

# POPULATION GROWTH IN BATAM MUNICIPALITY AS THE FRONTIER AND OUTERMOST REGION AT THE BORDER BETWEEN INDONESIA-SINGAPORE-MALAYSIA

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## ABSTRACT

The systematic and accurate data on population has become pivotal point to overview the development of population in particular region, so that it required to a conduct a study to explore the description of the population growth rate, the factors causing the high population growth rate, and the impact of the high population growth rate in Batam Municipality. This study was exploratory research with a qualitative approach to analyze the population phenomenon in Batam. Data were collected using observation, interview, documentation, and audio-visual material collection. Informants were determined by purposive sampling and snowball techniques. This study used the Spradley analysis model with four stages of analysis, namely: domain, taxonomic, components, and cultural themes. The results showed that the population growth rate increased from 1980 to 2012, but began to decline since the decline in economic growth in 2013 which indicated that the population growth rate in Batam followed the pattern of economic growth. The high rate of population growth was due to the high number of in-migration (65%) and high birth rates (35%), because most migrants were in productive age. The high rate of population growth in Batam Municipality had caused various population problems, namely citizenship status, citizenship administration services, illegal housing, traffic congestion, clean water crisis, waste accumulation, potential loss of local ethnic values, potential ethnic conflict, and potential increased of crime rate in Batam.

**Keywords:** population, migration, management, administration, region

## ABSTRAK

*Data yang akurat dan sistematis mengenai populasi menjadi poin penting untuk meninjau perkembangan populasi di suatu daerah, sehingga dirasa penting untuk melakukan penelitian ini untuk mengeksplorasi gambaran tingkat pertumbuhan penduduk, faktor-faktor yang menyebabkan tingginya tingkat pertumbuhan penduduk, dan dampak dari tingginya tingkat pertumbuhan penduduk di Kota Batam. Penelitian ini merupakan penelitian eksplorasi dengan pendekatan kualitatif untuk menganalisis fenomena kependudukan di Batam. Data dikumpulkan menggunakan Teknik pengamatan, wawancara, dokumentasi, dan pengumpulan materi audio-visual. Informan ditentukan melalui purposive sampling dan teknik snowball. Penelitian ini menggunakan model analisis Spradley dengan empat tahap analisis, yaitu: domain, taksonomi, komponen, dan tema budaya. Hasil penelitian menunjukkan bahwa tingkat pertumbuhan penduduk meningkat dari tahun 1980 hingga 2012, tetapi mulai menurun sejak penurunan pertumbuhan ekonomi pada tahun 2013 yang menunjukkan bahwa tingkat pertumbuhan penduduk di Batam mengikuti pola pertumbuhan ekonomi. Tingginya tingkat pertumbuhan penduduk disebabkan oleh tingginya jumlah migrasi (65%) dan tingkat kelahiran yang tinggi (35%), karena sebagian besar migran berada di usia produktif. Tingginya tingkat pertumbuhan penduduk di Kota Batam telah menyebabkan berbagai*

*masalah kependudukan, yaitu status kewarganegaraan, layanan administrasi kewarganegaraan, perumahan ilegal, kemacetan lalu lintas, krisis air bersih, akumulasi limbah, potensi hilangnya nilai-nilai etnis lokal, potensi konflik etnis, dan potensi peningkatan tingkat kejahatan di Batam.*

**Kata kunci:** *populasi, migrasi, manajemen, administrasi, wilayah*

## **INTRODUCTION**

Indonesia has a fairly high population growth rate, e.g., 1.49% in the period of 1990 and 2010, and 1.36% in the period of 2010-2016 (1). Each province in Indonesia has different population growth rate and some of them are above national average. One of these is Riau Islands province. Riau Islands has the highest population growth rate in Indonesia, e.g., 4.95% in the period of 2000-2010, and 3.06% in the period of 2010-2016 (1,2). This percentage is categorized as high and way above national average of population growth rate. The high growth rate of Riau Islands is not equal between a regency/municipality and other regencies/municipalities.

Sagulung District has the highest population growth rate in Batam Municipality by 6.73%, followed by Batam Kota District with growth rate of 5.62% and Batu Aji District in the third position with growth rate of 4.15%. The data shows that population growth rates in these districts are very high.

Batam Municipality is the fastest-growing city in Indonesia by population (3). Since growing into an industrial area and a logistic base and operational base of Pertamina for oil and gas industry in 1970, Batam has undergone an amazing development with strategic position close to Singapore and Malaysia, Batam becomes one of main destinations for business and trade (4). This condition allows Batam to be an interesting destination for job seekers; therefore, its population keeps increasing and it has a high population growth rate. This has created serious population problems in Batam. Mayor of Batam, in ANTARA Kepri media, stated that population has

become the main problem in Batam related to population growth, poverty and unemployment, and the most dominant, population growth, which mostly is due to urbanization.

In term of overcoming population problems in Batam Municipality and to bring economic and social welfare to all people, the high population growth rate in Batam must be controlled. The population growth rate can be controlled through population planning and control programs (5,6). These programs are meant to bring good balance between population size, population growth rate and service and goods production growth so that public welfare can be achieved. Therefore, this research aims to explore and analyze the population growth rate, to identify and analyze the factors that cause the high population growth rate and the impacts of the high population growth rate on population problems in Batam Municipality.

## **METHOD**

This research is an exploratory study with qualitative approach aiming to explore and analyze the phenomenon of population in Batam Municipality, especially regarding population growth rate. Qualitative research is a method for exploring and understanding the meaning that individuals or groups ascribe to a social or human problem (7). The exploratory study has been verified for population coverage of a program (8) and in the retail sector (9). Data collection techniques used in this research were observation, interview, documentation, and collection of audio and visual contents. Informants were selected with specific consideration and using

purposive and snowball sampling. Informants consisted of 11 people, namely the Head of the Population Control Section of the Population and Civil Registration Office of Batam City, the head of the public service section of Sagulung District, the Sub-District Head of Batam Kota District, community leaders in Sagulung District and Batu Aji District, Migrant and Non Migrant Residents in Batam Kota District, Sagulung District and Batu Aji District. The amount is determined based on appropriateness and adequacy criteria. The key informant criterion is the informant's understanding in general and conceptually regarding the substance and phenomenon of the material to be asked. The main informant criterion is that the informant knows in detail about the research material and is also the main actor in the substance of the research, while supporting informants are parties related to the main informant and who are considered to be able to provide additional, useful and relevant information to the research material.

Data analysis technique used Spradley analysis model, a qualitative data analysis model with four phases in analyzing its data, e.g., domain analysis (find the domain/category of the social situation under study), taxonomic analysis (understand domain in depth and divide it into sub domains and break it down into more specific sections), componential analysis (analyze elements that have a contrasting relationship with each other in predetermined domains to be analyzed in

more detail), and cultural thematic analysis (collecting themes in certain domains and trying to find relationships in the analyzed domains to find a pattern) (10).

## RESULTS

### Description of Batam Municipality

Data of population growth rate for every regency/municipality in Indonesia underwent a flow. Batam Municipality is an area that has the highest population growth rate in Indonesia. Batam becomes one of main destinations for business and trade. The geographical of Batam Municipality was strategically on international seas abroad. According by local regulation number 2 in 2004, Batam Municipality lies between - 0o 25' 29" - 1o15'00" of North Latitude and -103o 34' 35" - 104o26'04"of East Longitude (1).

Same as other districts in Province of Kepulauan Riau the area of Batam Municipality is a part of continental. The Large land area in Batam Municipality is about 1.038,84 kilometres square and the ocean area is about 2.791,09 kilometres square. Batam Municipality borders on Singapore Strait toward the North, Lingga District toward the South, Karimun District toward the West, and Bintan Island toward the East (1).

Since the development of industrial area in Batam, its population growth has been increasing from year to year. Since becoming a logistic and operational base of Pertamina for oil and gas industry in 1970, Batam has undergone an extraordinary growth of population. However, it is not evenly distributed. Population in Batam is not evenly distributed, as shown in Table 2.

**Tabel 1.** Population Growth Rate by District in Batam Municipality in 2010-2017 and 2016-2017

No	District	Population Growth Rate (%)	
		2010-2017	2016-2017
1	Belakang Padang	0,54	0,43
2	Bulang	0,58	0,45
3	Galang	0,67	0,41
4	Sungai Beduk	1,11	0,80

5	Sagulung	7,88	6,73
6	Nongsa	3,74	3,11
7	Batam Kota	6,62	5,62
8	Sekupang	3,39	2,80
9	Batu Aji	4,93	4,15
10	Lubuk Baja	0,93	0,65
11	Batu Ampar	1,60	1,23
12	Bengkong	2,20	1,76
	<b>Batam Municipality</b>	<b>4,32</b>	<b>3,78</b>

**Source:** Statistics of Batam Municipality, 2018

**Table 2.** Percentage of Population, Population Density, and Population Growth Rate by District in Batam Municipality in 2018

No	District	Percentage of Population (%)	Population Density (People/KM <sup>2</sup> )	Population Growth Rate (%)
1	Belakang Padang	1,46	280	0,39
2	Bulang	0,75	63	0,43
3	Galang	1,19	45	0,35
4	Sungai Beduk	6,62	827	0,72
5	Sagulung	20,70	5.025	6,41
6	Nongsa	5,04	585	2,93
7	Batam Kota	20,41	6.968	5,35
8	Sekupang	9,85	1.918	2,64
9	Batu Aji	14,12	4.543	3,93
10	Lubuk Baja	6,56	7.633	0,57
11	Batu Ampar	5,03	5.978	1,14
12	Bengkong	8,26	8.317	1,64
	<b>Kota Municipality</b>	<b>100</b>	<b>1.280</b>	<b>3,63</b>

**Source:** Statistics of Batam Municipality, 2019

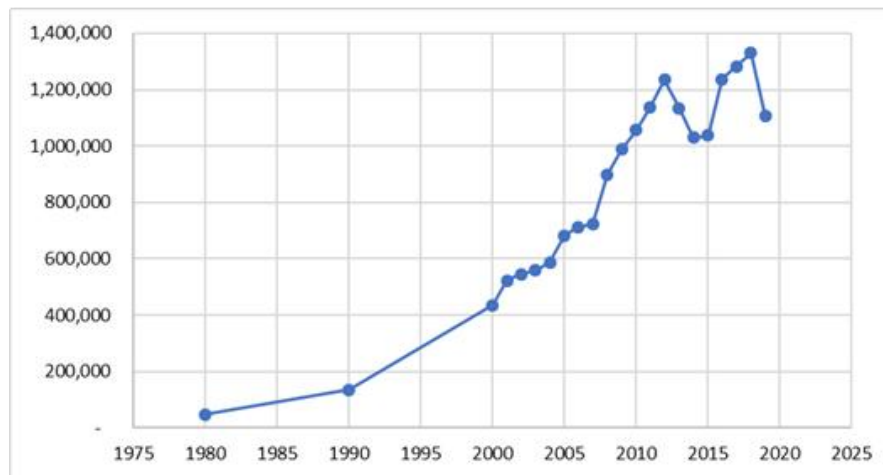
Data in Table 2 shows that more than half of the population in Batam Municipality are concentrated in 3 districts, Sagulung District (20.70%), Batam Kota District (20.41%), and Batu Aji District (14.12%). District with the highest population density is Bengkong District (8,317 people/km<sup>2</sup>), followed by Lubuk

Baja District (7,633 people/km<sup>2</sup>) and Batam Kota District (6,968 people/km<sup>2</sup>). As population is concentrated in these three districts, the highest population growth rate is also recorded in these districts, e.g., Sagulung District (6.41%), followed by Batam Kota District (5.35%) and Batu Aji District (3.93%).

### Population Growth Rate in Batam

Population growth rate in Batam has been fluctuating, with changes in

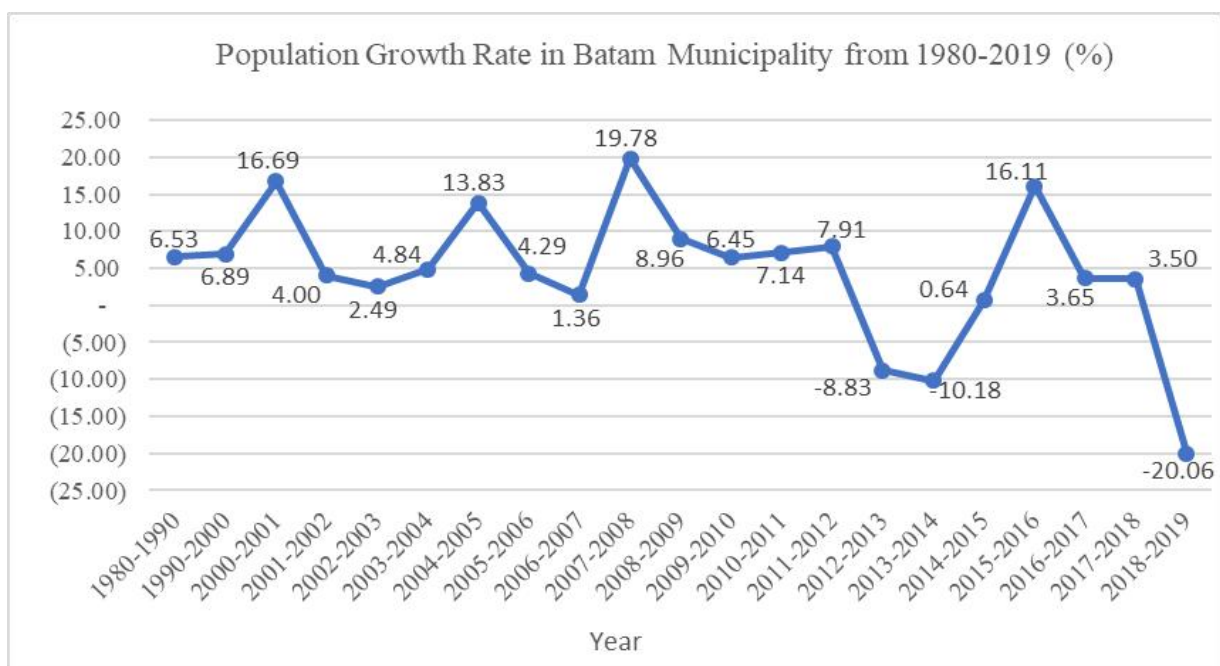
population size from time to time. Data of population size in Batam from 1980 to 2019 is shown below:



**Figure 1.** Population in Batam Municipality from 1980-2019

Figure 1 above shows that population size in Batam always increased from 1980 to 2012, but it decreased from 2013 to 2014. The data shows the fluctuating population size in Batam. The data shows that the number has always increased from 47.111 in 1980 to 1,235,651 in 2012, but it decreased to 1,137,894 in 2013 and had another decrease to 1,030,528 in 2014. However, the number increased to 1,037,187 in 2015 and kept increasing to

1,236,399 in 2016. Similarly in 2017, it increased to 1,283,196 and increased again to 1,329,773 in 2018. The number decreased again to 1,107,551 in 2019. Population size has increased since 2015, but the population growth rate was lower than before. It shows that population growth rate in Batam tends to increase from year to year. Based on data of population size above, growth rate is calculated to obtain graph below.



## Figure 2. Population Growth Rate in Batam Municipality from 1980-2019

Figure 2 above shows that population growth rate in Batam fluctuates, but stays positive from 1980 to 2012, which means that population size has always increased. Since 2013, population growth rate decreased drastically and reached negative value of -8.83% and decreased even more to -10.18% in 2014. Population growth rate increased again from 2015 to 2018, and then decreased in 2019. On the other hand, economic growth in Batam has also decreased to 7.18% in 2013 from 7.40% in 2012 and kept decreasing to 5.45% in 2016. The decrease of economic growth has also been felt in many economic sectors in Batam. The industry supporting sector was the first to feel its impact, followed by retail, property, and small and medium business sectors.

Based on explanation above, one of the findings in this research is that “population growth rate in Batam follows economic growth rate”. When economic growth rate kept increasing up to 2012, in the same period, population growth rate also increased. Similarly, when economic growth rate decreased in Batam since 2013, population growth rate also decreased in the same year.

The increase of population growth rate up to 2012 was due to the increase of industrial growth in Batam. The rapid industrial growth is inseparable from the fact that Batam has strategic location, making Batam as a great place for investment. This has made Batam develop rapidly. However, since 2013, population growth rate has decreased due to the decrease of economic growth rate. This is in accordance with social mobility theory (11), that the higher the positive (pull) factor in a region, the higher the possibility of people migrating there.

Research of factors causing the decrease of economic growth in Batam has been conducted and resulted that the economy in Batam, which is highly dependent on Foreign Direct Investment (PMA), experienced the decline in growth

when there were more foreign investors who came out than those who came in (12). One of the main problems is the consequence of global economic crisis since 2008. Other factors are the infrastructural weakness, the high competition in economic zones in ASEAN, the levy of customs duty in the customs and excises territory (which has just been removed in early 2018), yearly increase in wages, and inefficient spatial planning (12).

Demographic transition theory provides a model that explains about changes in population from time to time and sees demographic change as a byproduct of social and economic condition (13). Carlos Paton Blacker developed a demographic transition model which involved five stages. Stage 1 is high stationary (pre-industrial society) which consists of high fertility birth rates and high mortality rates, resulting in steady or low population growth. Stage 2 is early expanding which consisting of declining mortality rates and high fertility rates, resulting in increasing population growth.

The stage 3 is late expanding consisting of declining mortality rates and declining fertility rates. Stage 4 is low stationary (steady and stable) which classifies as low fertility rates and mortality rates. Meanwhile, stage 5 is low fertility rates, mortality rates as higher than fertility rates, and negative natural increase (14).

Based on the model, it can be concluded that Batam Municipality is in the third stage of the demographic transition model, where mortality rates and fertility rates declines. In addition, the decrease in infant mortality rates, urbanization, and advances in education have encouraged many young families who expect less children, resulting in lower birth rates. In this stage, population growth may still be high, but has begun to decrease. However, the process in which Batam undergoes is not merely caused by natural changes, but is also due to the great

effect of population mobility, especially migration, on the population in Batam Municipality. The decrease in population growth rate in Batam Municipality is more due to the decrease in the number of in-migrants and the increase in the number of out-migrants as the consequences of the decrease in economic growth resulting from weaker industry.

## **DISCUSSION**

### **The Causes of High Population Growth Rate in Batam**

The high population growth rate in Batam results from the high birth rate and high number of in-migrants. Batam has the highest child-woman ratio, *e.g.*, 459 per 1,000 fertile women. This figure shows the high birth rate in Batam. Information obtained from interview shows that Population and Civil Registration Agency can at least issue 70-100 birth certificates per day due to the large number of migrants getting married and giving birth in Batam. Within three months in 2016, 8,224 birth certificates were issued, with 2,477 in January, 2,633 in February, and 3,114 in March. This data is confirmed by information stating that there were 100-150 births per day in Batam. This high birth rate is due to the fact that most migrants are in their productive age.

According to data from Center for Statistics of Riau Islands, in 2010, more than half of the population in Batam were migrants. The data shows that, 294,883 people of 944,285 total population in Batam were non-migrants, while the rest 649,402 were migrants. It indicates that Batam houses a high number of migrants. Meanwhile, in 2018, the Center for Statistics recorded that number of out-migrants was higher than in-migrants, *e.g.*, 17,654 out-migrants and 14,875 in-migrants, which might be due to the decrease in economic growth in Batam since 2013.

However, based on data from Center for Statistics of Riau Islands, population growth rate in Batam in the period of

2010-2017 reached 5.06%, and was the highest in Indonesia.

Even though it decreased, but compared to other regions in Indonesia, the population growth rate in Batam was still considered high and Batam was still the fastest-growing city by population. The main factor (65%) causing this high population growth is in-migration and the rest 35% is from birth rate. This shows how big the contribution of in-migration to the high population growth rate in Batam. Migration often causes problems, because migration that mostly happens is urbanization, the population shift from rural to urban areas mostly for the purpose of aiming for better life. In fact, however, many of them are not lucky, and eventually creating social problems in urban areas.

A study found that Serang City has the potential to have complex problems in terms of population, especially in population growth rates and gender aspects of population in urban areas (15). In addition, migration is also a factor that affects the population growth rate (16). Population growth rate is a number that shows the speed of population growth in numerical form over a certain period of time. Urban rural migration in developed countries occurs as a result of a shift in the livelihood structure of the population from the agricultural sector in rural areas to the service sector in urban areas through the manufacturing industry sector (17).

According to social mobility theory (11), there are four factors that influence migration decisions, namely factors at the origin (push factors); factors at the destination (pull factors); intervening obstacles; and personal factors. Based on the theory and results of research, the biggest factor influencing the in-migration to Batam is the pull factors. Batam, as the city with rapid development of industry, is very attractive for job seekers from all over Indonesia to seek their fortune in Batam Municipality.

Pull factors may include expectation for the opportunity for a better life,

opportunity for a better education, better environment and living conditions, such as climate, housings, schools, and other public facilities, and activities in urban areas, entertainment sites, and cultural centers, which serve as attractions for people from other regions to stay in big cities. Out of the four factors, the first point is the strongest, where the rapid growth of industry at that time was quite promising for migrants to seek jobs and have better life.

Based on explanation above, it can be concluded that the main cause of the high population growth rate in Batam Municipality is due to the high number of in-migrants, with contribution of about 65%, followed by birth rate, with contribution of about 35%. The high number of in-migrants to Batam is due to the rapid growth of industry in Batam which attracts migrants to seek their fortune in Batam. In other words, the high population growth rate in Batam is caused by the high number of in-migrants as the consequence of the high economic growth and high birth rate due to the fact that those migrants are in their productive age. This finding is in line with argument suggesting that growth rate is the rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the population (18).

### **The Impacts of High Population Growth Rate in Batam**

The high population growth rate in Batam results from high number of in-migrants and the high birth rate. The high population growth rate often creates problems, because the population increase is followed by the addition of life supporting elements, like jobs, settlements, and others (19,20). Besides, cities in developing countries including Indonesia have similar problems with their growth process, especially in the development of strategic and economic areas that are generally operated by capitalist sectors in

spatial reproduction possession (21). The acceleration of development and spatial expansion of the metropolitan city in Indonesia towards the periphery areas has an impact on reducing land cover, utilization of riverbanks, and water catchment areas for the needs of the construction of socio-economic activities and the construction of housing and settlements. In fact, however, many of them are not lucky, and eventually creating social problems in urban areas.

In the theory of Population Growth, that without limitation, populations grow rapidly in exponential progression faster than the increase in food production that is needed to support their life, where food production increases in arithmetic progression (22). This theory suggests that there are consequences following the population growth. Malthus' theory also suggests that high population size will create many population problems related to social and economic problems, such as the increase in unemployment, poverty, drop-out rate, which may lead to criminality and other problems.

Meanwhile, the world is in the state of overpopulation, while food supply is limited; third, overpopulation causes environmental contamination and damage (23). Both theories are in line with this research that found that many population problems in Batam are the consequences of the high population growth, as elaborated below:

#### **Citizenship Status**

Many people are not registered so that their citizenship status is not clear, such as people who live in illegal houses all over Batam. In addition, many Singaporeans are married to local people in Batam, causing problem of their children's citizenship status and also problem of property ownership.

#### **Citizenship Administration Services**

Citizenship administration services are still not optimally provided due to



unavailability of blank ID cards; thus, many people couldn't get proper services.

### Illegal Housing

There are tens of thousands of illegal houses in Batam, and its number keeps increasing because population in Batam also keeps increasing. Based on recorded data, the number of illegal houses has reached 30,868 units. Another data even recorded 42 thousand units, and Integrated Team of Batam City has also mentioned 50 thousand units. In total, they are scattered in 9 districts in mainland. They are Batam Kota, Batuaji, Batuampar, Bengkong, Lubukbaja, Nongsa, Sagulung, Sekupang, and Sei beduk. Out of urban districts in Batam, the greatest number of illegal houses is located in Batuaji.

### Traffic Congestion

High population size has also increased number of vehicles used by Batam people, meanwhile the roads are not sufficient to accommodate the traffic volume. This traffic congestion also occurs due to poor placement of traffic lights in congestion points. In addition, industrial growth also contributes to traffic congestion, because with the industrial growth, flows of transportation that use facilities and infrastructures become denser and cause congestion.

### Clean Water Crisis

Batam faces clean water crisis because the storage capacity of reservoirs in Batam is no longer sufficient. Reservoirs in Batam can only supply clean water for about one million people, while the quantity of raw water in Batam is dependent on rainfall stored in 5 reservoirs, *e.g.*, Duriangkang Reservoir, Muka Kuning Reservoir, Nongsa Reservoir, Sei Ladi Reservoir, and Sei Harapan Reservoir. Without revitalization efforts, quantity of raw water in Batam is estimated to only last until 2020.

This condition is worsened by poor condition of other reservoirs. Hot weather,

low rainfall, public consumption of water, and population growth have also contributed to the increasingly limited raw water resources. Moreover, environmental damage in water catchment areas around the reservoirs has also worsened. This indicates that water crisis still haunts Batam. Therefore, synergy between all parties is needed to manage this.

### Accumulation of Waste

Population growth is not followed by better waste management, which has resulted in accumulation of waste in Batam. Waste volume in Batam has reached 600 to 700 tons per day, but the waste management is not sufficient to overcome this waste problem. A study has found that in Tiruchirappalli district, India, the MSW generation is about 400–600 tons per day and it is served by an open dumping site located 12 km from the city (24). Household waste that is not transported has increasingly piled up. This condition can be seen clearly in Batuaji, Tanjung Pantun, and Bengkong. The areas are dirty and rivers are full of waste. Industrial waste has also undeniably flooded Batam, from paper waste to other waste products (25).

### Potential Loss of Local Ethnic Values

The openness of the Riau Islands Malay culture can accommodate the differences between its elements to live together. Batam bases its values on Malay culture and upholds *Bhinneka Tunggal Ika* (unity in diversity) in running the economic, socio-political, and cultural activities in society (25). However, domination of in-migrants, which number is more than 80% of population, potentially causes the loss of local ethnic cultural values in Batam, namely Malay.

The entry of many cultures and ethnics to Batam has slowly eroded Malay culture values in Batam, for example, language. Despite the fact that Malay language is the standard variety for Indonesian language, there are differences in dialects or sub-dialects which have

slowly eroded with the entry of migrants. Similarly, the written Malay alphabets, and other cultural values, have also been rarely used.

#### Ethnic Conflicts

With so many migrants in Batam from other regions, which definitely have their own culture and ethnic, it is highly possible to cause inter-ethnic conflicts. Ethnic conflict once happened in Batam in 2000. There had been inter-ethnic conflict, a clash between two different ethnic groups in Simpang Dam Sungai Ladi-Muka Kuning, Batam, causing several injuries. Although the conflict eventually could be controlled, it has caused anxiety and worry in the community around the scene. The more migrants and lower economic growth in Batam, potential conflict between ethnic groups has increased in Batam. This needs to be addressed and anticipated by the authorities through preventive efforts.

#### Potential Increase in Criminality

The increase in population size without the increase in economic growth, moreover with the trend of decrease in economic growth in recent years in Batam, has caused many employees/labors to be laid off. This leads to the increase in the number of unemployed people. As many businesses close and employees/labors are laid off, the increase in unemployment may result in the potential increase in crime rate. Medcom.id recorded that: "Crime rate in Batam increased 2.27% in 2015. This is the highest compared to other regions in Riau Islands. Fraud is the most common crime.

This high crime rate makes businesses uneasy to invest in Batam". The same media also mentioned that during the 2015 Operation Ketupat, the most crime cases were motorcycle theft (11 cases) out of total 22 crime cases. A year before, there were only 8 cases for this crime. Meanwhile, the most crime-prone region was Barelang Precinct Police. This problem requires serious handling for

better community welfare. Authorities need to address and anticipate through preventive efforts.

Population problems above arise as the consequences of the high population growth rate that definitely result in many changes in social order (26,27). The high increase in population size requires many elements to be ready to meet the increasing public needs, like the housing availability, better citizenship administration services, infrastructure availability, and better waste management to handle its increasing volume resulting from the increasing production, as well as to maintain social order and security.

Therefore, the dynamic of population growth is affected by the growth of economy, employment, poverty, and availability of physical (infrastructure for development), natural, (silviculture, water, etc.), and human (health, education, skill) resources (28).

## CONCLUSIONS AND SUGGESTIONS

### Conclusion

Population growth rate in Batam has always increased from year to year, but began to decrease since 2013 due to decline in economic growth. In other words, population growth in Batam follows the economic growth. Referring to demographic transition theory, Batam tends to be in the third stage, the late expanding stage, with characteristics of declining mortality and fertility rates, advances in education, and the declining population growth.

The decrease in population growth rate in Batam is more due to the decrease in the number of in-migrants and the increase in the number of out-migrants as the consequences of the decrease in economic growth resulting from weaker industry in recent years. The high population growth rate in Batam is due to the high number of in-migrants which contributes about 65% to the total increase of population size. Another factor is the high birth rate which contributes about

35% to the total increase of population size, because most migrants are in their productive age.

Population problems as the consequences of the high population growth in Batam are citizenship status, citizenship administration services, illegal housing, traffic congestion, clean water crisis, accumulation of waste, potential loss of local ethnic values, potential ethnic conflicts, and potential increase in crime rate. These conditions require attention and serious handling from Batam government for better community welfare.

### Suggestion

It is recommended to population problems addressed through: improving the role of *Kampung Keluarga Berkualitas* (Quality family village) as a program to reduce fertility rates, control illegal houses, re-collect demographic data, and improve citizenship administration services, improve the infrastructure availability according to population growth, manage waste to handle its increasing volume, maintain social order and security in plural society.

It is also recommended for the next research to study the phenomena of migration of workers in Batam and the effectiveness of *Kampung Keluarga Berkualitas* (Quality Family Village) program in reducing high fertility rate in Batam.

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