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## EFFECT ON REAL ESTATE INDUSTRY WITH RISING SEA LEVELS

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### ABSTRACT

Sea level rise is an ignored phenomenon but it poses a huge threat to the maritime cities throughout the world. At the current level of temperature rise, it is expected that 80% of the coastline that we know today would be different given the sea level rise. This can turn out to be a huge disaster from the perspective that the real estate worth billions would be wasted and the banking industry might as well face a problem as this real estate might have loans against it and the mortgage-backed securities would also fail if the land becomes unusable.

The research paper presents a series of arguments to prove that we at this moment must come together to protect the maritime cities and also demonstrates the economic consequences of the sea level rise.

**KEYWORDS:** real estate forecast, the environmental toll on real estate, coastal real estate, banking failure in relation to real estate crashes in coastal regions.

### INTRODUCTION

The economic activities performed by humankind in the previous centuries led to a lot of economic prosperity but acted as a huge toll on the climate and environment. The same environmental toll can now become a huge economic toll for us.

The phenomenon of sea level rise has been noticed since the beginning of the last century. This phenomenon has been an aftereffect of greenhouse emissions due to industrial activities. This poses a huge threat to the civilizations situated on the coastlines.

Real Estate is one of the biggest industries in the world and is also considered to be one of the safest assets for investments by firms and individuals.

The real estate industry of a specific region largely depends on the livability and usability of the land being considered.

Till now our coastal cities have witnessed tremendous growth in the real estate industry but the way our coastal cities are witnessing the sea level rise, the real estate industry of these areas might see huge changes within this century.

Factors governing the real estate industry

1. **Usability of the land:** The real estate prices and industry largely depend on the use of the land. The more versatile uses a piece of land offers the more it is valued. For example, a piece of land that has good road connectivity is more valuable than a completely raw piece of land.
2. **Livability:** For the residential real estate industry, it is very important for the place to be safe and livable and all amenities should be easily available. For example, a house located in a neighborhood with high crime rates or occasional chances of flooding will be less valued in comparison to a house in a better neighborhood.
3. **Economic Opportunities:** The flow of demographics is more towards a place where better jobs and other opportunities are available in the region. This increases the demand for houses, offices, and other sorts of real estate which leads to an increase in the price of the real estate.

According to Bradford Case and John M. Quigley, the prices of the properties/rent per square feet of a property can be defined by the function,

$$V_t = f(t, x)$$

**t**= some representation of t

**x**= physical and locational characteristics

### Evolution of the Real Estate industry in Coastal Cities

Most of the metropolitan cities tend to develop near coastal regions. Most of the international trade happens by sea due to which most of the economic activities and movement of population occur in the coastal regions. This gives a huge advantage to coastal regions for development.

The general till now has remained this way. Most of the economically developed regions in all the countries throughout the world can be seen in the Coastal Regions. For example, Mumbai and Chennai in India, New York, Los Angeles and Miami in United States of America, Hong Kong, Singapore and Shanghai in China.

Big cities develop in these regions as the trade, importation and exportation, is much easily done via sea and coastal regions become suitable places for economic activity.

The Coastal cities have now become huge epicenters of real estate development. Because of the greater economic activity in these regions, the demand of housing, offices and other forms of real estate is higher in the coastal region due to which these regions become centers of valuable real estate.

### Rising Sea Level

In the last century, due to rapid urbanization and industrialization, the phenomenon of global warming has been witnessed. Global warming is the overall rise in the temperature of the earth due to the accumulation of greenhouse gases.

The average global ocean rise will rise by 20 cm with a 2-degree C warming, but more than 90% of the coastal regions would see higher rises.

If warming exceeds 2 degrees C, the sea level will be rising more quickly than at any other time in human history by 2100, and 80% of the world's coastline is predicted to rise more than the 95-percentile upper limit of 1.8 m for mean worldwide sea level rise. There will be very little time after the mid-point of the century for the coastal communities to adapt to these rises, especially rapidly growing cities in the developing world, small island states, United Nations Educational, Scientific and Cultural Organization World Heritage Sites, and other vulnerable tropical coastal ecosystems.

With a 5-degree C rise in temperature, the global sea level rise will reach 0.9 m(median) by 2100. The Following cities expect the given sea level to rise by 2100:

CITIES	EXPECTED SEA LEVEL RISE (IN METERS)
MIAMI	1.82
NEW YORK	1.09
GUANGZHOU	0.91
LAGOS	0.9

Many places also face a significant risk of sea level rise due to factors other than just climate change.

### The Problem

The sea level rise is set to continue to rise for centuries after the greenhouse emissions are stabilized due to system inertia and feedback time scales.

In the current scenario, the population in the maritime cities is increasing which is driving real estate prices higher in these regions. But this is possible only for a short period of time till when the land is inhabitable.

According to the sea level rise predictions, it is highly likely that these regions will not be able to maintain the prices of the properties as shown in the rationale given by 'Bradford Case and John M. Quigley'. When the physical characteristics of the region become uninhabitable the likely outcome is that the real estate markets of these regions might crash.

Not only does this put the valuable real estate in these regions at risk but it also poses a threat to the banking industry where these properties have been pledged and other mortgage-backed securities might fail due to the loss of real estate value.

### **The Proposal**

This research paper proposes that at the current rate of greenhouse gas emissions, the sea level rise will continue to occur even after the emissions have been stabilized so the current trend of real estate development and appreciation in the coastal regions may not be sustainable.

Therefore, this is the time when the entire global community should come together to counter climate change in order to prevent further damage. This is also a time for the government to take steps to utilize the technology and engineering skills to save the coastal regions according to the regional requirements.

Sea level rise forecasts at the regional and local levels, which might vary much from the worldwide projections, are a key factor in determining impact, risk, adaptation strategies, and long-term decision-making in coastal communities. All the policies and measures to protect the coastal regions should be in accordance to the distinct geography of the region and the expected sea level rise in the region.

### **The Conclusion**

The situation in which we are is very concerning and requires urgent attention. Not only from an environmental point of view but also from an economic standpoint. If we do not make attempts to protect the coastal regions, we might be facing an economic crisis due to the turmoil of constant shifting and failure of the current mortgages against the coastal properties.

But the current trend speaks otherwise, as people are still moving to coastal regions and the properties are appreciated without people having the complete knowledge of the issue at hand.

### **BIBLIOGRAPHY:**

[1] Jevrejeva, Svetlana, et al. "Coastal Sea Level Rise with Warming above 2 °C." *Proceedings of the National Academy of Sciences of the United States of America*, vol. 113, no. 47, 2016, pp. 13342–47. *JSTOR*, <https://www.jstor.org/stable/26472558>. Accessed 19 Mar. 2023.

[2] Rabbani, Golam, et al. "Climate Change and Sea Level Rise: Issues and Challenges for Coastal Communities in the Indian Ocean Region." *Coastal Zones and Climate Change*, edited by David Michel and Amit Pandya, Stimson Center, 2010, pp. 17–30. *JSTOR*, <http://www.jstor.org/stable/resrep10902.8>. Accessed 19 Mar. 2023.

[3] Williams, S. Jeffress. "Sea-Level Rise Implications for Coastal Regions." *Journal of Coastal Research*, 2013, pp. 184–96. *JSTOR*, <http://www.jstor.org/stable/23486512>. Accessed 19 Mar. 2023.

[4] Introduction to the Real Estate Industry - Researchgate,  
[www.researchgate.net/publication/363149781\\_Introduction\\_to\\_the\\_Real\\_Estate\\_Industry](http://www.researchgate.net/publication/363149781_Introduction_to_the_Real_Estate_Industry).  
Accessed 7 June 2023.

[5] Case, Bradford, and John M. Quigley. "The Dynamics of Real Estate Prices." *The Review of Economics and Statistics*, vol. 73, no. 1, 1991, pp. 50–58, <https://doi.org/10.2307/2109686>.

[Several studies of housing price trends recommend confining statistical analysis to repeat sales of residential properties. Recently, price indices derived from these techniques have formed the basis for inferences about the "efficiency" of housing markets. This paper presents an improved methodology which combines information on repeat sales of unchanged properties, on repeat sales of improved properties, and on single sales, all in one joint estimation. Empirical evidence, based upon a rich sample of transactions on single family houses in a single neighborhood, indicates the clear advantages of the proposed methodology, at least in one typical application.]

[6] News, UH. "Coastal Real Estate under Serious Threat Due to Climate Change." *University of Hawaii 'i System News*, 22 Oct. 2021, [www.hawaii.edu/news/2021/10/22/coastal-real-estate-future/](http://www.hawaii.edu/news/2021/10/22/coastal-real-estate-future/).

[7] Yu, Jiagen. "Real Economic Development Model of Coastal Cities Based on Point and Axis Development Theory." *Journal of Coastal Research*, 2019, pp. 791–797, <https://www.jstor.org/stable/26853355>.

[The regional particularity of the coastal city determines the direction of its economic development, and the economic development mode of the coastal city mainly focuses on the seafood culture, the coastal tourism and the foreign trade port, processing and so on. In order to quantify and analyze that economic development model of the coastal urban entity, the economic development model of the coastal urban entity based on the point-axis development theory is put forward. In this paper, the effective way to study the economic development of the coastal urban entities in the context of the innovation and driving development is studied, and the main difficulties facing the economic and innovation development of the current coastal urban entities are analyzed, and the development bottleneck of the economic development of the current coastal urban entities is found. The quantitative evaluation and analysis model of the economic development model of the coastal urban entity based on the quantitative regression analysis is constructed, and the panel data fusion analysis of the economic development mode of the coastal urban entity is realized by using the fuzzy comprehensive evaluation method. By adopting the fuzzy correlation constraint control method, the innovation driving planning and design of the economic development mode of the coastal urban entity is carried out, and



the correlation analysis of the profit level and the profit quality of the economic enterprise of the coastal urban entity is realized. The validity of the economic development model of the coastal city is realized by combining the statistical analysis and the test method. Taking the economic example of the 200 coastal cities of China's coastal port cities as an example, the empirical analysis shows that the model can effectively and continuously innovate and drive the quantitative assessment of the economic development model of the coastal urban entities under the sustainable innovation driving strategy. The net profit rate index of the total assets of the coastal city solid economic enterprise is steadily improved, and the risk-risk ability of the coastal city solid economic enterprise is improved.]