

NATURAL DISASTERS & PROPERTY VALUE INTERRELATED?

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Natural Disasters & Property Value, Interrelated?

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We believe in the concept of "Knowledge Is Not Private Property" where we should share our knowledge for the sake of the development of our friends, communities, and society at large. However, for those who would like to support our Thai Appraisal Foundation to share more for the society, you can kindly help buy a copy.



At the Chernobyl Nuclear Power Plant, Pripyat,
Ukrainian SSR, Soviet Union, July 9, 2018

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From the Author

Many people are concerned that natural disasters will cause real estate prices to plummet. Panic, in particular, is a major cause of property price declines during disasters. With numerous recent natural disasters occurring worldwide, Dr.Sopon has studied the relationship between disasters and real estate values.

The first disaster that Dr. Sopon took a particular interest in was the Chernobyl explosion in Ukraine in 1986. At that time, Dr.Sopon had a scholarship from the United Nations and was studying at Katholieke Universiteit Leuven in Belgium. Dr.Sopon had visited Chernobyl once and intended to study it further, but the Russo-Ukrainian war broke out before he could. Hopefully, he will have the opportunity to study it more thoroughly in the future.

In addition, there are many other interesting disasters that Dr.Sopon has studied independently, in collaboration with valuers in various related countries. Dr.Sopon hopes that these studies will be useful in assessing property values in the event of future disasters.

Special thanks to our Co-authors of each chapter as well as their colleagues who help materialize this book. However, this book has not yet been completed. Two chapters would be added later particularly the case of Chernobyl and New Orleans Katrina Hurricane where Dr.Sopon had limited time for the visit last time. Interviews were not yet completed. However, they were put here to show that they were two significant case studies that we should not forget and need to complete in the future.

Sincerely yours,
Sopon Pornchokchai, PhD D.FIABCI FCP MRICS

1986

Chernobyl

Nuclear Disaster, Ukraine

This is the first case study of this book. Unfortunately, Dr.Sopon cannot finish it because there has been Russian – Ukrainian War for years. Dr.Sopon was invited to be a speaker for International Real Estate Federation, Ukraine Chapter (FIABCI-Ukraine) in July 2018. He visited Chernobyl as well. He expected to conduct survey in Chernobyl again; however, the war erupted again early 2021. Since then, he could not visit Ukraine until today.

Actually, in 1986, Dr.Sopon studied at the Katholieke Universiteit Leuven, Belgium. During that period on April 26, 1986, Reactor No. 4 of the Chernobyl Nuclear Power Plant in Pripyat, Ukrainian SSR, Soviet Union (or Ukraine today), exploded. This was a great disaster with dozens of direct casualties and thousands of health complications stemming from the disaster.

The following are some pictures of Dr.Sopon's 2020 visit and one day he would visit and conduct a study on the effects of property value.











2004

Banda Aceh

Tsunami, Indonesia

The 2004 Indian Ocean earthquake and tsunami was one of the most destructive natural disasters in Asia and the world as a whole. It is a case study whether it affected property prices in Banda Aceh, the centre of the earthquake and tsunami.





Abstract

This paper explores the changes in land prices after 12 years of The Aceh Tsunami in North Sumatra, the largest island of Indonesia. Land prices in 2004 to 2016 were studied in different locations. This Aceh tsunami is one of the deadliest natural disaster in the world where over 200,000 people died. Ten different locations in the area were visited in order to examine property values. In details, six locations in Banda Aceh were focused on in order to make an assessment of changes in land prices. Surprisingly, over the period 2004 to 2016, land prices in Banda Aceh have increased by a factor of 4.87 times or at an average annual rate of about 14.1% per annum. This implies a fundamental rule of real estate value where prices will be increased over time. Some other implication also can be found from this field survey.

Introduction

On December 26, 2004 the Aceh tsunami killed over 200,000 people and destroyed billions of dollars worth of properties. Let us examine property prices today in Aceh, 12 years after the tsunami catastrophe (2004 to 2016). This would be a good case study on the matter of natural disaster and land

prices. There might be other natural disasters such as earthquake, storm and the like.

The tsunami which ravaged Aceh was one of the world's deadliest natural disasters and the US Geological Survey found that a total of 227,898 people died as a result of the tsunami; 170,000 of the dead were found in Indonesia, particularly in Aceh. However the government of Indonesia has estimated total deaths to be as many as 220,000 in Indonesia alone. Based on available evidence it is likely that the total number of fatalities lies between 230,000 and 280,000 persons.

The tsunami struck at 00:58:53 UTC, or at 8:59 AM local Aceh time; the epicentre was off the west coast of Sumatra in the province of Aceh, close to the capital city of the province, Banda Aceh. The shock had a moment magnitude of 9.1 to 9.3. The ensuing wave which wiped out Banda Aceh was as high as 30 metres; most buildings in the area were destroyed, leaving mainly bare land.

In the aftermath of the tsunami people generally were in a state of shock, desperate and pessimistic about the future. Looking at the situation from a property point of view, most of the land in the area with no buildings, all with debris or partly demolished buildings, would have had zero or even negative value. We have the opportunity today to compare the land value situation prior to the tsunami to the current state of the market. This will be a key step in understanding the nature of the real estate market and provide a realistic assessment of the impact of the phenomenon.

The Survey

Dr.Pornchokchai, who is an international expert in property valuation and real estate issues, visited Banda Aceh 12 years after the tsunami and explored land prices in 10 different locations in the area. He also visited various relocation sites in

order to examine property values in those areas as well. As a result of this examination six locations in Banda Aceh were focused on in order to make an assessment of changes in land prices. This exploration was carried out during August 2016 with significant assistance from the Aceh REI, which is the Aceh Branch of the Real Estate Association of Indonesia.

The six sites selected in Banda Aceh include Lampulo where a small boat is still located on top of a house which has now become a museum, PLTD Apung where a ship of 2,600 tonnes was washed onto land around 2.4 km away from the beach, Jalan Profesor Dokter Ibrahim and Jalan Roma Setia (two major roads), Masjid Baiturrahim Ulee Lheue which was a large building that survived the destruction, and the Hotel Grand Permata Hati where Dr Pornchokchai stayed during his visit.

The Preliminary Findings

In considering changes in property prices, it is noted that there are no property price records either before or after the tsunami. Dr.Pornchokchai, accompanied by an interpreter, visited around 20 sites and was able to undertake reliable interviews at around 10 sites, six of which were in Banda Aceh itself. Local leaders and other persons were interviewed to obtain their recollections of land prices in these areas in 2004, prior to the tsunami, and also their opinions regarding prices in later years.

Chronological changes in prices in years for which no reliable information was available were estimated by using compound interest rates applied to estimates for periods before and after the missing information. In assessing the changes in Banda Aceh as a whole, the average increase over all the selected sites was calculated, thus providing a good overview of overall changes in price level. This information can also be used to assess any depreciation in price that might be attributable to the tsunami.

Surprisingly, over the period 2004 to 2016, land prices in Banda Aceh have increased by a factor of 4.87 times or at an average annual rate of about 14.1% per annum. It can be observed that land prices appear to have been stagnant only in the first year after the tsunami. Generally across all the areas examined, the increases in price levels are more or less the same, some 4.5 to five times during the past 12 years. Only in the area of PLTD Apung, where the big ship was washed up, was the highest increase of 6.5 times. This is most likely because the area has become a major tourist attraction, allowing a lot of commercial opportunities to be established.

The Comparison

It is worthwhile to compare these increases with other similar locations. According to the Agency for Real Estate Affairs which is one of the largest real estate information centres in the ASEAN region, per cat has experienced an increase in value between 2004 and 2016 of about five times or 14.4% per annum. Per cat, with over 10 million tourists each year, has experienced only a slightly larger increase in comparison to Aceh. In addition, Siam Square in the Bangkok CBD, has experienced an increase of 4.1 times or about 12.5% per annum.

It is important to understand what has contributed to the substantial increase in land prices in Aceh despite the catastrophe of the tsunami in 2004.

1. Firstly, Banda Aceh is the capital of Aceh Province, and it is the gateway for maritime trade to Indonesia.
2. Secondly, billions of dollars worth of aid were poured into this city following the tsunami.
3. Thirdly massive improvements and new infrastructures were developed in the years following the tsunami.
4. Fourthly, the area has attracted very many tourists and

visitors wanting to visit these areas of historical significance.

5. Fifthly, the previously existing insurgency and fragmentation of Aceh communities were disrupted by the tsunami, leading to more harmony within the community.

It is considered that these factors have contributed significantly to the substantial increase in land prices.

No Superstition

An important factor which should be considered is that of superstition which could make people feel reluctant to live in an area where hundreds of thousands have perished in such a horrifying way. However it has been observed that most people did not leave the city area or even their small villages, but stayed to rebuild. In the case of the hotel where Dr.Pornchokchai stayed for a few nights, this building was formally a hospital. On the day of the tragedy many people fled to the hospital and around 400 persons died there. Now that it has been renovated and converted to a good standard hotel, the land price for this property has increased considerably.

Consequently one thing that these circumstances teach us is that, in relation to commercial properties, values will not be significantly affected by mass deaths in the long run. The Hotel Grand Permata Hati was able to be renovated from an old hospital and, as observed is operating very well. There has been a noticeable positive effect on increasing land prices around the hotel as well. The activities of this hotel have contributed to greater development potential in the general surroundings.

Conclusion and Observation

In summary this exploration of the impact of the tsunami suggests that land prices are not likely to depreciate following a catastrophe in the long run. This appears to be a general rule that applies in relation to real estate prices. This

observation has been confirmed in the case of the Kobe earthquake in 1995, Hurricane Katrina in Louisiana in 2005 and the Suchuan earthquake in 2008. However, every rule has exceptions: take for example the destruction of Pompeii in 79 A.D. where the whole city was buried; or the Chernobyl disaster in 1986 where high levels of radioactivity still exist. We could conclude that continuing pollution of areas following a disaster would contribute to decreases in value.

One question we should try to address is: what if there had been no tsunami? Would land prices have increased at the same rate in Banda Aceh. Dr.Pornchokchai is of the opinion that the area would have experienced only a small, modest rate of increase compared with what has been experienced; overall there would have been less stimulus for the level of activity that exists today. Accordingly one could conclude that the tsunami created many new opportunities for Banda Aceh. Balanced against this however is the catastrophic loss of the lives of hundreds of thousands of people and this is a tragedy for mankind.

Appendix: Wrong Proposition

Tsunami did not bring poverty as said:

The Asian Development Bank has warned the effects of the tsunami could impoverish two million people, and may be the most important long-term effect of the disaster. The bank predicts that 1 million people could fall below the poverty line in Indonesia, and the number of poor in India could rise by 645,000 and in Sri Lanka by 250,000. In the Maldives, where about half the island nation's houses were affected, more than 50% of the population could fall into poverty.

Source: <http://www.jobslatter.org.nz/jbl22200.htm>

B. A Poverty Profile

7. Despite the tsunami and the 2005 economic downturn, there is practically no abject poverty or severe malnutrition in the Maldives. According to the 2004 VPA-2, between 1997 and 2004, poverty declined significantly in all regions of the country. Table 1 presents the headcount ratios for the Maldives, Malé and the Atolls for the years 1997, 2004 and 2005 for four different "possible" poverty lines. It shows that income poverty is declining rapidly both in Malé and in the atolls.

Table 1: Headcount Ratios According to Various Poverty Lines in Malé and Atolls (1997–2005)

Poverty Line	Maldives (%)			Malé (%)			Atolls (%)		
	1997	2004	2005	1997	2004	2005	1997	2004	2005
Rf7.5	21	12	6	10	10	0	25	13	8
Rf10	26	17	8	12	11	0	31	20	11
Rf15	40	28	16	18	15	7	50	34	20
Rf21	55	41	26	27	20	13	64	50	32

Source: ADB. 2007. *Country Poverty Assessment*. Manila.

Source: <http://www.adb.org/documents/reports/poverty-assessment/poverty-assessment-mld.pdf> (link invalid now)