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THE 2004 INDIAN OCEAN TSUNAMI AND THE ECONOMIES OF SOME OF THE AFFECTED COUNTRIES

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Abstract

Avalanche literature exists on the 2004 Indian Ocean Tsunami even from the economic perspective. However, these studies are not done using historical tools of analysis and most of them are not academic in nature and also lack in-depth analysis. This paper is a departure from extant studies. It takes a historical analysis of the phenomena of the Indian Ocean Tsunami of 2004 and its implications on the economy of the affected countries. It is an attempt to narrow the existing historiographical gap on the subject. Using extant literature and oral historical sources, it affirms, the indispensable nexus between the Tsunami and catastrophe of the affected areas; with specific attention to agriculture and related livelihoods, tourist industries, manufacturing industries, wildlife, and transportation industries, *et cetera*. Besides the paper analyses the international response to the catastrophic tidal waves. Evidence threw up leads to the major conclusion that, the tsunami truncated the economic activities leading to economic destruction and retardation in the affected countries. Given the debilitating economic challenges associated with the tsunami, the paper suggests, among others, a more proactive involvement of the universities and scholars in studying catastrophic events and disaster management with the hope of averting its future occurrence, the installation of scientific earthquake and tsunami detecting gadgets so that early warning could be issued to people to run to the higher ground when the need arises.

Keywords: Indian Ocean; Tsunami; Economy; Affected Countries

Introduction

Naturally, man cannot be separated from his host environment. In his host environment/habitat, man has usually confronted with some

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environmental challenges or disasters. Some of these disasters are human/man-made while others are natural. Manmade disasters, on the one hand, are caused by human beings, namely, explosions, nuclear blasts, plane crashes, chemical or biological attacks, and train accidents, among others. Natural disasters, on the other hand , are catastrophic events that occur naturally without consent or human effort. For example, drought, hurricanes, landslides, earthquakes, floods, tornadoes, volcanic eruptions, tsunami, and so forth; these natural disasters in most cases cause fatalities and destroy the economy of the affected countries.

The occurrence of natural disasters is beyond the control of mankind, but its impact on a given country is determined by economic forces and societal factors. There is no evidence that developing countries are more exposed to natural hazards, yet fatalities and direct economic damage caused by disasters are significantly higher in these countries compared with developed countries (Khan, 2005, Cavallo and Noy, 2010, Sachs, 2005). In addition to the direct and economic damage, occurrence and disasters hinder the process of growth and development. The Indian Ocean tsunami of 2004 provides a valuable case study of the said situation.

Since the occurrence of the tsunami under consideration, there has been a proliferation of literature on the subject. The dominant aspects of this literature were not written by academia but by journalists and public policy analysts. The few available ones written by the academia are, however, not historical in nature and did not discuss in detail how the catastrophe had negatively affected the economy of India and other affected countries or adjoining areas. This paper serves as an intervention to close the existing historiographical accentuated by extant literature on the tsunami.

To achieve the above aim, the argument in this paper has been developed under six different headings including the introduction. The second subheading attempts a clarification of the conceptual issue. The third subheading dwells on the study area and background of the 2004 Indian Ocean tsunami. The fourth one outlines the effects of the tsunami focusing on India and the affected countries. The fifth analyses international response to the 2004 Indian Ocean tsunami while the sixth and the last provide a recap of the paper's argument.

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A Clarification of Conceptual Issue

The key terminology in this paper is a tsunami. Butterfied (1960) conceives tsunami as a tidal wave which is a very large body of ocean water that flows over the land and destroys things. A wave is a line of raised water that moves across the surface of the area. According to *Encyclopedia Britannica, a* tsunami is a "catastrophic ocean wave that is usually caused by a submarine earthquake; and under-waters or coastal landslide, or the eruption of a volcano (http://www.britannica.com). To king (2021), "tsunami is a large ocean wave that is caused by sudden motion on the ocean floor". This sudden motion could be an earthquake a powerful eruption, or an underwater landslide. The impact of the meteorite could also cause a tsunami. Tsunami travels across the open ocean at great speeds and builds into large deadly waves in the shallow water of a show line. Additionally, a tsunami is also conceived as a series of waves caused by an earthquake or undersea volcanic eruptions. Extrapolating from the above conceptual issue, this paper defines a tsunami as a destructive tidal wave, rooted in the Indian Ocean and caused a lot of fatalities or mortalities. It had negatively affected the society and economy of India and the adjoining countries.

Study Area and Background of the 2004 Indian Ocean Tsunami

The Indian Ocean is a body of saltwater. It covers about one-fifth of the total ocean of the world. It is the smallest geographical and physically most complex of the world of the world's three major oceans. It stretches for more than 6,200 miles (10,000 km) between the southern tips of Africa and Australia, and without its marginal seas, has an area of approximately 28,360,00 square miles (73,440,000 square km) (Verlan, 2021). The Indian Oceans' average depth is 12, 990 feet (3,960 meters), and its deepest point, in the Sunda Deep of Java Trench off the Southern Coast of the Island of Java (Indonesia), is 24,442 feet (7,450 meters) (Verlan, 2021).

The Ocean shares borders with East Africa to the west, the Arabian Sea to the north-west, India to the north, the Bay of Bengal to the north-west, East Indies, and Australia to the south-west. In one of his exploratory journeys, Vasco da Gama (a Portuguese sailor) discovered India and East Indies which were islands in the Indian Ocean; these are Indonesia, Singapore, Malaysia, Sri Lanka, and the Maldives. India and East Indies were important to European traders because of their species

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and silk materials. The European traders in turn sold their manufactured goods to them. This made the Indian Ocean a vital sea route to South-East Asia (Butterfield, 1960).

The background/root of the Indian Ocean tsunami is traceable to December 2004. It has occurred immediately after the celebration of the 2004 Christmas. This catastrophic event started on Boxing Day that was Sunday, December 26, 2004. An earthquake erupted in the Indian Ocean and started the great tsunami that ravaged several countries in South-East Asia and South-East Africa (Dzurgba, 2010).

The tidal waves move across nations, destroying lives and property as well as wildlife, and crops. The countries that were affected most were Sri Lanka and Indonesia. Indonesia, Banda Aceh, the headquarters of Aceh Province experienced the worst destruction. However, according to the Voice of America's (VOA) broadcast of March 13, 2005, Sri Lanka experienced the worst damage of the tsunami. Other South-East Asia nations that were heavily and violently affected were India, the Maldives, Singapore, Malaysia, and Thailand. In South-East Africa, Somalia was the worst hit; other countries that were also affected were Kenya and Tanzania respectively (Dzurgba, 2010).

Economic Effects of the 2004 Indian Ocean Tsunami

This segment of the paper harps on the economic effects of the tsunami under consideration. In treating these effects, attention has been focused on agriculture and related livelihoods, tourist industries, manufacturing industries, transportation, banking and the related financial institutions, forestry, and wildlife. Agriculturally, the 2004 Indian Ocean tsunami led to the death toll of about 264, 762 persons including farmers while other victims totaling about 2,316,000 survived the tsunami but became refugees and Internally Displaced Persons (IDPs) (Pararas- Carayannis, 2004). Table 1 below presents the statistics on the number of refugees arising from the tsunami and their countries and continents.

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Table 1: **Number of Refugees of the Indian Ocean Tsunami**

S/No.	Country	Death Toll	Percentage	Continent
1	Sri Lanka	1,500,000	64.77	Asia
2	Indonesia	750,000	30.44	Asia
3	Somalia	50,000	2.16	Africa
4	India	30,000	1.30	Asia
5	Myanmar	30,000	1.30	Asia
6	Madagascar	1,000	0.04	Africa
	Grand Total	**2,316,00**	**100**	

Source: Pararas-Carayannas, G. (2004). Special Report: The Great Earthquake and Tsunami of 26 December 2004 in South-East Asia and the Indian Ocean, Pp. 1-33.

Table 1 reflects that the 2004 Indian Ocean tsunami produced a large number of refugees in six countries. Sri Lanka has the largest number of refugees while Indonesia came second. Apart from the major refugees' countries, Somalia has a considerable number of refugees followed by India and Myanmar who has 1.30 percent each and Madagascar had the less number with 0.04 percent. Besides, there was a high death toll from the numerous affected countries as detailed by the tables below.

Table 2: **Death Toll Caused by the Indian Ocean Tsunami**

S/No.	Country	Death Toll	Percentage	Continent
1	Indonesia	212, 000	80.07	Asia
2	Sri Lanka	30, 000	11.33	Asia
3	India	16,000	6.19	Asia
4	Thailand	5,000	2.01	Asia
5	Myanmar	600	0.23	Asia
6	Somalia	298	0.11	Africa

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7	Maldives	82	0.03	Asia
8	Malaysia	68	0.25	Asia
9	Tanzania	10	0.0037	Africa
10	Seychelles	3	0.0011	Africa
11	South Africa	2	0.00075	Africa
12	Bangladesh	2	0.00075	Asia
13	Kenya	1	0.000037	Africa
	Grand Total	**264, 762**	**100 %**	

Source: Pararas-Carayannas, G. (2004). Special Report: The Great Earthquake and Tsunami of 26 December 2004 in South-East Asia and the Indian Ocean, Pp. 1-33.

Table 2 shows the spread of the death toll across the affected countries. Indonesia has the greatest number of casualties. This indicates that there was the greatest earthquake and tsunami in Indonesia. According to Pararas-Carayannis (2004), the tsunami waves up to 10 meters swamped the tiny outlying islands (the small islands that were far from the big islands) of Sumatra and the hardest-hit area was Aceh Province. The table depicts that Kenya was less affected by the tsunami recording only 1 death. The death toll in Seychelles, South Africa, and Bangladesh was equally less severe. It equally demonstrates that Sri Lanka, India, and Thailand loss thousands in the tsunami while Myanmar and Somalia loss less than 100 persons each. The death toll in Maldives, Malaysia, and Tanzania was marginal as each of them lost less than a hundred people. Apart from the death toll and displacements the tsunami led to affected monetary units, Gross Domestic Product (GDP), occasioned financial needs and pledges thereby negatively affecting the economy of the affected countries.

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Table 3: The Economic Cost of Indian Ocean Tsunami and Aid Pledges for Reconstruction

S/No.	Country	Damages		Real GDP Growth in 2005 (Projection in percent)		Financial Needs and Aid Pledges (US$ Billion)	
		US$ Millions	%GDP	Pre-Tsunami	Post-Tsunami	Financial Needs	Aid Pledges
1	Indonesia	4,500	1.6	5.5	5.25 - 5.5	4- 5	3.955
2	Sri Lanka	1,000	4.5	6.0	5.3	1.5-1.6	0.308
3	Maldives	470	62.0	7.5	6.5	0.374	0.139
4	India	1,679	0.2	6.8	6.8	1.2	0. 791
5	Thailand	500	0.3	5.9	5.6	1.5	0

Source: International Monetary Fund (IMF), 2005

The tidal waves also flooded the already cultivated crops and hindered the farmers from already from harvest the remaining ones; the affected countries suffered from food shortages. Commenting on the effects of the tsunami on the agricultural sector, the Food and Agricultural Organization (FOA) (2015) noted that, losses in the fishing sector have been reported, particularly in Indonesia and Sri Lanka. The report noted further that, local communities experienced severe food insecurity in the short and long-term because parents and relatives have been lost, livelihood asserts including forestry resources have been destroyed. The FOA (2004) was more forthcoming when it reported particularly on the Aceh province that:

> The tsunami affected significant agricultural land, destroyed educational canals, affected 92,000 farms, displaced 60,000 farmers, and robbed 330,000 people of their livelihoods in fishing and agriculture in the province. The tsunami littered the paddy fields with debris and the sediments destroyed irrigation infrastructure and washed

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> the soil of organic matter. Flooding also increased soil salinity.

On the broader perspective, it is on record that the tsunami destroyed crops in 2, 100 farms; destroyed home gardens and agricultural tools in 11, 700 homesteads; and damaged more than 7,000timber trees in inhabited islands (http://www.google.com/search?=related...). Commenting on agriculture and related livelihood, Rego (2015) discloses:

> Fishing is the main livelihood source for many poor households that were affected by the tsunami. 4, 913 large and 3,714 small boats destroyed, 14, 111 traps, 1,871bnets damaged; catch loss estimates at 4 percent of annual fisheries catch.

Disappointingly, submarine and fisheries production decreased from 134,00 tons to 102, 500 tons in 2004 and 81,100 tons in 2005 (a year-on-year subsequent losses of 31 percent and 26 percent in 2004 and 2005) (FOA, 2004). The 2005 harvest also shows that 10 percent of the rice crop in the affected regions was harvested. Salinity caused yields to reduce by 50 percent and in some areas, no grain was formed in rice plants (FOA, 2005).

In the area of tourist industries, the effects of the Indian Ocean tsunami were also severe. For example, in Thailand tourism contributes between 5 to 6 percent to the country's Gross Domestic Product (GDP). Most of the tsunami-affected countries, their economies depended on tourism, namely, Phang Nga, Phuket, and Khrabi contribute approximately 50 percent of the county's tourism-based GDP. Copious informal and home industries (fishing, food vendors, and handicraft making) are no doubt connected to tourism. Hotels, restaurants, and souvenir shops were closed leaving 5,000 persons unemployed. Agreeing on the negative impact of the tsunami on tourism, Blazin *et al* (2014) bring to the fore that, the most dreadful consequence of the Catastrophe is the loss of lives of the tourist. The report of the America Agency Risk Management Solution Incorporated shows that in the Maldives and Sri Lanka alone, about 2, 200 foreign tourists were killed by the consequences of the tsunami. The total amount of paid life, health, and travel insurance were around 300 million US dollars

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(http;//www.rms.com). However, the death toll of these tourist victims of the tsunami was not restricted to the above-mentioned countries.

Manufacturing industries also bear the brunt of the 2004 Indian Ocean tsunami. With the outbreak of the tsunami many manufacturing industries in 11 affected areas/countries were unable to continue with manufacturing activities because of the destruction of their premises, stock, machinery, supplies, and loss of staff, among others. Contributing to the heinous effects of the tsunami, a public policy analyst who is also one of the oral informants, Humbe (2021) observed that:

> The tsunami has deeply halted the economic activities including manufacturing. Within ten days of the tsunami and immediately after the tsunami all the businesses activities were at a standstill. Residents of the affected areas were in trouble; people were terrified, traumatized, and lost thinking of business ideas. The business infrastructures were destroyed, no communications to call for supply, industries were destroyed, and no roads to travel for business activities all aids to trade were badly damaged.

It should occasion no surprise that the catastrophe arising from the tsunami daunted not just manufacturing activities but all aid to trade. To corroborate the above, Tsonov (2021) in an oral interview revealed that those countries that were severely affected by the tsunami could not manufacture, supply the already manufactured goods neither ordered production materials since the tidal wave destroyed all the industries, many people were concerned on how to serve their lives not to engage in any form manufacturing activities.

Besides, the 2004 Indian Ocean tsunami had a catastrophic effect on the transportation sector. Coastal transportation networks and facilities located within the flood zones such as railroads terminals, marshaling yards, sheds, and tracks were damaged by the tidal wave. The loss of transportation facilities undoubtedly hampered the movement of goods passengers/businessmen, relief workers and materials, and the re-establishment of normal economic activities (Oral interview with Olalekan, 2021). Indeed, the tsunami damages the coastal highways and road networks, and unpaved roads were easily washed

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away. Bridges, tunnels, flyovers, petrol and fuel stations, and viaducts were destroyed. Airport and airstrips located on low-lying coastal plains were subjected to tsunami inundation and sustain damages or loss of run-and taxiways. Due to their locations, harbors, ports, and other shipping-related services were severely affected by the tsunami (http:/www.nerc-bas.ac.uk/tsunami/secure).

Relatedly, the catastrophe had a crushing effect on banking and other related financial institutions. A lot of banks and other financial institutions were destroyed by water emanated from the tsunami- both the buildings and currencies were wiped away. The economic implication is that there was no savings and lending during the tsunami (a ten-day catastrophe). This signifies that there was a decrease in the input and output of banks and other financial institutions. The remaining money that would have been used for developmental projects was used for the reconstruction/resuscitation of the affected countries' economies.

Similarly, the forestry resources were also badly affected by the Indian Ocean tsunami. Mangroves, coastal forests, agroforestry systems, and trees in the coastal landscape were damaged by the tsunami. The post-tsunami demanded wood and non-wood forest products cause severe pressure on forest and tree resources (foa.org/forestry/tsunami/2728). The impact of the tsunami in terms of destruction of primary forest products (for example, wood, fuelwood, and building materials); and other secondary products (for example, wood boats, piers, houses, and other building infrastructure). There were changes in topography, soil salinity, and fresh in-flow from upstream which adversely affected the mangroves and other coastal forests as time went on (foa.org.forestry/tsunami/2728).

Closely related to the destruction of forestry is the death of animals. It has been documented that thousands of animals had perished as a result of the tidal wave. Many animals felt the vibrations and ran for safety but countless others were injured, starved, and stranded. These animals were both wild and domestic. The owners of the drowned animal farms incurred financial/economic losses (http://www.worldanimalsprotection.org>...). Those affected victims who depended on hunting wild animals for earning a living also lost their source of livelihood when the tsunami was in progress and even immediately after the catastrophe.

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Summarily, the economies of the affected countries suddenly collapsed, within a few days of the Indian Ocean tsunami. Agriculture, manufacturing industries, and tourist industries were destroyed by the tidal waves. Natural resources such as forests and solid minerals became useless. Banks and other financial institutions were reduced to rubbles and money kept in them was destroyed by water. Stock exchange, insurance, market, chambers of commerce, trade centers, shops and transportation, and production and distribution of goods and services all came to a standstill. National economies were in shambles, there was a lot of damage, destruction, and confusion paving the way for the subsequent collapse of their economies (Dzurgba, 2010).

International Response to the 2004 Indian Ocean Tsunami

The tsunami under consideration attracted the attention of the international community; the community understood the challenges and feelings of the affected countries (some of the Asian and African countries). The destruction of lives and property was horrified and this attracted a deep sympathy in which the international community felt sorry, sorrowful, sad, grief-stricken, and worrisome about the victims. Condolences were sent to governments and the bereaved families by foreign governments, humanitarian organizations, and religious bodies across the globe (Parayas-Carayannis, 2004).

Foreign governments also responded by giving their assistance in cash, materials, equipment, experts, and logistics. In terms of financial donations, Japan contributed more than any other country while the United States was second; Germany was third. Because of the urgency of the situation, individual nations acted on their own without waiting for the global coordination of the United Nations for emergency relief donations and services. Nigeria was one of the many countries that donated materially and financially under the coordinated emergency relief program of the United Nations (Dzurgba, 2010).

Dzurgba (2010) demonstrates that international communities responded to the Indian Ocean tsunami promptly than they had ever done elsewhere in the world, For practical purposes and good management of the rescue operations, the International Rescues Committee (IRC) was immediately set up with a unit in each affected. As usual, the international Red Cross was actively involved in the rescue operations. The IRC coordinated the operational activities of the various

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teams. The professional personnel included geologists, oceanographers, boatmen, swimmers, divers, doctors, nurses, psychologists, priests, imams, social workers, journalists, and academics, among other professionals. The professionals treated and cared for the survivors; corpses that had been collected were buried en masse. Some corpses that had been swept away to far places or too deep parts of the Indian Ocean could not be buried; this is to say that the number of people who perished by the tsunami could not be exactly stated but can only be projected. However, a large number of people have confirmed death as depicted in table 1 while very many other surviving victims became refugees (Dzurgba, 2010).

International conferences were also held on the Indian Ocean tsunami. The first one took place in Jakarta in Indonesia, early January 2005 few days after the emergence of the tsunami. The Jakarta Conference deliberated on issues related to the death toll, injuries, refugees, rescue, activities, humanitarian services, personnel and funding of the tsunami crises, destruction, of foodstuffs, farms, diseases, shelter, and cloth, *et cetera* (http://www.reliefweb.int.>report>asian-tsunami). Another international conference took place in Victoria, Hong Kong between March 1 and March 6, 2005. The aforementioned conference considered the rebuilding of homes, hospitals, roads, and offices. Matters of stable electricity, shops, and hotels were also discussed. The Hong Kong Conference enhanced also the coordination and management of the tidal wave. At both conferences, many industries and organizations were in attendance to contribute their quota in solving the tsunami challenges (http:/www.voa.com, 2004).

The participants/attendees of the above international conferences organized in respect of the Indian Ocean tsunami rendered tremendous assistance to the affected countries. Though, India was badly affected (damaged) by the tsunami rejected international aids- both in cash and in-kind. India made it known to the international community that she was capable of handling the problem arising from the catastrophe without any foreign aid (Dzurgba, 2010). The decline in receiving foreign assistance entails that India was self-sufficient in everything because India developed, industrialized, and had nuclear power in contemporary internal politics and economics.

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Conclusion

This piece centered on the negative economic effects of the 2004 Indian Ocean tsunami on the economy of the affected countries (these countries were on Asian and African continents). In doing this, the study discussed the content and root cause of the tsunami. It has acknowledged that both Asian and African countries bore the brunt of the catastrophe. The study has identified and analyzed the economic effects of the tsunami from the negative dimension with a specific focus on agriculture and related livelihood, tourist industries, manufacturing industries, transportation industries, banking and other related financial institutions, and wildlife. The study concludes the Indian Ocean tsunami had destroyed the economies of the affected countries paving the way for not just economic retardation but economic retrogression.

Concerning the magnitude of the damage done to the affected areas, the international community swiftly intervened and offered relief assistance in cash and in-kind in which all the affected countries received except India. Even though Indian was badly affected by the tsunami she declined of accepting internal aids and she disclosed to the international community that she was capable of tackling the catastrophic challenges without receiving any foreign aid. Due to the debilitating effects of the tsunami on the economy of the affected countries; the paper suggests the involvement of universities and scholars in studying the phenomena under review with the hope of advancing some policy options that if followed, would help in averting the future occurrences and damages arising from the tidal wave. Besides, scientific gadgets should be installed in countries that surround the Indian Ocean so that any threat of earthquake and tsunami could be detected and communicated early to enable the people to run away from the more vulnerable areas to higher grounds.

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