



UNIVERSITI
TEKNOLOGI
MARA

F|S|P|U
FACULTY OF ARCHITECTURE,
PLANNING AND SURVEYING

FULL PAPER
PROCEEDING



3RD UNDERGRADUATE
S E M I N A R
BUILT ENVIRONMENT & TECHNOLOGY

SEPTEMBER
2018

ISBN 978-967-5741-67-8

FACULTY OF ARCHITECTURE, PLANNING & SURVEYING
UNIVERSITI TEKNOLOGI MARA PERAK BRANCH
SERI ISKANDAR CAMPUS

UiTM PERAK @ *Seri Iskandar*

SOCIAL IMPACT OF LAND RECLAMATION AT SERI TANJUNG PINANG, PULAU PINANG, MALAYSIA

Nur Syaza Nadhirah Binti Musa¹ and Syed Ahmad Qusoiri Bin Syed Abdul Karim²

^{1,2} Department of Quantity Surveying, Faculty of Architecture Planning and Surveying, Universiti
Teknologi MARA, (Perak), 32610, Perak

Email: syazanadhirah1412@gmail.com¹, syeda896@perak.uitm.edu.my²

Abstract:

Reclaiming land is one of the easiest solution to solve the problem of lack of land to be developed. Changes of coastline will give impact on socio-economic development of local communities such as people's income sources. Resident's quality of life reside near the reclaimed area will also decline. Land reclamation activity has contributed to the decrease of fish's catch thus reducing fisherman's income resulting to low quality of life of people. Therefore in this paper the aim is on analyzing the perspective of residents towards land reclamation. The objectives are to determine the factors affecting land reclamation activities towards the residents, to signify the effects of land reclamation towards the residents of Seri Tanjung Pinang, Pulau Pinang and to identify the solutions towards the residents to improve their quality of life. In order to achieve the objectives stated, the methodology being used for this study is through semi-structured interview. Data received will be analyzed using Atlas.ti8 software to get the results. First of all, the researcher carried out a thorough literature review using past published books, magazines, journals and internet. Then interviews were carried out and 12 respondents were being interviewed to collect the required data. It is recommended that the coastal reclamation process on the approval part should consider any temporary and permanent negative impact to the local community.

Keywords: Land reclamation; Social impact; Quality of life; Pulau Pinang; Malaysia

1.0 INTRODUCTION

As stated by Nadzir. N et al. (2014) land reclamation means transforming the sea area and develop it to become a new land. The main purpose of reclaimed land is to make a new development on the area. It is being done since there is an increase in demand for developing the area and the land supply cannot cater the needs. Therefore, land reclamation is being done to solve the problem.

Pulau Pinang is located on the north-west coast of Peninsular Malaysia (Ramly, 2008). Pulau Pinang has experienced rapid development as a result of positive economical growth. The demand of development and infrastructure has increased accordingly with the population growth in the state. Seri Tanjung Pinang's land reclamation consists of 2 phases. Phase I is has completed with the mixed development project while Phase II is still at its early stage of construction. Construction of phase II has now begun which will see a significant amount of land reclaimed off the northeast coast (Tanjung Pinang Development Sdn Bhd (TPD), 2016).

1.1 Problem Statement

About 44% of the world's population lives within 150 kilometres from the coastline (Abd Maulud & Benson, 2015). Population expansion and industrialization are the two main factors that have contributed to the rapid growth of any coastal cities, resulting in an escalating demand for prime land (Rahim & Ziauddin, 2012). Thus, when land reclamation is being done, resident's quality of life reside near the reclaimed area will be decreasing Nadzir et al. (2014) stated that it will affect the society nearby when their area easily being flooded when the up-tide is high, and the wave is strong. Land reclamation activity has contributed to the decrease of fish's catch and reducing fisherman's income resulting to low quality of life of people. This statement can be supported by Hassan & Rahmat (2016)

that stated the changes of coastline will give impact on socio-economic development of local communities such as people's income sources. Ramly (2008) also mentioned that the land reclamation is expected to give impact towards the coastal hydraulics, environment, and ecosystems.

Reduction in quantity of fishes may be caused by reclamation activity and statement are supported by Wang, Liu, Li & Su (2014). They emphasized that reclamation development may result in many serious environmental problems, including loss of biodiversity and depletion of fishery resources. Thus, the reduction in quantity of fish catchment by the fisherman, has reduced their income and requires them to do other side works to support their life. According to Hoon (2006) developer's selfishness in reclaiming land has threatened the natural coastal ecosystem thus effecting social life of the community.

Another issues being highlighted by Priyandes&Majid (2009) are that the reclamation material not only disturbs fisheries activities, reclamation projects may also causing changes in the habitat of the flora and fauna especially mangrove forests, resulting in the reduction of flora and fauna biodiversity and changes in community structures as been mentioned by Wang, et al.,(2014). It can be concluded that the development of Seri Tanjung Pinang had first caused an environmental problem thus giving effect towards the community quality of life. Therefore, the aim of this research is to analyze the perspective of residents towards land reclamation at Seri Tanjung Pinang. The research objectives of this study are as below:

- i. To determine the factors affecting residents cause by land reclamation activity.
- ii. To signify the effects of land reclamation towards the residents of Seri Tanjung Pinang, Pulau Pinang.
- iii. To determine the solutions towards the residents to improve their quality of life

2.0 LITERATURE REVIEW

2.1 Land reclamation

Land reclamation can be described as creation of new land where there was once water (Nadzir et al., 2014). Reclamation can also be understood as any work or project carried out for reclaiming land from the sea bed or foreshore so that it may be used for dry land purposes (Hoon, 2006). Land reclamation can be concluded as an activity for reclaiming land from the sea bed that include dredging and conversion of coastal land for the purpose of human usage such as industrial and housing industry, aquaculture and agriculture activities, tourist resorts and other activity that may disturb socio economy and environment.

More than one-third of the world's population lives in coastal areas, which represent only for just 4% of the Earth's total land area and provides an unbalanced number of ecosystem services. In Malaysia, the coastline area is been used excessively for socio economics activities such as urbanization, agriculture, fisheries, aquaculture, oil and gas exploitation, transportation and communication and recreation (Rahim & Ziauddin, 2012).

2.2 Impacts of coastal land reclamation

Nadzir et al., (2014) stated the development of land reclamation projects had been the reason of environmental impact, thus affecting population's quality of life. According to Hassan & Rahmat, (2016), continuous shoreline change will affect the socio-economic population. They also stressed out that sources of income of residents involve with the land reclamation will change from natural sources to other sources such as businesses, and service. Before land reclamation happens, they depend on natural sources of income such as marine productivity and farming, but now they need to change to other sources of income (Hassan & Rahmat, 2016). As reclaiming works happened, the tides around and nearby the reclaimed area appeared to change drastically. As the reclamation works go on, eventually the shoreline along the beach became reduced into a muddy coastal swamp (Hassan & Rahmat, 2016). Therefore, faulty smell has become a new issue among the users that living nearby

(Ramly, 2008). Beach erosion may take place as dynamic equilibrium disrupted (Hassan & Rahmat, 2016).

3.0 METHODOLOGY

A study based on semi-structured interview was carried out. Previous research suggested 5 to 25 and at least six respondents for phenomenological studies. There are no specific rules when determining an appropriate sample size in qualitative research. Qualitative sample size may best determine by the time allotted, resources available, and study objectives. 12 respondents are selected to be interviewed. This research attention was drawn to analyze the perspective of residents towards land reclamation at Seri Tanjung Pinang as the basis of carrying out the interview. After data has been gathered based on interview sessions carried out, data gained will be content analyzed. For the last stage, conclusion and recommendation will be made based on the result of the data analysis. At the end, objective is achieved based on information and data required in completing this study.

The scope of this paper is concentrated at Seri Tanjung Pinang, Georgetown, Pulau Pinang. The significance of choosing this area is because of the rapid development of reclaiming land to become human settlement. Major land reclamation adjacent to Pulau Pinang has also been actively pursued for new growth centres and mixed developments (Talhar & Wong, 2015). Interview session will be held in order to get information about the impacts of reclamation land towards the community. Therefore, a total of 12 respondents are carefully selected based on the following criteria;

- i. Residents living near the reclamation land area at Seri Tanjung Pinang
- ii. Fisherman that are affected by land reclamation activity
- iii. Tourists that staying in the hotel nearby the reclamation land activity
- iv. NGOs that involved in creating awareness regarding land reclamation such as Penang Consumer Association (CAP) and Sahabat Alam Malaysia (SAM)

4.0 ANALYSIS AND FINDINGS

All the interview session with each of the respondent were conducted in a friendly, cooperative manner. 8 out of 12 respondents are female while another 4 are male; 4 respondents in between 20 and 24 years old, 6 respondents in between 26 to 53 years old and 2 respondents in between 55 to 58 years old.

4.1 General knowledge

The purpose of the semi-structured interview was to identify related themes during the interpretation process that would contribute towards the development of an appropriate instrument for the quantitative phase of this research. According to the analyzed data, 97% agreed that they know regarding the land reclamation, while another 3% did not aware of the project. According to the collected and analysed data, most of the respondent have an idea about land reclamation and how much it giving impact to their life.

4.2 Factors affecting quality of life of residents

This section main target is to identify the factors contributing towards land reclamation activity towards the residents. From the interview carry out, R5 stated that "Creation of more well develop facilities can attract more people to stay at the area. Job opportunity are being created and it helps all the graduates to be employed within short period of time...". Nadzir et al. (2014) contributes that resident should have the opportunity to work in the developed area thus increasing the quality of life of the resident. Another respondent, R6 responds that the needs to improve an area influence the factors contributing towards land reclamation. "In order to improve our quality of life, we need a proper development to develop the area, but developer need to make sure there is less negative impact towards the resident...". Therefore, given the fact that Pulau Pinang is a small island, future rapid development of all kinds will inevitably lead to greater demands for land (Ngai Weng Chan, 1998).

4.3 Effect of the land reclamation towards quality of life of the residents

This section main purpose is to analyze the effect of the land reclamation towards quality of life of the residents. According to collected data, 9 respondents has agreed that environmental problem are the issues due to land reclamation activity. R2 stated that, "Pollution leads to health issues such as asthma and other respiratory disease. Pity all the kids playing with dust every single day.". Another respondent R5 responds, "The effects of land reclamation activity are the pollutions such as noise and smell pollution that occur during the reclamation work happened.....". Patz et al. (2004) also stressed on the loss of wetland which works as air filtration could cause a problem to public health and increase disease spreading such as water borne disease (Shashank, 2004).

Quality of life of the resident are greatly affected due to the ongoing land reclamation project. Respondent R1 stated that "Residents might experience stress due to traffic congestion and pollution happen here....". Another respondent, R2 added that "Congestion happens almost every day. I am stuck in the traffic also every day and during weekends, traffic are double. I see no action taken by the local authority or other party that involved....". Traffic congestion has contributed to environmental deterioration, mostly worsening air quality caused by pollution from automotive emission. Another respondent, R3 say that "Those who works as fishermen near the reclaimed land is greatly affected. Their incomes are depending on the catch of fish or other seafood available around the area. Thus, the price of seafood is expensive and a little bit affecting our daily life...". R12 also added that "Fisherman need longer trawl thus increasing their initial cost. This is because of the area of fish catchment being increase to 5 ft. Nautica from 1 ft. Nautica since the reclaimed area previously are their location to catch fish...". Priyandes & Majid (2009) had reported that reclamation activities had changed the environment and reducing income of fishermen, forcing them to switch to other professions such as becoming tradesmen, laborers, and farmers.

4.4 Solution to improve quality of life

The responds gained from the respondents regarding the solution is being deeply analyzed. From the interview, 2 respondents responded that there is no solution to the problem arises. R11 stated that, "...I have been protesting to stop the project but they still doing it. There is no benefit gain by the local residents due to the project, but the government may be getting more profit by doing the project rather than not doing anything to the land...the main question here is, development is from whom?..". As mentioned by Nadzir et al. (2014), it is almost impossible to ensure that the resident would not be affected at all by reclamation activities. He also stated that the necessity of two-way process helps in understanding the issues on communities' side, developer and authority interest which can avoid any dispute. Another respondent R7 responded "Create a park in the city where there is still a place of recreation or leisure that can be done to create a healthier lifestyle...". Nadzir et al. (2014) suggested that the development of certain area had caused an environmental problem thus, affected community quality of life.

5.0 CONCLUSION

This paper discussed regarding the factors affecting quality of life of residents. From the interview, respondents agreed that the factor of creating better developed facilities is one of the factor. This statement is fully supported by Nadzir et al. (2014) and in accordance to Hassan & Rahmat, (2016), they suggested that the needs to improve an area are one of the factors contributing towards land reclamation. The needs for improvement of the area is no doubt the reason behind the increasing demand for larger scale land reclamation to be developed. Land reclamation generates not only physical and environmental effects, but also social and cultural consequences. The second objective are the effect of land reclamation towards the lifestyle of the resident. From the interview, respondents are having more negative perceptions regarding the land reclamation project. The effect of land reclamation has been analysed and the result is increasing environmental problem and have significant correlation towards the lifestyle of resident. Priyandes and Majid (2009) and Nadzir et al. (2014)

agreed the reclamation materials and pollutants generated during the reclamation activities, pollute the marine environment. The study also show the solution for the problem and create a park in the city so that there is instant reduction in pollution. As mentioned by Nadzir et al. (2014) a policy on land reclamation should be proposed and must be applied not only to protect the natural environment from being ruined but also to the nearby resident. As we depend on the environment, we should regard it as need and act wisely in relation to the management of the valuable natural and physical environment.

REFERENCES

- Abd Maulud, K.N., & Benson, Y., (2015). Aplikasi GIS Dalam Pengesanan Kenaikan Aras Laut dan Impaknya Kepada Perubahan Pantai. *Buletin GIS*, Volume 1/2015, pp. 1 – 12.
- Hassan, M., & Rahmat, N. (2016). The Effect of Coastline Changes To Local Community's Social-Economic. *Proceedings of International Conference on Geomatic and Geospatial Technology*, Volume 42 (4), pp. 25-36
- Hoon, C. (2006). Impact of coastal reclamation on environment casestudy: Danga bay, Johor [Master Thesis]. Universiti Sains Malaysia, Malaysia.
- Nadzir, N. M., Ibrahim, M., & Mansor, M. (2014). Impacts of coastal reclamation to the quality of life: Tanjung Tokong community, Pulau Pinang. *Procedia-Social and Behavioral Sciences*, Volume 153, pp. 159-168
- Ngai Weng Chan (1998). Environmental hazards associated with hill land development in Pulau Pinang, Malaysia: some recommendations on effective management. *Disaster Prevention and Management: An International Journal*, Vol. 7(4), pp.305-318, <https://doi.org/10.1108/09653569810230148>.
- Patz, J. A., Daszak, P., Tabor, G. M., Aguirre, A. A., Pearl, M., Epstein, J., ... & Bradley, D. J. (2004). Unhealthy landscapes: policy recommendations on land use change and infectious disease emergence. *Environmental health perspectives*, Vol. 112(10), pp.1092.
- Priyandes, A., & Majid, M. (2009). Impact of reclamation activities on the environment case study: reclamation in northern coast of Batam. *Jurnal Alam Bina*, Vol. 15(1), pp. 21-34
- Rahim, A., & Ziauddin, A. (2012). Overview of coastal reclamation projects in Malaysia. Retrieved from <http://jps.vox10.com/jps/resources/auto%20download%20images/5844e31c1a57f.pdf>. (Accessed on May 28, 2017)
- Ramly, S. (2008). Impact on the coastal areas of the TanjungTokong Land Reclamation Project, Pulau Pinang, Malaysia-Effects on wave transformation, sediment transport, and coastal evolution, *Division of Water Resources Engineering, Department of Building and Environmental Technology of Lund University*.
- Shashank, P. (2004). Arsenic Biosand Filter: “Study on The Effect of Air Space Between The Resting Water And The Diffuser Basin On Arsenic Removal And Determination Of General Flow Curve” (A Case Study Of Nawalparasi District, Tilakpur V.D.C.). (Bachelor degree Thesis). Kathmandu University, India.
- Tanjung Pinang Development SdnBhd (TPD), 2003, Tanjung Pinang Development Land Reclamation Project – Phase 2, Coastal Engineering and Hydraulic Study, Dr. Nik & Associates Sdn Bhd, Kuala Lumpur.
- Wang, W., Liu, H., Li, Y., & Su, J. (2014). Ocean & coastal management development and management of land reclamation in China. *Ocean and Coastal Management*, Vol. 1(11), pp. 1-11