Impact of Physical Characteristics of Brgy. 37 Seawall Reclamation Area Tacloban City on People's Livelihoods: An Analysis

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Abstract

This research is about the effect of the physical characteristics of the said area. This research was conducted to find out the effect of physical characteristics on the livelihood of people according to geographical location, topography, and weather conditions. The researcher used a questionnaire or survey questionnaire as the main instrument in collecting data where the respondents were from Brgy.37 Seawall Reclamation Area of Tacloban City with a total number of fifteen (15). The total number of respondents was determined using the table by Krejcie and Morgan (1970). Meanwhile, in determining the respondents, the Quota Sampling technique was used and the research design was cross-sectional survey design. The researcher found that the residents of the said area agreed on the effect of the geographical location on their lifestyle. This research also revealed that the residents agreed on the effect of topography on their lifestyle because income decreases, fishing and product commerce are delayed but the rest of the items were strongly agreed. In the items regarding weather conditions, most residents agreed that they affect their lives. A good intervention in this research would be to focus on the various physical characteristics of a place to determine its impact on people's lives, especially its identity or culture.

Keywords: physical characteristics; geograpical location; topography; weather conditions

1. Introduction

1.1. Background

Tacloban City is a highly urbanized city in the province of Leyte. It is the largest city by population (Philippine Statistics Authority, 2020). According to the Asian Institute of Management Policy Center (2010), Tacloban is the fifth most competitive city in the Philippines, and in the 2020 DTI Ranking of Highly Urbanized Cities, Tacloban is ranked sixth among the most developed cities in the Philippines. The city has 138 barangays whose language is Waray-Waray and is officially called Lineyte-Samarnon.

According to the study Zafra (2019), due to its ideal port location, Tacloban has become a major trading point between the provinces of Leyte and Samar with a long deepwater wharf, a bulk petroleum depot, and an airport. Abaca, copra, and tabla are exported, and commercial fishing is important. The original land area of Tacloban was 10,297.29 hectares but a survey revealed that a particular part of the municipality of Babatngon is actually part of Tacloban City where Barangay Sta. Elena in the northern part of Tacloban adjacent to the Municipality of Babatngon increased the land area by 556 hectares (Bureau of Lands, 1977).

Based on a study conducted by Peregrino et al. Salindaw (2002), each province and region in the Philippines has its own resources, not only language resources, but also human resources which are one of the most important factors of the country's labor force and development. There are resources that are unique sources of livelihood for the inhabitants of Tacloban such as land resources, water resources, and forest resources. Da Rosa (2017) added that economic terms vary depending on cultural and geographical location (part of which is the economic state of the area and the environmental or availability of raw material sources for the people living there).

On the other hand, economic activity refers to the work, profession or role of a person to earn, benefit, and live from the product or service he or she produces. It consists of the capabilities, resources (including those material and social

benefits), strategies and activities necessary for survival (Chambers and Conway, 2018).

Topography is a science that deals with the study of the physical characteristics or surface features of an area or country (Swetnam et al., 2017). Meanwhile, physical geography, on the other hand, studies various natural processes and events that occur inside and outside our world. This is where the study of land, oceans or water bodies, kilima and other things related to the physical form of the world comes in (Banin et al., 2012). By studying this, one can understand how climate and location influence people's lives.

According to Paul Krugman (2012), the livelihoods of people in Tacloban are fishing, farming, raising livestock and trading. Accordingly, based on an article in the newspaper Balita Online (2018), there is a new study published at the same time as the United Nations climate conference begins in Paris. According to them, the expected future horrors are increasing; the risk of extreme global warming may affect the lives of people living in Tacloban. Looking at these changes that are occurring around the world, it is clear that global warming is not making gradual changes to the environment, rather the changes it is causing to the world are very rapid and clear.

In this research, attention is paid to the effects and important aspects that have not been identified in previous research, studying the various effects on human life regarding the physical characteristics of the area according to geographical location, topography and weather conditions. The research is similar to previous research but different in the scope and purpose of the research.

This research is important in the current study system, and in future times. The physical characteristics in this research refer to the lifestyles, climate, topography of an area. This can help to know and understand what effects and types of lifestyles people have on those who need attention, guidance and support. Likewise, the results can be used to develop other programs that will meet the needs of each person and be the basis for preparing the study. This research can be used to address the impacts on people's lifestyles based on the physical characteristics of an area.

1.2. Objectives of the Study

This study aims to determine the effect of the physical characteristics of Brgy 37. Seawall Reclamation Area Tacloban City.

The following are the questions that will serve as a guide in this study:

1. What is the effect of physical characteristics on people's lives according to:
    - 1.1 Geographical location
    - 1.2 Topography
    - 1.3 Weather conditions

1.3. Theoretical Background

In this section, the researchers discuss the theories used in the study. The said theories reinforce the subject, locality, and purpose of the study on the effect of physical characteristics on people's lives. First of this theory is Behavioral Theory by John B. Watson where the main focus of this theory is on human behaviour. It tries to explain how people interact with their environment. This theory paid attention to how geographical location affects people's lives.

Karl Max's Marxist Theory focuses on the struggle between the bourgeoisie and the proletariat. The bourgeoisie refers to the wealthy capitalists who own the means of production, and the proletariat refers to the poor workers who sell their labor. The theory focuses on the analysis of society where different levels of people in society and the connection between the life situation, lifestyle and fate of citizens based on the topography of the place.

Place attachment theory suggests that people have emotional relationships with specific landscapes. The field of environmental psychology defines place attachment as the binding of people to places (Altman et al., 1992). Brown Parkins (1992) further notes that place attachments are not static because they change according to changes in the people, activities or processes, and places involved. People's living in a place also has an effect based on weather conditions.

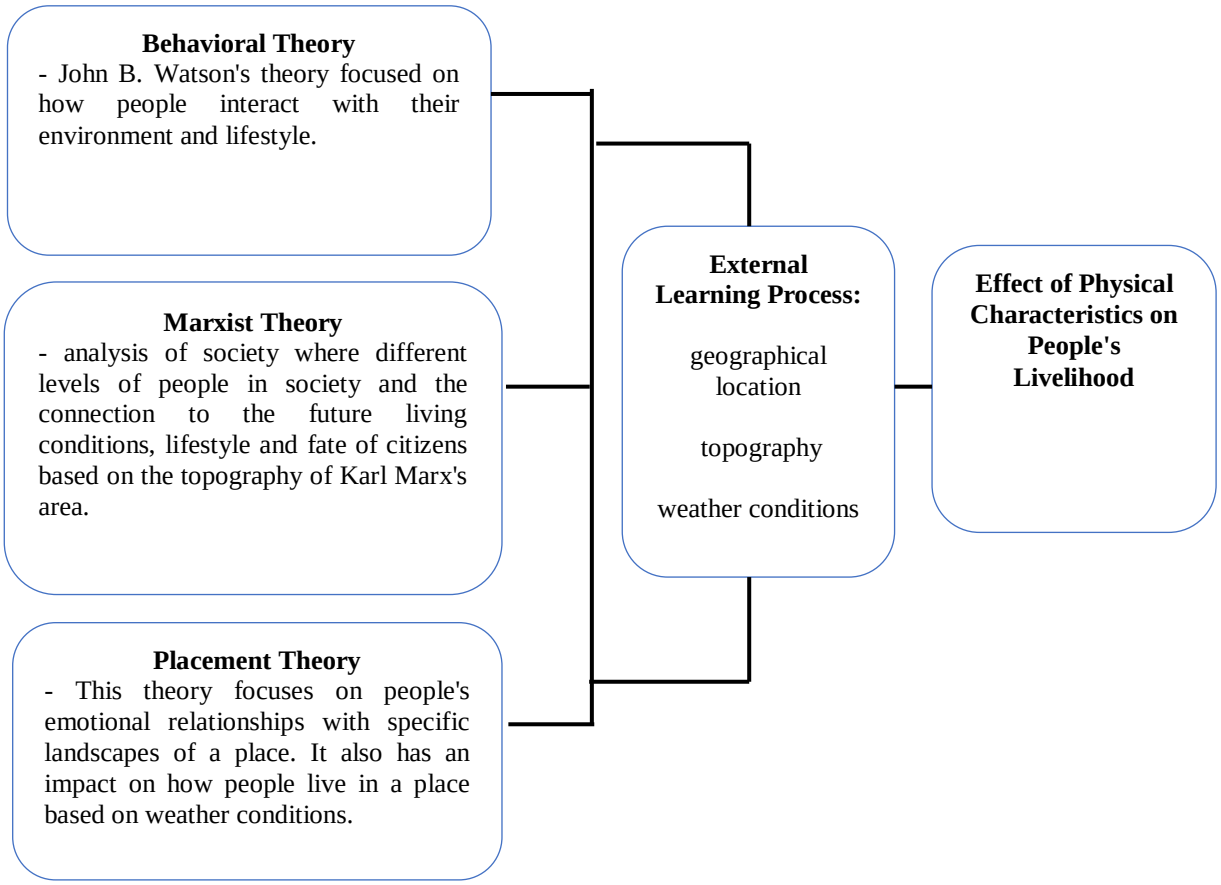

Figure 1: Conceptual Framework

In figure 1, you can see the study framework which will serve as the flow or process of the research. In the first part, you can see three boxes where this is the input that shows the theories used in the study. First of these theories is the Behavioral Theory of John B. Watson where the theory will be used to find out what the effect is on human life based on geographical location. In the second theory is the Marxist Theory of Karl Marx to know the connection of man to his environment based on the topography of a place. And the third theory is Placement Theory this theory focuses on people in emotional relationships with specific landscapes of the place which affect human life based on weather conditions. The middle part shows the process and variables of the study: geographical location, topography and weather conditions that will be given focus and attention in the study and the last part shows the output or results of the research which is the impact of physical characteristics in Brgy. 37 Seawall Reclamation Area Tacloban City.

2. Methodology

This research is a qualitative-quantitative study and used a cross-sectional survey design to determine the effect of physical characteristics on people's lives. Cross-sectional design was used in this study because in this way, respondents who fit the study can be selected.

The selected respondents in this study are selected residents of Brgy. 37 Seawall Reclamation Area Tacloban City with a total number of fifteen (15). The researchers used the Krejcie and Morgan (1970) table to obtain a sample size with a total number of fourteen (14). The Krejcie and Morgan (1970) table was developed to make it easier for researchers to determine the sample size for the study. Meanwhile, in determining the respondents, the researcher used the Quota Sampling technique to ensure that the study was conducted equally among the residents of Brgy. 37 Seawall Reclamation Area Tacloban City.

The researcher used a questionnaire or survey questionnaire as the main instrument in collecting data that can be used in the study. The researcher used the Likert Scale by Likert (1932) whose usual choice is five to seven ordered choices. This questionnaire has a section about the effect of physical characteristics on people's lives which consists of the following.

In this section, the external learning process of selected residents will be determined. First (1) is the geographical location such as land, ocean or water bodies, climate and others related to the physical form of the place. Second (2) is the topography which refers to the physical form of a place including the shape, position and height of the land, and the third (3) is the weather condition which refers to the usual weather conditions or atmospheric conditions in a particular region or place.

The questions or the content of the survey questionnaire used in this research are as used in previous studies by Khan and Jumani (2010) and Fitri (2020). Data collection was through a Likert Scale where the question used has five parts: (5) for strongly agree, (4) for agree, (3) for unsure, and (2) for disagree, and (1) for strongly disagree

3. Results and Discussion

This section presents the analysis and interpretation of data based on the survey conducted on the impact of the physical characteristics of Brgy. 37 Seawall Reclamation Area Tacloban City. The table is divided into three (3) sections for the presentation and interpretation of data.

Table 1. Geographical Location

	Statements	Mean	Interpretation
1.	Being close to the sea contributes greatly to having an abundant catch of fish.	5	Strongly agree
2.	The livelihood of the people is not significantly affected by the type of climate in the area except during the rainy season which causes flooding in the barangay	4.6	Agree
3.	Strong storms or hurricanes cause flooding and extensive damage to people's lives, property, and livelihoods because the area is close to the sea.	5	Strongly agree
4.	The occupation of people living by the sea is fishing or selling fish.	4.6	Agree
5.	People's lives are better developed because of its public space.	0.3	Strongly disagree
	Total	**3.9**	**Agree**

Table 1 shows the items that indicate the attitudes of the respondents regarding Geographical Location. Four (4) items indicate agreement, while one (1) indicates that the respondents strongly disagree. It can be seen that the item “People’s lives are better because of its public space.” has the lowest mean indicating strong disagreement. The items with the lowest mean were “The livelihood of people is not significantly affected by the type of climate in the area except during the rainy season which causes flooding in the barangay” and “The occupation of people living by the sea is fishing or selling fish” which were both agreed upon. The two items “Being close to the sea has a great contribution to having an abundant catch of fish” and “Strong typhoons or storms cause floods and excessive damage to people’s lives, property and livelihoods because the area is close to the sea” both obtained the highest mean which means that they were strongly agreed upon. The total mean of the Geographical Location factor was 3.9 which indicates that respondents agreed with the items stated here.

This result is comparable and linked to the study by Simmance (2022), which found that households living close to small-scale fisheries (average distance 2.7 km) were more likely to achieve food security and have higher incomes, suggesting that proximity positively contributes to the benefits of fisheries and overall well-being. On the other hand, Wang and Tan (2024) also found that heavy rainfall resulted in more localised damage, highlighting the vulnerabilities of communities, especially the elderly, in coastal regions during such events.

Table 2. Topography

	Statements	Mean	Interpretation
1.	Due to urbanization, the natural landscape of the area is changing, causing flooding and landslides.	4	Agree
2.	The temperature or climate is cooler in areas near the sea.	4.3	Agree
3.	Strong waves and winds caused by bad weather pose serious risks to fishing or livelihoods.	5	Strongly agree
4.	The climate in the area is moderate due to winds from the ocean surrounding the archipelago.	1.3	Strongly disagree
5.	Transportation, communication, and sales are fast because the area is in the city.	5	Strongly agree
	Total	**3.9**	**Agree**

Table 2 shows the items that indicate the respondents' attitudes about Topography. The total reaction of the respondents had a mean of 3.9 which means they agree. The item that got the smallest mean which means they strongly disagree was “The climate in the area is moderate due to the wind from the ocean surrounding the archipelago.” The two items “The strong waves and wind caused by bad weather pose a serious risk to fishing or living.” and “Transportation, communication and sales are fast because the area is in the city.” both got the highest mean which means the respondents strongly agree with it.

This result is similar to the study by Noy (2023), where the paper highlights that tropical storms have a significant impact on fishing activities in the Philippines, causing a reduction in active fishing vessels and commercial production, particularly in areas such as the Sibuyan Sea and the Visayan Sea, due to strong waves and winds. On the other hand, when the area is close to the city, this is supported by the study by Bayon (2023), which focuses on the impact of transportation on labor productivity in metropolitan areas of the Philippines, highlighting how efficient transportation facilitates trade in crowded urban environments.

Table 3. Weather conditions

	Statements	Mean	Interpretation
1.	Strong winds help various plants and their fruits bloom.	4.3	Agree
2.	When the weather is bad or rainy, fishing will be affected.	4.6	Agree
3.	High winds and heavy rains cause crop destruction, reduced soil fertility, reduced agricultural productivity through severe flooding, and landslides.	5	Strongly agree
4.	If the weather is very hot, there will be more buyers or profit from the product.	2.6	Strongly disagree
5.	Frequent rainfall in an area lowers or increases the price of goods.	3.3	Uncertain
	Total	**3.9**	**Agree**

Table 3 shows the items that indicate the respondents’ attitudes about Weather Conditions. It can be seen from the table that the item “Frequent rain in the area lowers or increases the price of goods” which obtained a mean of 3.3 indicates uncertainty from the respondents’ answers. The item “If the weather is too hot, there are more buyers or profits from the goods.” obtained the smallest mean of 2.6 which means disagree. The item “High winds and heavy rains cause crop destruction, reduced soil fertility, reduced agricultural productivity through severe flooding, and landslides.” obtained the largest mean of 5 which means that the respondents strongly agree with it.

Their response is supported by a study by Acosta (2016), which investigated the loss and damage from typhoon-induced floods and landslides in the Philippines, showing how strong winds and heavy rainfall lead to crop damage, reduced soil fertility, and decreased agricultural productivity, particularly in affected communities. In addition, a study by Israel (2013) highlights those typhoons and heavy rainfall have a significant impact on agricultural productivity, particularly rice production, and contribute to soil erosion and decreased soil fertility.

4. Conclusion and recommendation

4.1. Conclusion

Based on the findings of the researchers from the results of the data collected from the respondents, this study proved the following:

- Geographical location has a great impact on the livelihood of those living in a particular area with a total mean of 3.9. If the area is near the sea, it is certain that their livelihood is fishing. Maybe the people who live here go out to catch fish, or maybe they sell fish. If the wind gets stronger or if there is a storm, their lifestyle is also greatly affected because they cannot catch fish and have nothing to sell. This is also because the waves are strong and they are prohibited from going out for their safety.
- Topography also has an effect on their livelihood, which was agreed by most residents who got a mean of 3.9. The area where people live have a great relationship with their work or lifestyle. If near the sea, fishing is the livelihood. If in the fields, farming. But even if near the sea and there is a small space that can be planted, they can grow vegetables as a source of food, especially if the wind gets stronger and they cannot fish. Having changes in their area such as landscaping also has an effect. Also, from the result if the area is near the city, their transportation of products is easier because the market is close and there are many rides.
- The weather conditions for those living near the sea also have an effect on their lives. Frequent rains and strong winds affect fishing and the sale of fish decreases. This not only affects fishermen but also those who farm or grow crops. Where crops are damaged, their profits and yields are not good.

4.2. Recommendation

Based on the conclusions of the study, the researchers recommended the following:

1) For the Barangay Officials, pay attention to the physical characteristics of the area to provide information to the residents and be aware of what kind of lifestyle can be a livelihood that can help them in their daily lives.
2) For the residents, try to be united during calamities, especially when there is a typhoon that affects livelihood. Be aware of the physical characteristics of the area such as geographical location, topography and weather conditions so as not to have difficulty in what kind of lifestyle can be adapted or turned into work or income.
3) For historians, conduct local research such as in the said area that will help in the development, prosperity and identity the people according to their livelihood and culture as well as the history of the area.
4) For the researchers, it is appropriate to continue the findings of the effects of physical characteristics on the life of people in the said area. Expand the scope of the study in order to provide and develop more useful and effective solution to address the problem.

5. Bibliography

Acosta, L., Eugenio, E., Macandog, P.B., Magcale-Macandog, D., Kuan Hui Lin, E., Abucay, E., Alfi, Lorenz, Cura., Mary, Grace, Primavera. (2016). Loss and damage from typhoon-induced floods and landslides in the Philippines: community perceptions on climate impacts and adaptation options. International Journal of Global Warming, 9(1):33-65. doi: 10.1504/IJGW.2016.074307

Altman, G. at Gimblett, K. (1992). "Culture Ingested on the Indigenization of Philippine Food." *Gastronomica Winter* vol. 1, no. 1 (2003): 58-71. *ResearchGate*. Web. 11

Asian Institute of Management Policy Center (2010). Retrieved from: https://artsandculture.google.com/entity/tacloban-city/m037wbd?hl=en

Bayon, K.M., Arrenkiel, J., Ceñido, P., Camaro, J. (2023). Analysis on the Impact of Transportation on Labor Productivity in Metropolitan Business Hubs in the Philippines. International Journal of Research Publication and Reviews, doi: 10.55248/gengpi.4.1223.123418

Bureau of Lands. (1997). Does distance still matter? The information revolution in small business lending. The Journal of Finance, 57(6), 2533-2570.

Chambers, B., Conway, R. (2018). "Language and Culture." International Journal of Humanities and Social Science, 2.17 (2012): 230-235. IJHSS. Web. 19 Jan. 2019.

Da Rosa, T. (2017). Blackwell Publishing, USA, 2006. Web. 15 Dec. 2017.

Fitri, A. (2020). How Much Does Geography Influence Language Varities?. University of Groningen, n.d. Web. 4

Israel, D. & Briones, R. (2013). Impacts of Natural Disasters on Agriculture, Food Security, and Natural Resources and Environment in the Philippines. Retrieved from: https://www.eria.org/ERIA-DP-2013-15.pdf

Khan, L., Jumani, P. (2010). Research design: Qualitative, quantitative, mixed method approaches (2nd ed.). California: Sage publication.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30(3), 607–610.*

Krugman, P. (2012). "Sustainable Rural Livelihoods: Practical Concepts for t h e 2 1 st Century." Institute of Development Studies. Research Gate, 1991. Web. 8 Jan. 2018.

Likert, R. (1932). The method of constructing an attitude scale. Archives of Psychology, 140, 44-53. ABSTRACT: The praxis of public relations seems to be under threat, owing to a bad reputation among other things.

Noy, I., Lacheheb, M., Pundit, M., (2023). The Impact of Tropical Cyclones on Fishing Activities in the Philippines. Social Science Research Network, doi: 10.2139/ssrn.4531161

Parkins, B. (1992). Guidance Notes on Recovery: Livelihood. International Recovery Platform, n.d. Web. 27

Peregrino, P., Salindaw, W. (2002). "Sustainable Rural Livelihoods: Practical Concepts for t h e 2 1 st Century." Institute of Development Studies. Research Gate, 1991. Web. 8 Jan. 2018.

Philippine Statistics (2020). Retrieved from: https://psa.gov.ph/directory/eastern-visayas

Simmance, F.A., Nico, G., Funge-Smith, S. et al. (2022). Proximity to small-scale inland and coastal fisheries is associated with improved income and food security. Commun Earth Environ 3, 174. Retrieved from: https://doi.org/10.1038/s43247-022-00496-5

Swetnam, A. (2012). How Much Does Geography Influence Language Varities. University of Groningen, n.d. Web. 4 Jan. 2018.

Wang, T., & Tan, X. (2024). Typhoon disaster chain risk assessment: A model based on disaster hazard and carrier vulnerability. doi: 10.5194/egusphere-egu24-2335

Zafra, V. (2019), Financial Structure, Liquidity, and Firm Locations. NBER Working Papers No. 13660, National Bureau of Economic Research.