2011, the total area of forest has 81% decreased from 2007, along with the expansion of plantation area (companies and individuals) who gained 82% from 2007. On the other hand, the addition of nearly 5x wide shrub fold, the addition of 50% extensive settlement, and 3% decreased of agriculture land area. These facts indicate that land use changes very quickly in Barito Kuala.
The first part of this paper contains a preliminary study / literature based on books, papers and internet sources about the Barito Kuala district such as geographical location, its potential, demography, and a bit about its history. In the main chapter the author will show a comparison of land-use change in Barito Kuala district from 2007 until 2011. At the end chapter, the author describes the development issue that will be carried out in Barito Kuala, which became a part of the development Metropolitan Town, South Kalimantan called "Banjarbakula" and the urgency need of Urban System Information Management in Barito Kuala.

BARITO KUALA AND ITS CHALANGE TO MODERN WORLD

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1. INTRODUCTION

The longest history obtained is based on the life of Carl Bock, an expeditor Danish, who is sent to archipelago Malaise in 1878, tells of his journey down the Barito River. According to the story, Muarabahan is an important trading port and strategic location. The location is at the junction of the River Barito, Kapuas, and Kahayan. The city is visited by residents around the interior of Borneo. They carry an assortment of items using a rowboat to transact there. In its development, Muarabahan no longer a port of transit for the transportation of merchandise. Muarabahan name was then changed into Marabahan. And on January 4, 1960 with the Act (Act) No. 27 of 1959 is set to be Marabahan Barito Kuala district capital [1]. Distance from Marabahan to Banjarmasin, South Kalimantan provincial capital city, is about 56 kilometers. Formerly transportation in this area can only be passed through the river with the distance of 2-3 days. Now that distance inland are all within one and a half hours by road and across the Barito River.

The origin of Barito Kuala is Bakumpai rate (*in Dutch called Becompaijers / Bekoempaiers*). Bakumpai tribe is a term for the people who inhabit the Barito River watershed [2]. Bakumpai derived from the word *ba* (interpreted as have, in traditional languange) and *kumpai* which means it is grass. From this title, it is understood that these tribes inhabit the region which has a lot of grass.

In 1937, Barito Kuala Transmigration process begins, by putting as many as 95 heads of household who are from East Java [8]. In 1970, Barito Kuala still a very sparsely populated area and has the natural potential resources which are not in use, so the government launched another program transmigration, called Barambai Transmigration, which is a tidal transmigration project. The project is located 1.5 km west of the Barito, then the project is located Barambai village. Since then, the variation rates inhabit in this district (Java, Madura, and Bali). The development process of transmigration area seemed to slow, ranging between 20-30 years from the opening of the transmigration area. In 2008, Barito Kuala was chosen to be one of the areas designated to implement the Integrated Urban Independent Program based on Law Number 15 Year 1997 on Transmigration by Indonesia Government. This program is mentioned as an effort to develop Transmigration Development Area (TDA) into new growth centers, and support the growth centers that already exist. To support these program Barito Kuala district government has made a Regulation No. 6 of 2008 on Integrated Urban Independent that sets an area of 51.945 hectares in six regions of the Barito Kuala District, ie. Mandastana, Jejangkit, Belawang, Overseas Bedauh, Barambai, and Cerbon. During its development, the regulation was revised again to include part of Marabahan and others region.

1.1 Geographical Location

Barito Kuala district located at the west of the province of South Kalimantan with boundaries; in the nord by Hulu Sungai Utara and Tapin district, the south by Java Sea, in the east by Banjar and Banjarmasin district, while the west is bordered by the Kapuas district of Central Kalimantan Province. This district is flanked by two major rivers, the Barito River and Kapuas River which empties into the Java Sea. In addition, hundreds of small rivers winding like a snake-link is the source of most of its citizens livelihood.

Based on the complexity of the character, this area is an estuary, a place where fresh water (from river) meets with sea water. This area is a fertile region, there are many different types of flora and fauna unique because the environment provides many nutrients. As a result of a meeting area between fresh water and sea water, so it is a brackish water with salinity levels ranging from 0-35 ppt (parts per thousand) [4].

The surface of Barito Kuala is 240,891.15 hectares or 7.99 percent of the total for the province of South Kalimantan. Barito Kuala district covering 17 district which has 200 villages. The widest region called Tabunangen is 22.874 ha (9.5% from surface total of Barito Kuala), then Marabahan region, the capital district, covering an area of 18, 623 ha (7.8%), Bakumpai regions covers an area of 17,885 ha (7.4%). The smallest region, called Belawang region, covers 8,347 ha (3.47%). Most of the population is concentrated in villages along the main roads, canal, and along the main rivers for fishing. Because it is a tidal areas, communities generally rely on agriculture for a living, and also the fishermen.

Villages located in the Barito Kuala is divided into two categories, namely urban village and rural villages. Determination of the classification of rural and urban areas using a scoring method that is carried out by the Central Statistics Agency (BPS). Variable population density, percentage of agricultural households and access to public facilities, is used as a consideration in determining whether the status of a village as rural or urban. Based on these variables, then in Barito Kuala there are 186 rural villages and 14 urban villages, as shown table below :

No	District	Capital District	Area (ha)	Number of Village		
				Rural	Urban	Total
1	Tabunganen	Tabunganen	22874.925	14	0	14
2	Tamban	Purwosari	17343.879	14	2	16
3	Mekarsari	Tamban Raya	14813.463	9	0	9
4	Anjir Pasar	Anjir Pasar	10570.708	15	0	15
5	Anjir Muara	Anjir Muara	8793.7708	15	0	15
6	Alalak	Handil Bakti	9971.1634	11	7	18
7	Mandastana	Sei Puntik	10042.153	14	0	14
8	Belawang	Belawang	8347.4501	13	0	13
9	Wanaraya	Sido Mulyo	17056.695	13	0	13
10	Barambai	Barambai	13715.82	11	0	11
11	Rantau Badauh	Sungai Gampa	12749.296	9	0	9
12	Cerbon	Bantuil	16128.448	8	0	8
13	Bakumpai	Lepasan	17885.002	9	0	9
14	Marabahan	Marabahan Kota	18623.812	5	4	9
15	Tabukan	Tabukan Raya	15713.375	10	1	11
16	Kuripan	Rimbun Tulang	13197.264	9	0	9
17	Jejangkit	Jejangkit Pasar	13063.932	7	0	7

Table 1. District, Capital District, Area and Number of Village in Barito Kuala Region

Barito Kuala is a wetland topography, where most of its territory surrounded by the river and swamp which is a tidal marsh. This condition causes the soil contains peat (peatland), comes from the remnants of the low marsh plants. The level of soil acidity reached pH 3-5, so that the ground water in this place can not be directly consumed by the public, because it contains iron and sulfur compounds, or commonly referred to as the firit solution. Barito kuala is in topographic lowland area (Blanket) with a height of 0.2 to 3 meters above sea level. As it is a lowland area, almost all of Barito Kuala area's grows the Galam forest, that can be used as a building material, woven mats, baskets and so on.

Geologically, this area is a lowland which are compiled by alluvium sediment (fomed in Holocene), separated by meander rivers, then forming spacious marshes. Alluvial sediment available in this area can be divided into two, namely:

- Unit older alluvium (Qal), consisting of gravel, sand, silt and clay.
- Unit younger alluvium (Qa), consisting of silty fine sand, silt clay, clay, mud and peat.

Peatland development in Barito Kuala massively made in 1969 to 1970, known as the opening project tidal rice fields. Barito Kuala's transmigration farmer had a habit to burn the peat for opening the new rice fields. Unfortunately, the farmers are not equipped with the sufficient knowledge in managing the land, so that peatlands have been opened and provided for the livelihood of the transmigration has quickly degraded. After a fire, the peatlans turned into

water scarce region and has the very high acidity of soil and water (pH 3.5 - 4.0), this causes the productivity of surrounding waters decrease [5]. Based on the analysis done by Muhammad Noor, 2001, that the fish in the degradation area that suffered degradation are smaller and fewer.

1.2 Potential of Barito Kuala

As a region which is largely influenced by tidal marsh, directly and indirectly from the sea surface. At high tide the river floods the marshes surrounding the stricken area and at low tide the waters back into the river, so that the swamp areas are washed. This can reduce the acidity of the soil and can be used to agricultural purposes. Appropriate agricultural crops are rice, maize and cassava, and also perennials plant as well like coconut, cloves, coffee, orange, rubber, palm oil, and jackfruit. Based on data from the Central Bureau of Statistics, in 2011, Barito Kuala is the biggest productor of rice, which is 342.869 tonnes or 17% of the whole province of South Kalimantan [6].

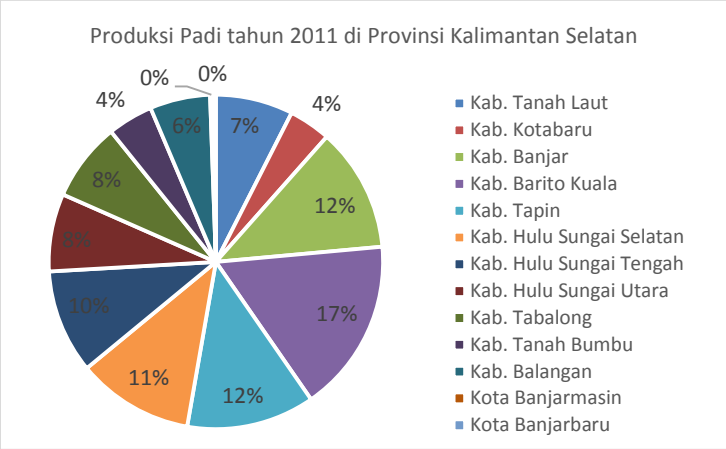


Figure 1. Rice production in South Kalimantan Province in 2011

For the plantation sector, Barito Kuala opened palm and rubber plantations by utilizing swamp land. The income from rubber and palm are significantly increase. Based on the data from 2007 to 2010, the production of palm oil increase to 320%, and rubber production increase to 147%.

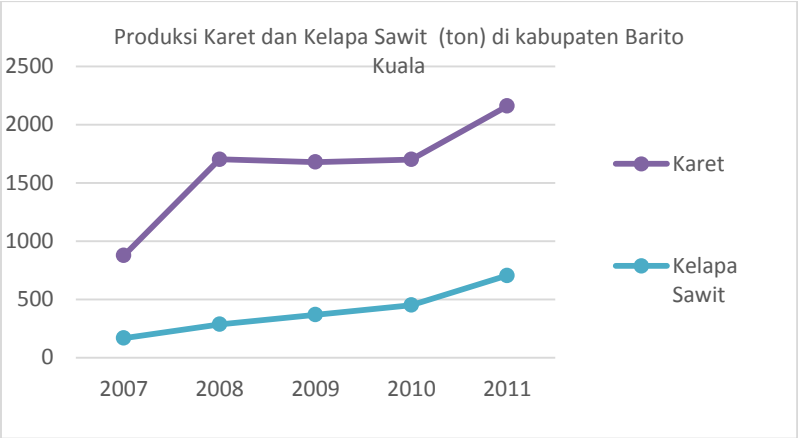


Figure 2. Production of rubber and palm oil in Barito Kuala district, years 2007 - 2011

Beside the plantation and agriculture, Barito Kuala district has a large potential of methane gas or Coal Bed Methane (CBM). Coal bed methane (CBM) is a source of energy that is relatively new. This source of energy is one of the renewable alternative energy usage [7]. Methane gas extracted from coal seams can be used as energy for human needs. CBM is usually found in the underground of non-traditional coal mines, in between the cracks of coal. Indonesia is the five largest CBM potential in the world, with resource reach 453.3 trillion cubic (tcf). CBM potential in Barambai region, Barito Kuala, estimated at 101.6 billion m3, which is the greatest potential in Indonesia, after South Sumatra [7]. This gas was first found in Barambai region in 2006. At that time the community was going to manually drill groundwater with a depth of 138 meters, then suddenly appeared mudflow and gas. The cold mud releases water bubbles as in boiling water. Methane gas in the area of Barito Kuala estimated at a depth of 1.5 kilometers. Methane gas was on the sidelines still mixed with coal and water.

Figure 3. Mud Gas Methane in Barambai region, Barito Kuala district

1.3 Demography

The origin of Barito Kuala community is Bakumpai rate (in Dutch called *Becompaijers / Bekoempaiers*) or *Dayak Bakumpai* who live along the banks of Barito River, in South Kalimantan. Based on the census results, conducted by Central Bureau of Statistics, in 2000, there is about 20.609 peoples of Bakumpai rate in South Kalimantan province, the most population is in Barito Kuala district, about 18.892 peoples (7%) of the total population in that year in Barito Kuala. This shows that the population of Barito Kuala is already a mixture of different regions as transmigration results. The yearly population in the region of Barito Kuala from 2006 - 2012 is like the table below:

Name	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Tabunganen	19127	19439	19193	19389	19143	21781	21730
Tamban	36258	33208	31680	32021	31115	30156	30307
Mekarsari	17175	16775	17022	17201	16312	16935	17059
Anjir Pasar	15596	15713	15789	15956	15388	16857	16928
Anjir Muara	18980	20465	20267	20480	19456	22073	21339
Alalak	39027	40435	41696	42111	51403	47982	48617
Mandastana	13346	12785	13011	13147	14012	14117	15004
Belawang	12323	12158	13017	13151	12717	13424	13552
Wanaraya	13402	14017	14224	14361	12407	14194	14401
Rantau Badauh	10882	13637	13761	13901	14132	16450	15306
Cerbon	7298	13551	8644	8731	8403	9178	9236
Barambai	14077	8519	14768	14921	13971	15283	15306
Bakumpai	8847	9146	9016	9106	9321	12535	12180
Marabahan	19445	19547	19783	19988	18907	19054	19934
Tabukan	8225	8289	8283	8379	8097	8583	8714
Kuripan	5771	5293	5380	5431	5316	5885	5920
Jejangkit	7273	6471	6798	6869	6047	7839	6919
TOTAL	**267052**	**269448**	**272332**	**275143**	**276147**	**292326**	**292452**

Table 2. Evaluation of the population in Barito Kuala district 2006 - 2012

The largest population of Barito Kuala is in the capital region, Marabahan, while the smallest population in Kuripan region. In 2007, there was a reduction in the population of the Barambai, this is due to fear of society to live in the area since the discovery of mudflow and gas from the ground in 2006, the community moved to Cerbon region, resulting the high addition of the population in Cerbon. The residents of Barambai region started back in place after the government announced that the gas in Barambai is harmless.

2. BARITO KUALA 2007 – 2011

In this section, we describe about the land use change in Barito Kuala within 4 years. The data used are the 2007 land use data, land use data in 2011 which was the result of satellite image interpretation of Landsat ETM 7. The data were analyzed using ArcGIS software. Characteristics Barito estuary are as follows:

Projected coordinate system: WGS 1984 Zone 50 S
Universal transverse Mercator projection (UTM)

As noted above, that most of the Barito Kuala is an area of agriculture, plantations and forests. Annexes 1 shows the use of the land in 2007, and the annexes 2 shows the use of the land in 2011. The overall presentation of land-use cover is like figure 4. It is seen that nearly 50% of land area in Barito Kuala is paddy, followed by reeds, forests, plantations, housing, rivers, swamps, ponds, and others. The biggest change that occurred in 2007 to 2011 are changes in forest cover, reeds, and plantations.

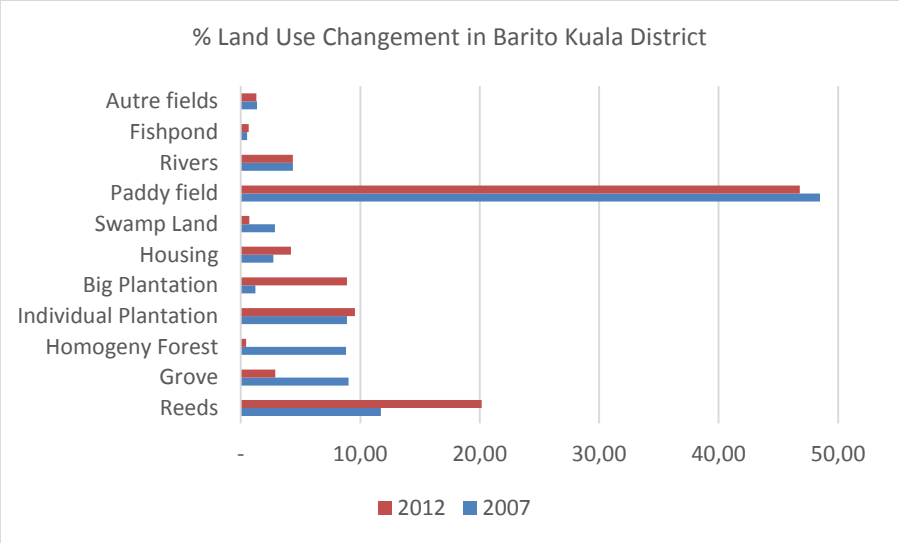


Figure 4. Percent's of land use changement in Barito Kuala

Forests in Barito Kuala Region also called swamp forest or Galam, because it is dominated by Galam wood species (*Melaleuca cajuputi*). This species, grows naturally and is a form of adaptation to the environment swamps, freshwater, which generally have a low pH (3-5) and less fertile. Forest Galam is a breath of life for some people, Galam forest produce which is the construction material in wetlands, the source of materials base for the wood industry and is a source of people's livelihood.

There are two types of forest in Barito Kuala district, which is a type of homogeny forest and grove. Homogeny forest is a forest with one specify plants. In general, homogeny forests are created with a specific purpose, such as for reforestation, afforestation, or expansion of industrial purposes. Grove is covered with a dense forest by a wide variety of plants. Grove is found in wide areas in the world and serves as a reservoir of carbon dioxide (carbon dioxide), animal habitats, and soil conservers, and is one of the aspects most important terrestrial biosphere.

The changement of homogeny forest and grove area in Barito Kuala district is like the table below:

No	Land Use	Area (Ha)		Land use Changement	
		Year 2007	Year 2012	Area (Ha)	Changement (%)
1	Grove	21,746.53	6,917.47	-14,829.06	-68.19
2	Homogeny Forest	21,223.85	1,093.15	-20,130.70	-94.85

Table 3. Grove and Homogeny Forest in 2007 and 2011

From the table, within a period of 5 years, it is seen that grove were reduced by 68.18% or 14.829 ha. And homogeny forests were reduced by 94.85% or 20.130 ha. In Barambai district, Wanaraya, Anjir Markets and Mekarsari all woods are completely change. Homogeny forest in Kuripan district and Cerbon also disappear. Some homogeny forest is still in the Tabunganen district.

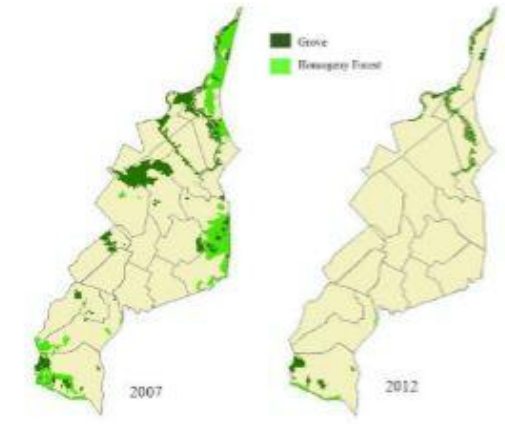


Figure 5. Grove and Homogeny Forest in Barito Kuala

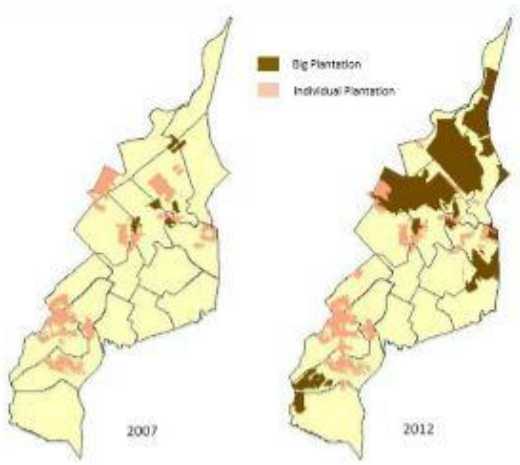


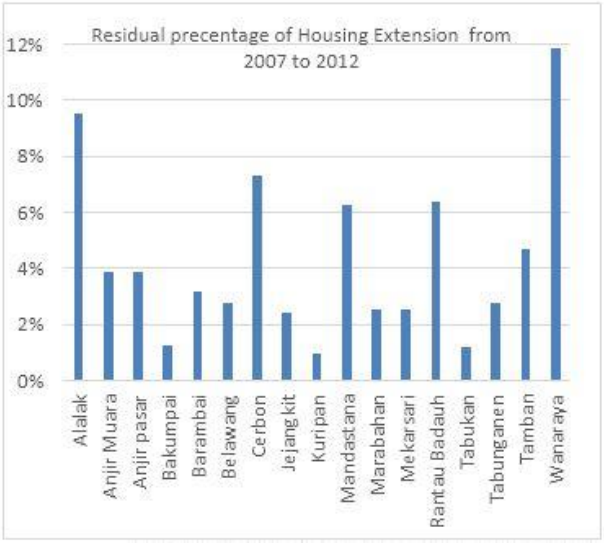
Figure 6. Repartition of Big plantation and Individual Plantatation in Barito Kuala in 2007 and 2011

The diminution of forest area in Barito Kuala, along with the increasing of plantation land (palm and rubber). Since 2009, the National Land Agency has issued some permits of plantation use (leasehold) to a large companies. In addition, conversion of forests to plantations is also done by local people for individual's plantation. Figure 6 shows the change of plantation area in Barito Kuala district. Some groves and homogeny forest area has been converted to plantations (both individuals and companies). The biggest change occurred in the northern part of Barito Kuala Region, Tabukan district, Marabahan, Kuripan, Bakumpai, and the most southern part of the district of Barito Kuala which Tamban district and Tabunganen districts (Figure 5).

Not only is the forest has been replaced, but the swamps area can be converted into plantations. Swamp area is reduced as much as 5.173,82 hectares or 75% from 2007, almost all parts of the swamp have been converted to plantations. In 2007, there is still a swamp area

located in Kuripan district and Bakumpai, but in 2011, has almost no swamps anymore, everything has been turned into plantations.

In terms of the distribution of the settlement, it appears that the change of land to settlement mostly located in the eastern part of the Barito Kuala Region, namely Wanaraya district, Alalak, Cerbon, Rantau Badauh, Mandastana and Tamban. The largest addition of the residential area is in Cerbon district, about 729.4 hectares or an increase of as much as 3.5 times more than in 2007 (202.86 ha), but from presentation of settlement area in 2007 to 2011, Jejangkit district has the largest percentage, 524% (from 50.48 ha in 2007 to 315.215 ha in 2011). The widest districts of settlement area is Wanaraya district, 31 hectares in 2011, which is a smallest settlement extensive, 1% of the breadth in 2007.



Region	Penambahan Luas pemukiman tahun 2007 (%)	Penambahan Luas pemukiman tahun 2012 (%)	Residu kenaikan luas pemukiman dari tahun 2007 - 2012 (%)
Alalak	5%	15%	10%
Anjir Muara	3%	7%	4%
Anjir pasar	3%	7%	4%
Bakumpai	1%	2%	1%
Barambai	2%	6%	3%
Belawang	3%	5%	3%
Cerbon	2%	9%	7%
Jejangkit	0%	3%	2%
Kuripan	1%	2%	1%
Mandastana	4%	10%	6%
Marabahan	1%	3%	3%
Mekarsari	1%	4%	3%
Rantau Badauh	2%	9%	6%
Tabukan	1%	2%	1%
Tabunganen	1%	4%	3%
Tamban	4%	9%	5%
Wanaraya	12%	24%	12%

Figure 7.Residual Percentage of Housing Extension in 2007 and 2011 in every Region (Ha)

Table 4. Percentage of housing area every region in 2007 and 2011

Meanwhile, when compared to the population density of each district in 2011, it appears that the most populous district is Alalak district, followed Anjir Muara, Tamban, Belawang, and Mandastana and so on, as displayed in Figure 8. There are two districts were reduced density its population, Cerbon district and Tamban.

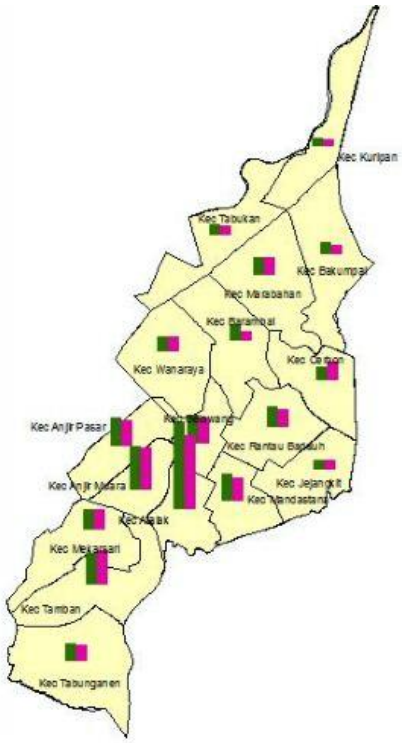


Figure 8. Density population in 2007 and 2012

Region	Surface (km2)	Population 2007 (People)	Population 2012 (People)	Population Density 2007 (People/km2)	Population Density 2012 (People/km2)
Alalak	99.712	40435	48617	405.519	487.576
Anjir Muara	87.938	20465	21339	232.722	242.660
Anjir Pasar	105.707	15713	16928	148.647	160.141
Bakumpai	178.850	9146	12180	51.138	68.102
Barambai	161.284	8519	15306	52.820	94.901
Belawang	83.475	12158	13552	145.649	162.349
Cerbon	127.493	13551	9236	106.288	72.443
Jejangkit	130.639	6471	6919	49.533	52.963
Kuripan	131.973	5293	5920	40.107	44.858
Mandastana	100.422	12785	15004	127.313	149.410
Marabahan	186.238	19547	19934	104.957	107.035
Mekarsari	148.135	16775	17059	113.242	115.159
Rantau Badauh	137.158	13637	15306	99.425	111.594
Tabukan	15713.375	8289	8714	0.528	0.555
Tabunganen	22874.925	19439	21730	0.850	0.950
Tamban	17343.879	33208	30307	1.915	1.747
Wanaraya	17056.695	14017	14401	0.822	0.844

Table 4. Demographic situation in each district

3. NEXT CHALANGES FOR BARITO KUALA

3.1. Urbanization in Barito Kuala

The trend of urbanization continues to increase as the numbers are common in developing countries. This happens also in South Kalimantan's population. Census 1990 recorded a population of urbanization in the province of 27.1%. Urbanization in 2010 according to projections made in 2005 of 46.7% 2. Towards 2015, the urbanization rate is projected to exceed 50%. Since then, the population living in urban areas would exceed that of those living in rural areas.

Urbanization regencies / cities in South Kalimantan in 2010

The process of urbanization that occurred in Barito Kuala is not as urbanization in the traditional sense. In the traditional sense, Urbanization has always been perceived in demographic terms, that is, as the increase is in the number of people living in the urban areas. Most commentaries on Urbanization are based on this demographic perspective (Devas and Rakodi 1993; World Bank 2000; United Nations 2000). The process of urbanization in Barito Kuala is more inclined to something called the urban sprawl (Lim 1987) or urban expansion. However, the fact remains that as urban areas expand outwards and incorporate surrounding non-urban land to the make way for industrial or housing development, Urbanization is taking place (Obudho and Obudho1994).

"Urban sprawl is usually defines as the spreading of a city and its suburbs over rural land at the fringe of an urban area."

Many reasons underlying the phenomenon of urban sprawl ranging from the behavior of people who prefer to live in suburban areas, assuming the price of land is cheap and affordable and healthy air conditions are not heavily contaminated as downtown. Then the existence of the Spatial Plan (Spatial) is believed to still be implemented in achieving spatial pro-environment. Too many social and economic interests to be implemented by the local government, so that in fact affect the implementation of Spatial neglect is causing environmental functions.

There are several reasons why Barito Kuala is interesting, first, strategic location on the eastern side, close to the city of Banjarmasin, coupled with the establishment of the Barito bridge which can shorten the travel time Banjarmasin-Barito Kuala (which had its 3-4 days to 1-2 hours), in addition, in term of Banjarbakula Metropolitan, the government will build a highway that would pass through this district. Second, the saturation of residential area in Banjarmasin makes workers prefer to live in a rural area nearby, associated with the rising price of land in the city, so that the purchasing power is reduced. Land in rural areas tend to

be less expensive compared to urban areas. Third, Barito Kuala is located along the Barito River that became the main transport for coal exports since the enactment of legislation banning the transportation of coal by road. Plus, when viewed spatially, in this district there are non-residential area that is large enough to be built.

The process of city expansion creates urbanization in the sub-urban and rural. In Barito Kuala characterized by:

- Agricultural area turned into residential areas (Alalak, Mandastana, Cerbon);
- Vacant land into a new settlement through Transmigration program (Barambai, etc.);
- Opening of the plantation, which creates new jobs;
- Increasing of the population on the Barito river coast as a consequence of increasing coastal activity.

This urbanization process, must be immediately followed by the readiness of the government to determine the availability of land that is up-to-dates, precise, continuous and could represent natural environment. Spatial (locationally referenced) information has become indispensable for Barito Kuala, interm of its development, planning and management. The increasing importance of spatial information has been due to spatial data capture (especially satellite remote sensing), management (utilizing GIS and database tools) and access (witness the growth in web mapping), as well as the development of analytical techniques such as high resolution mapping of urban environments. This shows the urgency of a spatial tools, where this system can be used as a tool for the government in making policies in spatial direction.

3.2. Barito Kuala to the Metropolitan

The land use changement in Barito Kuala is very fast. The process of urbanization began to appear in the districts located close to Banjarmasin, the capital city of South Kalimantan Province. At least three district has been cited by Ministry of Public Works to be built the residential area. The first, in Alalak districts, closest district to Banjarmasin, this district in 2013 will be built several housing to accommodate the settlement shortage in Banjarmasin. Then Mandastana district, the district extensive for housing development in Alalak district and also the district where the program of independent transmigration city is being implemented, and Marabahan district which is the capital of Barito Kuala district even though in Marabahan, the housing construction grows slowly.

Barito Kuala currently included in the government program on the formation of a new metropolitan city in South Kalimantan, which is named “City Metropolitan Banjarbakula”. It is certain that there will be massive changes occur in Barito Kuala, while Barito Kuala is categorized the Backward District in 2011, became part of the City Metropolitan. In this case of course the Barito Kuala Region will be facing new challenges both in terms of environmental, ecological, economic, infrastructure, followed by rapid changes in land use and social problems.

Preparing the development of Banjarbakula Metropolitan, in terms of infrastructure, the government will build highway that cuts Barito Kuala and Banjarmasin. Construction of this highway, indirectly, the open access Barito Kuala district. Barito Kuala would be a strategic city to stay for Banjarmasin's workers. Government should have a master plan which considering any aspect of especially economic growth, natural resources and environment impacts.

In French, there is a PLU (*Plan Local d'Urbanisme /* Local Development Planning), which is a planning document that organizes land use; will be or will not be an urbanized area, where will be housing or shops, etc. It defines the overall layout of the town in a concern for sustainable development. It consist into planning, housing, transportation, economic activities, public facilities but also the landscape and heritage, what makes the specificity of a municipality. Its purpose is to define the building rights for each parcel.

In Indonesia, there is a RTRW (*Rencana Tata Ruang Wilayah* / Spatial Planning), which is generally the same objectives with PLU. This RTRW should be renewed every certain years, follow the dynamic change of every city. In Barito Kuala, the last RTRW was published on 2011.

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BIOGRAPHICAL NOTES

Sri Karina BANGUN completed her Bachelor Degree in Institute Bandung of Technology, Indonesia, majoring Geodesy and Geomatic Engineering, in 2004. Two years after, she had an opportunity to continue her Master Degree in La Rochelle University, France, majoring Environment and Coastal Area. In 2008, after completed her master degree, she was back to her institution, Land National Agency, currently change to Ministry of Spatial Planning. Her passion to take PhD program realized in 2014 when she was accepted as a scholarship PhD Candidate in La Rochelle University. She is now in her first year of her doctoral program about development territorial and spatial planning in Barito Kuala, South Kalimantan, Indonesia.

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