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Posted Date: 30 May 2024

doi: 10.20944/preprints202405.1580.v1

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Improving Disaster Management Performance by Using Ethical Artificial Intelligence EAI to Achieve Sustainable Development and Support the Global Economy and Trade

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Abstract: The study addresses improving disaster management performance using artificial intelligence to achieve sustainable development and support the global economy and proposes implementable strategies to achieve resilience and growth. Through a literature review, it examines the impact of natural disasters on international trade and focuses on the challenges faced by developing economies in developing countries. The study emphasizes the interconnectedness of global trade networks and the need for proactive risk management. Existing qualitative literature from previous studies was compiled and analyzed for the study. The results indicate potential disruptions in commercial activities and economic growth in Middle Eastern countries due to natural or human-caused disasters such as wars and terrorism. Here we find the importance

of measures to build resilience and diversify trading partners and markets. Recommendations include investing in resilient infrastructure, promoting digital trade, strengthening institutional capacities, and enhancing regional and international cooperation. By providing insights to policy makers, businesses and stakeholders, this study contributes to understanding the resilience of developing economies to natural disasters and provides practical guidance for them to overcome the challenges posed by such disasters and achieve sustainable growth.

Keywords: improving disaster management performance; ethical artificial intelligence; global trade; economic resilience; developing economies

1. Introduction

1.1. Among the Recent Natural Disasters in the Middle East is the Storm that Caused Heavy Rains and Floods in the UAE Desert, Roads and Dubai Airport, According to a Report by John Gambrell (April 17, 2024)

After heavy rains, Dubai International Airport was flooded. , causing disruption to international travel, the United Arab Emirates made an effort to dry up the heaviest rain ever recorded there. According to the new agency, strong thunderstorms hit the UAE recently, submerging parts of major roads and Dubai International Airport, while also dumping the largest amount of rain ever recorded in the country within hours.

The Emirates News Agency (WAM) described the rains as a historic climate event, surpassing “anything that has been documented since data collection began in 1949. This was before the discovery of crude oil in this energy-rich country, which was then an oil exporter.”

The rain began late Monday, and according to meteorological data collected at Dubai International Airport, Dubai's sand and roads were soaked by about 20 millimeters (0.79 inches) of rain. By 9:00 a.m., the storms were becoming more severe. local Tuesday and continued throughout the day, drenching the city laden with heavy rain and hail. More than 142 mm (5.59 inches) of rain fell on Dubai in one day by the end of Tuesday. The world's largest international airport and Emirates' long-haul hub, Dubai International Airport receives 94.7 mm (3.73 in) of rainfall on average per year. As the planes landed at the airport, standing water hit the runways. On Tuesday night, the airport eventually stopped accepting arrivals, and people had difficulty navigating flooded roads to reach the terminals.

Due to the inability of aircraft crews to reach the airport, Dubai International Airport confirmed on Wednesday morning that there were “limited transportation options” and that this affected flights. “Recovery will take some time,” the airport stated on social media platform X. “We appreciate your understanding and patience as we work through these difficulties.”

Police and rescue workers moved slowly through the flooded streets of Dubai. Tuesday saw lightning appear in the sky, occasionally touching the top of the Burj Khalifa, the tallest building in the world. There were delays and flooded stations in the city's autonomous metro system.

The United Arab Emirates, a federation of seven sheikhdoms, closed most of its schools before the storm, and most government employees worked from home when they could. Although some workers left their homes, most chose to remain inside their cars, as the unlucky workers parked their vehicles in unexpectedly deep water that covered many highways. To remove the water, authorities sent tanker trucks to the streets and highways. Some homes were flooded, forcing homeowners to rescue their belongings.

While some people slept inside their flooded cars on Tuesday night, the country's hereditary rulers did not provide any information about the overall damage or injuries to residents. According to the authorities, a 70-year-old man died in Ras Al Khaimah, the northernmost emirate of the country, after his car was swept away by floodwaters. The emirate of Fujairah, located in the far east of the United Arab Emirates, witnessed the heaviest rainfall on Tuesday, with levels reaching 145

mm (5.7 inches). On Wednesday, the government resumed remote work and the authorities canceled lessons.

The United Arab Emirates is an arid republic on the Arabian Peninsula. It rains there irregularly during the cold winter months. Due to the lack of rainfall, many roads and other sites lack proper drainage, which leads to floods due to the infrastructure that needs a new construction system that contributes to supporting their national economy. Of course, the United Arab Emirates is considered one of the most developed countries in the Middle East in all fields except in the field of infrastructure and sanitation. They lack experience in this field, and work must be done to rearrange this field in order to complete the development of the country and achieve sustainable development through good management of natural and man-made disasters, which It is human-induced and achieves security and stability.

1.2. The Relationship between Environmental Disasters in the Middle East and Global Trade

Scientific research has focused more on the relationship between environmental disasters and global trade, especially with regard to the Middle East, the rest of the world's continents, and other developing countries. With a particular focus on how natural and man-made disasters, such as the Dubai floods, impact the trade and economic landscape in African countries, this review provides an overview of important studies examining the effects of natural disasters on trade and economic development. By compiling current information, this review lays the foundation for additional research in this area. Natural disasters, such as earthquakes, floods, fires, and man-made disasters such as wars, displacement, and sectarian violence, seriously weaken international trade and economic activity and cause delays in all projects, stoppages, and project financial deficits due to... Those delays. (Waheeb 2018),(Waheeb et al , 2020) ,(Waheeb & Andersen 2022). The negative consequences of disasters on trade also have a significant impact, according to the Noy 2009 study, with a focus on disruption of supply networks, production facilities, and transportation infrastructure. Reduced exports and imports, lower foreign direct investment, and slower overall economic growth are often the result of these disturbances.

The interconnectedness of global supply chains increases the impact of natural disasters on trade dynamics. Ahn et al. (2018) examined the vulnerability of supply chains to disruptions caused by natural disasters, with repercussions felt across many countries and sectors of the economy. Research by Hallegatte et al. (2012) and Rose and Spiegel (2011) emphasize the importance of understanding supply chain resilience and diversification tactics to reduce the adverse effects of disasters on trade.

Developing country economies are particularly vulnerable to external shocks because they depend on primary commodities, inadequate infrastructure, and institutional constraints. According to research conducted by Cavallo et al. (2013), natural disasters have a disproportionately negative impact on developing countries, increasing poverty rates and reducing prospects for long-term prosperity. However, research by Loayza et al. (2012) shows that investing in disaster resilience and implementing proactive risk management measures can help developing economies become more resilient to external shocks.

1.3. Conceptual Framework

The study examines the interconnections between international trade and economic systems, with a particular focus on how natural disasters affect trade and the economic environment in developing countries and takes into account variables such as supply chain disruptions, changes in commodity prices, changes in investor sentiment, and the resilience of those countries' economies to Facing internal and external crises.

1.4. Objective of the Study

The aim of this study is to reveal the potential effects of natural disasters, as occurred in the Dubai floods, on trade patterns, economic growth, and development opportunities in Africa. The study aims to provide insights and recommendations to policy makers, companies, and stakeholders

in developing countries to avoid risks and seize opportunities coming from this circumstance of By conducting a comprehensive analysis of potential impacts and identifying important issues.

1.5. The Importance of Research

The study's consequences for economic growth and stability in developing countries make it noteworthy. They are vulnerable to external events that can disturb global supply chains and market dynamics because developing countries rely heavily on trade with other great nations. Policy makers must understand the potential impact of natural and man-made disasters, as happened in the earthquakes in Syria and Turkey last year and the Dubai floods this year, and their direct impact on the commercial and economic environment to develop and implement plans that enhance resilience and sustainable development. This study adds great importance to how environmental disasters affect international trade and emphasizes the value of countries working together and planning to address common issues.

2. The Impact of Natural and Man-Made Disasters on Projects, Investments and Trade

Natural and man-made disasters, such as wars, pose serious obstacles to the growth of the construction sector and international trade, and have an impact on many trade-related areas, including production, transportation, and market dynamics. Policymakers, businesses and other stakeholders need to understand how disasters of all kinds impact enterprises and trade in order to develop strategies that effectively reduce risks and enhance disaster resilience.

Interruptions to transportation infrastructure are one of the main ways natural disasters affect trade. According to research by Noe (2009), natural disasters, including hurricanes, earthquakes, and floods, can cause damage to ports, airports, and highways, which may impede the flow of goods and services. This may lead to supply chain disruptions, higher transportation costs, and shipping delays affecting both imports and exports. Ahn et al. (2018) explain the vulnerability of transportation infrastructure to natural disasters, emphasizing the need to allocate resources for infrastructure resilience, disaster preparedness, and mitigation of adverse impacts on the construction industry and trade.

Disasters may affect business activity outside their local area of influence by disrupting global supply systems. According to Hallighaty et al. (2012), supply chains are interconnected, and disruptions in one region can have an impact on trade flows and other economic activities around the world. Disturbances caused by disasters such as the 2011 Tohoku earthquake and tsunami in Japan serve as evidence of countries' vulnerability to external shocks as a result of their interconnectedness (Rose & Spiegel, 2011). To reduce the impact of natural disasters on trade, it is necessary to understand supply chain dynamics and develop strategies to improve supply chain resilience.

In addition to changing trade patterns and commodity prices, disasters can also cause changes in market dynamics. For example, natural disasters can cause production disruptions that lead to shortages or surpluses of certain goods, which may affect market prices and trade flows (Cavallo et al., 2013). Moreover, in the wake of natural disasters, shifts in customer preferences and risk perceptions can affect demand for certain goods and services, changing the dynamics of international trade. Natural disasters may have long-term consequences for trade when countries adjust their trade policies and diversify their markets in response to changing conditions, according to research by Loayza et al. (2012).

It has long been known that significant disruptions to international trade and economic activity can result from natural disasters. It is therefore important to understand the impacts that these disasters are having on trade-dependent economies, especially in Africa, given their increasing frequency and severity. This comprehensive literature analysis examines how disasters affect trade and economic growth, with a focus on how the Dubai floods affected Ghana's business and economic environment. Natural disasters, such as hurricanes, earthquakes, and floods, have diverse repercussions on international trade. Noy's (2009) research highlights the negative impacts of

disasters on trade, including disruption of supply networks, production facilities, and transportation infrastructure.

Reduced exports and imports, lower foreign direct investment, and slower overall economic growth are often the result of these disturbances. Moreover, Ahn et al. (2018) investigated how disasters affect supply networks, affecting many countries and companies. Disasters have a greater impact on global trade networks because of their interconnectedness, which is why developing countries that depend on trade and industry must take them into account.

2.1. The Function of International Trade Networks and Supply Chains

Global trade networks and supply chains are essential to enabling the cross-border movement of products and services that connect producers and consumers around the world. Understanding the dynamics of international trade and the impacts of many events, such as natural disasters, on global economic activities requires understanding the complexities of these networks. This survey of the literature highlights important findings and insights from the study group on the function of supply chains and international trade networks.

Supply chains are complex networks of linked companies that produce, distribute and market goods and services. According to research by Christopher (2016), supply chain actors are interconnected, and disruptions in one link can have a domino effect on the entire network. Because supply chains are interconnected, they are more vulnerable to a range of risks, such as economic downturns, natural disasters and geopolitical conflicts.

2.2. Developing Economies' Response to External Shocks

Natural disasters, economic downturns, and geopolitical instability are just a few of the external shocks that developing countries face, and they are often difficult to cope with. Policymakers, business people and stakeholders must understand the resilience of these economies to shocks in order to devise effective methods to mitigate risks and advance sustainable development. This literature survey highlights important findings and insights from the body of research on the resilience of developing countries to shocks from the outside world.

Economies in developing countries are vulnerable to external shocks because of their inherent structural weaknesses. Cavallo et al. (2013) investigated how poor countries' dependence on commodities, irregular capital flows, and constrained institutional capacity amplify the effects of external shocks on economic growth and stability. Moreover, the lack of adequate basic infrastructure, social safety nets, and financial resources in developing economies exacerbates their vulnerability to external shocks.

Developing economies show different degrees of adaptability and resistance to external shocks, despite their weaknesses. Research conducted by Loayza et al. (2012) emphasize the importance of institutional quality, governance structures, and policy frameworks in influencing the resilience of emerging economies. Strong institutions, wise macroeconomic management, and diversified economies all help a country be more resilient to shocks, adapt to changing conditions, and sustain long-term growth.

Investment in human capital and infrastructure is essential to make emerging economies more resilient to shocks from external sources. World Bank research (2018) emphasizes the importance of developing infrastructure to increase productivity, reduce transaction costs, and enhance connectivity to international markets. This includes transportation, electricity and communications infrastructure. By the same token, spending on health care, education, and skills development helps create human capital, enhance worker productivity, and encourage equitable growth.

Regional integration and cooperation initiatives can also increase the ability of developing economies to withstand shocks coming from the outside world. The Asian Development Bank (2019) has conducted research emphasizing the advantages of infrastructure development, financial cooperation mechanisms, and regional trade agreements in promoting economic diversification, lowering trade barriers, and enabling risk-sharing among participating countries. Developing

economies can enhance their overall resilience and use regional markets to mitigate the effects of external shocks by intensifying their regional integration.

Ghana and other developing economies face particular difficulties in recovering from natural disasters. According to Cavallo et al. (2013), disasters have a disproportionately negative impact on emerging countries, leading to increased poverty rates and reduced opportunities for long-term advancement. However, developing economies can become more resilient to external shocks by using proactive approaches to risk management and making investments in disaster resilience (Loayza et al., 2012). Developing countries can reduce the negative impact of natural disasters on trade and economic growth by implementing strong regulatory frameworks, strengthening infrastructure, and enhancing disaster preparedness.

3. Working Methodology

Overcoming obstacles and charting a path for the commercial and economic environment in developing countries in the wake of the war disasters witnessed by Iraq and the natural disasters in Turkey and Syria, the most recent of which are the earthquakes that shook Turkey and Syria, and the most recent of which is the Dubai floods, has led to a focus on finding appropriate ways to adapt to the environment and support stability and sustainable development. Extensive study and analysis of many previous research papers and academic publications. To obtain data and ideas to develop a theoretical framework while raising compelling concerns, several hypothetical sources were used. The analysis of this work depends on compiling information from the literature reviewed, in addition to new ideas about the points raised. The study's conclusions are combined to provide a comprehensive understanding of the research topics. Triangulating data from several sources may help validate conclusions and provide a more complex explanation for the phenomenon under study. In the wake of the Dubai floods, the combined findings were used to provide suggestions to businesses, stakeholders and politicians on how to overcome obstacles and move forward.

4. Results and Discussion

4.1. Natural Disasters, Earthquakes and Floods in the Middle East, Türkiye, Syria, and Dubai, and Their Potential Repercussions on Developing Countries

Much of the existing literature focuses on the broader impact of natural disasters on global trade, but there is a gap in understanding the specific impacts borne by individual countries, especially in Africa and developing countries. Given the importance of the Middle East and Dubai as a global trade center and its interconnection with African economies, it is necessary to evaluate how the Dubai floods, for example, could shape the commercial and economic landscape in developing countries. Understanding the potential channels through which Dubai floods may impact trade patterns, economic growth and development prospects is crucial for policymakers, businesses and stakeholders.

4.1.1. Impact on Trade Patterns

Earthquakes in the Middle East and floods in Dubai, for example, can disrupt global trade patterns through several channels. First, as a major logistics hub, disruptions to Dubai's transport infrastructure can lead to delays and increased costs for goods to transit through the region (Ahn et al., 2018). This could affect the exports and imports of developing countries, especially if they depend on Dubai as a transit point for their trade with other regions. Second, disruptions in Dubai's financial sector may affect trade financing and credit availability, affecting the ability of firms to engage in international trade (Rose & Spiegel, 2011). Third, supply chain disruptions in Dubai can lead to shortages or surpluses of certain goods, impacting trade flows and market prices globally (Hallighaty et al., 2012). Understanding these trade patterns is essential for developing countries to adapt their trade strategies and diversify their markets to mitigate potential losses.

4.1.2. Impact on Economic Growth

The impact of earthquakes and wars in the Middle East, most recently the Dubai floods, on economic growth in developing countries can be significant. Disruptions in global supply chains can disrupt their export-oriented industries, such as agriculture and manufacturing, leading to reduced production and export earnings (Cavallo et al., 2013). Moreover, reduced demand for exports due to disruptions in global trade could exacerbate economic challenges. In addition, if developing countries rely on Dubai as a source of foreign direct investment or financial services, disruptions to Dubai's economy could affect investment flows and access to capital, hampering those countries' growth prospects (Loayza et al., 2012). Proactive measures to enhance local resilience and diversify economic activities can help mitigate the negative effects on economic growth there.

4.1.3. Development Prospects

It is possible that these disasters, whether artificial due to wars, as happened in Ukraine, Iraq, Yemen, Syria, Lebanon, and Palestine, or natural, such as the earthquakes that occurred in Syria and Turkey, most recently the Dubai floods, may also affect the long-term development prospects in developing countries. If its trade and economic growth are negatively affected, this could undermine efforts to achieve the Sustainable Development Goals and reduce poverty rates (Cavallo et al., 2013). Furthermore, disruptions in global trade can affect their ability to access essential goods and services, affecting the well-being of their populations. In addition, if these countries rely on remittances from expatriates working in Dubai or other affected areas, reduced remittance inflows could increase pressure on household finances and hamper development efforts (Noy, 2009). Strengthening local resilience, investing in infrastructure, and encouraging economic diversification are essential strategies for protecting their development prospects in the face of external shocks. It is clear that the recent floods in Dubai, the World Trade Center, could have major consequences on trade patterns in many developing countries that are in trade partnerships with Dubai or other Middle Eastern countries such as Iraq, for example, economic growth, and development prospects. By understanding the interconnections between global trade networks and vulnerabilities in developing economies, policymakers and stakeholders can implement proactive measures to mitigate risks and promote sustainable development. There is a need for more research and policy interventions to enhance the ability of these countries to confront external shocks and promote inclusive growth.

4.2. *Facing Challenges and Charting the Right Path*

Overcoming the potential challenges of these disasters and the crises resulting from them, as happened in the Dubai floods, and charting the way forward for the trade and economic scene in these developing and poor countries requires a comprehensive understanding of the complexities involved. This literature review brings together current research on overcoming challenges and suggests strategies for charting a path forward in the wake of natural disasters, with an emphasis on their impacts on trade and economic development.

4.2.1. Facing Challenges and Developing Infrastructure

Investing in resilience-building measures and infrastructure development is critical to mitigate the impact of natural disasters and promote economic recovery. Research conducted by the United Nations Development Program (2017) underscores the importance of disaster risk reduction strategies, including early warning systems, infrastructure modernization, and land use planning, in enhancing resilience and reducing vulnerability to future disasters. By investing in resilient infrastructure, such as resilient roads, bridges and ports, these developing countries can improve their ability to withstand and recover from the effects of natural disasters, and ensure the continuity of commercial activities.

4.2.2. Diversification of Trading Partners and Commercial Markets

Diversification of trading partners and markets is essential to reduce reliance on single trade routes and make markets vulnerable to disruptions. Research conducted by the World Bank (2020) highlights the benefits of trade diversification in enhancing resilience to external shocks and promoting economic growth. By expanding their trade relations with other countries and regions, these countries can reduce their dependence on the Middle East and center this in Dubai or Turkey as a transit hub and mitigate the impact of disturbances resulting from events such as floods or earthquakes. Moreover, exploring new export markets and diversifying the range of exported products can help it capitalize on emerging opportunities and enhance its trade competitiveness.

4.2.3. Using Ethical Artificial Intelligence to Promote Digital Commerce and e-Commerce

Promoting digital commerce, e-commerce and ethical AI has many benefits and would facilitate business activities and enhance resilience to disruptions in physical supply chains. Research by UNCTAD (2019) underscores the role of digital technologies in facilitating trade, reducing transaction costs, and improving efficiency in cross-border transactions. By harnessing digital platforms and e-commerce solutions, developing countries can overcome logistical challenges posed by physical disruptions and maintain business continuity during emergencies. Furthermore, promoting digital trade can enhance market access for SMEs and enable them to participate more effectively in global trade.

4.2.4. Strengthen Institutional Capacity and Policy Coordination

Strengthening institutional capacity and enhancing policy coordination is essential for effective disaster response and recovery efforts. Research by the OECD (2018) highlights the importance of institutional frameworks, policy coherence, and coordination mechanisms in facilitating timely and effective responses to disasters. By improving coordination between government agencies, private sector stakeholders, and civil society organizations, countries can streamline disaster response efforts, mobilize resources more efficiently, and meet the diverse needs of affected communities. Furthermore, investing in capacity-building initiatives and knowledge-sharing platforms can enhance the preparedness and resilience of stakeholders involved in trade and economic activities.

5. Conclusions

Our study provides a comprehensive summary of the complex interaction between natural disasters and international trade, with a particular focus on the potential consequences of such disasters, such as the recent earthquakes in Turkey and Syria, and the Dubai floods, on the trade and economic environment in developing countries. It stresses the importance of understanding how disruptions in global trade networks can have far-reaching effects on emerging economies.

The paper demonstrates the intrinsic vulnerability of developing economies to external shocks including natural disasters, recessions and unstable geopolitical environments through a comprehensive examination. It highlights how these shocks disproportionately affect developing countries, which have few institutional resources, a high dependence on primary commodities, and inadequate infrastructure.

This analysis shows how trade patterns, economic growth and long-term development prospects in these countries can be affected by disasters, as happened recently in the Dubai floods. The research points to the ways in which disruptions in international trade and supply chains can affect export-oriented sectors in developing countries such as some in South Africa, access to capital, and overall economic stability. It also underscores the importance of taking preventive measures to reduce risks and build resilience to external shocks.

The study provides practical policy recommendations that stakeholders, companies and policy makers in developing countries can use to help them overcome the obstacles posed by disasters, most recently the Dubai floods, and move forward. These proposals include investing in infrastructure

development and resilience-building strategies, expanding markets and trading partners, encouraging digital and e-commerce, and improving institutional capacities and policy coordination.

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