

An Analysis of the Impact of Climate Changes on International Trade Patterns

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Corresponding Author: Mujeeb-ur-Rehman Khuhro (Divisional Executive Engineer, Pakistan Railways, Peshawar, KP, Pakistan. Email: khuhromujeeb117@gmail.com)

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Abstract: *The paper aims to describe how climate change can affect the international trade. The increase in temperature owing to climate change can result in a significant decrease in trade volume, resulting in an economic loss for the country. It provides analysis of the impacts of climate change on international trade patterns. Increased temperature due to climate change can result in increased trade cost. It can also disrupt the infrastructure corridors which are vital for ensuring smooth trade. Increased concentrations of carbon dioxide due to use of harmful gases may decrease the yield of major commodity crops such as corn, rice and oats. Agricultural impacts of climate change on international trade can, in fact, raise global concerns of food security. The paper further points out potential trade implications for Pakistan owing to climate change. The Climate induced disasters such as floods can destroy Pakistan's transport infrastructure. The recent catastrophic floods of 2022 damaged more than 8000 miles (13,000 kms) of road infrastructure, affecting the delivery of goods and services. Reduced agriculture exports will increase Pakistan's import dependency. Another major great implication would be on Pakistan's maritime sector. Climate change poses a direct threat to the Sea Ports which can greatly affect the trade volume. At the end, the paper also suggests recommendations to counter the threats posed by climate change and increase country's trade volume. Role of Government in effective policy making is of paramount importance in this regard. Shift towards renewable energy resources will help in getting rid off greenhouse gases which contribute to climate change. Pakistan also needs to switch towards Sustainable Transport System. Climate change Mitigation and Adaptation Strategies, Sustainable Development, implementation of integrated policies, among others, will prove beneficial in dealing with climate change and help in boosting trade potential of Pakistan.*

Keywords:

Honour Killing, Pakistan, Women's Rights, Laws, Criminalization, Culture, Gender, Justice, Reforms, Discrimination, Violence, Empowerment.

Authors:

Urwa-tul-Wusqa Taj: Advocate, District Bar Association, Dera Ismail Khan, KP, Pakistan.

Email: tilwusqa7852@gmail.com

Introduction

International trade is important for the economic development of any country. In this age of globalization, international trade is of great importance. However, climate change has greatly affected the international trade patterns. It has led to a number of impacts. Rise in temperature has resulted in increased trade cost.

Disruption of infrastructure corridors is also due to extreme temperatures. Rise in Sea level also pose a direct threat to Sea Ports, hence affecting the maritime transport.

Pakistan being one of the most vulnerable countries due to Climate change is greatly affected. It has led to greater trade implications for Pakistan. Transport infrastructure which is necessary for trade is damaged under extreme weather owing to increase in temperature. Hurricanes and floods can result in damage of roads, bridges, and railway tracks which are necessary for ensuring smooth trade.

Extreme weather temperature has affected Pakistan's Agricultural sector. Its contribution to GDP of the country has significantly declined. This has caused increased import dependency resulting in current account deficit of the country.

Apart from it, climate change has resulted in disruption of global supply chains, impacts on natural resources as well as on maritime shipping. In order to increase its trade volume, Pakistan must ensure some pragmatic measures to deal with climate change. In this regard, government must ensure effective policy making. Use of Renewable energy resources and resort towards green transportation can greatly help the country to mitigate the effects of climate change and hence increase its trade volume. Pakistan also needs to adopt Climate Change Mitigation and Adaptation Strategies. Ensuring measures such as Sustainable Development, Use of 3R's (Reduce, Reuse and Recycle) Strategy, Establishment of Eco-industrial Parks and implementation of integrated policies are also the need of the hour. Proper implementation of these measures will greatly help in dealing with the threat of Climate Change and hence increasing the trade potential of the country.

Analysis of the Impacts of Climate Change on International Trade Patterns

Reduced Economic Growth

Economic Development of any country is essential for the smooth running of the state's affairs. It's largely dependent on the country's trade potential. In this globalized age, the world has become so much introduced that decrease in trade volume of one country can cast the repercussions for another country. Climate change which is a global issue can give rise to the problems for many countries. It can greatly reduce their trade out-put.

Increased Trade Costs.

Increased temperature owing to climate change can increase the trade cost, resulting in an increased economic loss for the country. According to the world trade report 2022, a rise of 1°C has been found to reduce the annual growth of developing 2.0 and 5.7 percentage points. This suggests the impacts of climate change on the country's export sector.¹

Disruption of Infrastructure Corridors.

Extreme temperature owing to climate change can disrupt the infrastructure corridor of the country. Rise in temperature causes increasing sea level, resulting in hurricanes and floods. This results in the destruction of a country's infrastructure set up.

Damage to roads and highways from hurricanes and floods exceeds millions and sometimes billions of dollars annually. This suggests how damage of roads can led to disruption of infrastructure corridors.²

Threat of Maritime Transport

Maritime transport is particularly more exposed to climate-related risks. Rise in sea level poses a direct threat to sea ports. This can, in turn, affect the trade activities. In contemporary times, sea transport is of crucial importance. Maritime transport is the backbone of the international trade and the global economy.

¹ [wto.org/English/res_e/booksp_e/wtr22_e/wtr_22_e.pdf](https://www.wto.org/English/res_e/booksp_e/wtr22_e/wtr_22_e.pdf)

² Federal Emergency Management Agency. "FEMA P-2181 Fact Sheet: Roads." URL: <https://www.fema.gov/sites/default/files/documents/fema-p-2181-fact-sheet-1-0-roads.pdf>.

Around 80% of global trade by volume and over 70% of global trade by value are carried out by sea and are handled by ports. This suggests the increased importance of maritime transport in current times.³

Impact on Out-Put of Major Crops

Climate change can also affect the agricultural sector of the country. According to the United States environmental protection agency, rising temperatures and carbon dioxide concentrations may increase some crop yields but the yields of major commodity crops such as corn, rice and oats are expected to be lower than they would be in a future without climate change. This suggests how climate change can decrease the yield of major crops.⁴

Food Security: a Global Concerns

Climate change has also led to rise in global food insecurity. This is owing to increased droughts due to climate change. Rising food commodity prices in 2021 were a major factor in pushing approximately 30 million additional people in low-income countries toward food insecurity.⁵

Potential Trade Implications for Pakistan

Pakistan is one of the most affected countries due to climate change. According to a report published by the international panel on climate change (IPCC) Pakistan is 8th most vulnerable country due to climate change.⁶

As Pakistan is the most affected countries due to climate it is likely that it can result in greater trade implications for the country.

Loss of Infrastructure

Pakistan's transport infrastructure such as roads, bridges and railway track is susceptible to climate change related risks such as floods. This is evident from the recent catastrophic floods of 2022. The floods caused a destruction of large network of roads and bridges. The floods damaged more than 8000 miles (13,000 kilometers) of roads and 410 bridges, hampering people's ability to seek safety and reach markets.⁷

Reduced Agricultural Exports

The reduced agricultural yield will push Pakistan towards decrease in agricultural exports. Being an agrarian country, climate change has seriously affected Pakistan agricultural sector. It is predicted that by 2040, an increase in average temperature of 0.5 degree Celsius is expected to worldwide with 8-10% loss in terms of all crops corresponding to Pakistan 30,000 per acre.⁸

³ Review of Maritime Transport 2018. United Nations Conference on Trade and Development.. URL: <https://www.unctad.org/publication/review-maritime-transport-2018>.

⁴ "Climate Change Impacts on Agriculture and Food Supply." Environmental Protection Agency. URL: <https://www.epa.gov/climateimpacts/climate-change-impacts-agriculture-and-food-supply>.

⁵ "What You Need to Know: Food Security and Climate Change." World Bank, URL: [worldbank.org/en/news/features/2022/101171/what-you-need-to-know-food-security-and-climate-change](https://www.worldbank.org/en/news/features/2022/101171/what-you-need-to-know-food-security-and-climate-change).

⁶ ipcc.cn

⁷ "2022 Pakistan Floods." Center for Disaster Philanthropy. URL: <https://www.disasterphilanthropy.org/disasters/2022-Pakistan-floods/>.

⁸ "Impact of Global Change on Economy of Pakistan: How to Ensure Sustainable Food and Energy Production." MedCrave Online Journal of Agricultural Research (APAR). Accessed [insert date of access]. URL: medcraveonline.com/APAR/impact-of-global-change-on-economy-of-pakistan-how-to-ensure-sustainable-foof-and-energy-production.html

Increased Import Dependency

The reduced agricultural exports will result in increased dependency. This is evident from the fact that the government of Pakistan has approved a deal worth nearly \$112 million to import 300,000 tons of wheat from Russia to meet its domestic shortfall.⁹

Trade Policy Adjustment Issues

The climate change has also given rise to trade policy adjustment problems for the country. The domestic industry has not been developed at par with regional and global competitors. As a result, Pakistan has not achieved the true benefits of liberalized economy.

Disruption of Global Supply Chains

Disruption of global supply chains due to rise in sea level has limited the trade opportunities for Pakistan. Climate change could worsen supply chain turmoil, a drought that has crippled economic activity in south western china hints at the kind of disruption that climate change could wreak on global supply chains. (Source: [nytimes.com/2022/09/08/business/economy/climate/change-supply-chain.html](https://www.nytimes.com/2022/09/08/business/economy/climate/change-supply-chain.html))

Impacts on Maritime Shipping

Rise in sea level temperature due to climate change poses a direct threat to sea ports which can greatly affect the trade volume.

Economic Disparities

Climate change has also led to economic disparities. According to report published by the United States agency for international development (USAID), climate change will jeopardize the food sources and livelihoods of the poorest and the most vulnerable people around the world. Shortage of food resources will affect the poor segments of the society and increase economic disparities.¹⁰

Impacts on Natural Resources

Climate change also puts the pressure on country's natural resources. Owing to glacial meeting, fresh water reservoirs are depleting at faster rate. This results in decreased water availability. Such changes possess severe stress on natural resources for agriculture, industrial and domestic usage.¹¹

Analysis & Findings

Climate change can seriously disrupt the international trade which is vital for the economic development of any country. Climate change can hamper the trade opportunities, resulting in an increased economic loss.

According to a report published by the world Trade Organization (2022), a rise of 1°C has been found to reduce the amount growth of developing countries exports by between 2.0 and 5.7 percentage points.¹²

Climate Change has also given rise to economic disparities. As per report published by the United States Agency for International Development (USAID), Climate change will further widen the gap between the rich and the poor. Shortage of food resources will affect the poor segments of the society and increase economic disparities.¹³

Pakistan is particularly more affected country due to climate change. This can create greater trade implications for Pakistan. Climate change can decrease Pakistan's agricultural exports resulting in an

⁹ Aljazeera.com

¹⁰ Usaid.gov

¹¹ www.sciencedirect.com

¹² [wto.org_e/wtr22-ch2e.pdf](https://www.wto.org_e/wtr22-ch2e.pdf)

¹³ usaid.gov

increased import dependency. Pakistan's recent approval of a deal worth 112 million US Dollars to import 300,000 tons of wheat from Russia shows Pakistan's increased import dependency.¹⁴

Pakistan should ensure some policy measures such as shift towards renewable energy resources, switching towards Sustainable Transport System, ensuring Sustainable Development, Use of 3R (Reduce, Reuse and Recycle) Strategy, implementation of integrated policies, etc. to deal with threat of Climate Change and hence increase its trade potential.

Recommendations

Pakistan trade is greatly affected owing to climate change. It is the need of the hour that government must ensure following measures to deal with climate change and increase its trade potential.

Role of Government in Policy Making

In this regard, the role of government in effective policy making is of paramount importance. For instance, water is a precious natural resource. Pakistan needs to build sufficient reservoirs of water to meet the agricultural as well as industrial needs.

Use of Renewable Energy Resources

Use of renewable energy resources will also help in mitigating the effects of climate change. Renewable energy resources are clean energy resources which pollution. As, they do not emit harmful gases such as carbon dioxide and methane. Renewable Energy Resources include:

- Solar Energy
- Hydropower
- Wind Energy
- Geothermal Power
- Biomass Energy

Sustainable Transport System

Switch towards sustainable transport system, is also beneficial in this regard. Sustainable transport system is a green public transport system in which electric trains, trams and electric buses.

Sustainable Transport System is an environment friendly system as it does not cause emission of any harmful gases.

Climate Change Mitigation and Adaption Strategies

Mitigation and adaptation strategies are used to minimize the impacts of climate change. Mitigate is to minimize the presence of greenhouse gases in the environment by shifting towards energy resources.

Adaption is a strategy that involves to decrease the risks associated with consequences of climate change.

Sustainable Development

Pakistan also needs to ensure sustainable development. It refers to achieve development that ensures environmental protection. Sustainable Development harnesses the balanced use of resources so as to meet the needs of present generations without compromising the needs of future generations.

Reduce, Reuse and Recycle (3Rs)

It is a strategy employed to lower the environmental degradation.

Reduce: It aims at reducing the amount of waste generated.

Reuse: To use the things multiple times rather than disposing it off after using only once.

¹⁴ Aljazeera.com

Recycle: To turn products and materials that would otherwise become waste into resources.

Role of World Trade Organization (WTO)

The role of WTO is of crucial importance regarding smooth conduct of international trade. WTO should envisage a framework that binds developed countries to shift their green technology to the developing countries in order to reduce the impacts of climate change.

Establishment of Eco-Industrial Parks

Eco-industrial parks are established to ensure co-operation among business community regarding presentation of environmental eco-industrial parks can reduce the impacts of climate change and hence increase country's trade volume.

Integrated Policies

Integrated trade policies should be ensured so as to collectively handle the problems. Co-ordination between federal government and provinces will also help in devising integrated policies. Ensuring these measures will help in mitigating the effects of climate change and hence increase its trade volume.

Conclusion

To conclude, climate change is a global issue. It is affecting several countries. International trade which is crucial for achieving robust economy is severely affected due to climate change. Occurrence of floods and hurricanes can damage the roads, bridges and railway tracks which are vital for ensuring smooth trade. Climate change also poses a direct threat to Sea Ports which affects Maritime Transport. It has also led to rise in global food insecurity. Pakistan being one of the most vulnerable countries due to climate change is seriously affected. It has led to greater trade implication for Pakistan. Pakistan's Agricultural Sector is greatly affected resulting in a decreased exports. Pakistan has to import food items due to reduced agricultural yield. Climate Change will also jeopardize the livelihoods of the poor. It has also limited the country's economic potential. Destruction of infrastructure has affected the transport of goods and it has also affected country's maritime sector. Pakistan needs to ensure pragmatic measures to deal with climate change and hence increase its trade potential. Measures such as formulation of effective policy, shift towards renewable energy resources, Sustainable Transport System, Ensuring Climate Change Mitigation and Adaptation Strategies, Establishment of Eco-Industrial Parks, and implementation of integrated policies are the need of the hour to address the issue of Climate Change. Proper implementing of these measures will help country in countering the threat of Climate Change and increase its trade potential.