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Non-Traditional Maritime Security (NTMS) Challenges to the Economic Security of the States in the Indian Ocean Region (IOR): A Case Study of Pakistan

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ABSTRACT

Non-traditional maritime security challenges have a substantial impact on the economic security of the coastal and littoral states in the Indian Ocean Region (IOR) including Pakistan. All coastal and littoral states of the IOR confront security challenges in their marine zones and areas of responsibility such as illegal immigration, smuggling, narcotics, and climate change for ensuring economic and national security. The objectives of the undertaken research are to examine the impact of NTMS challenges on the economic security of Pakistan, to understand the linkages between non-traditional maritime security challenges and economic vulnerabilities of Pakistan, and to propose recommendations for mitigating non-traditional maritime security challenges. A qualitative and deductive research approach is utilized in this research. it is explanatory in terms of its purpose. Both primary and secondary evidence have been utilized to support the core argument. The resilience theory serves as a theoretical framework for this research.

Introduction

The economic prosperity of the states has been linked more with the maritime zones in the contemporary age. Maritime zones have taken prominence as a result of UNCLOS in 1982. With the increase in vast means of communication and technology, there is an increase in the challenges in the Indian Ocean Region (IOR) which are non-traditional in nature. These challenges affect all the activities of both state and non-state actors and create hurdles in the way of ocean governance

and law enforcement. This region is not merely significant due to its warm waters, trade routes, and transits, but it contains untapped natural resources in abundance such as oil and gas, minerals, fisheries and seafood. Being home to the variety of living beings, the region's biodiversity contributes significantly to the economy of the littoral states and combats food security. With 16.8%¹ of the world's proven oil reserves and 27.9% of proven natural gas reserves and 45% of the global population.² The region contributes as a resource heaven and a global market, so it's getting attraction. Hence creating opportunities as well as challenges for the littoral states such as piracy, terrorism, trafficking of drugs, human and weapons, illegal, unreported and unregulated fishing (IUUF), and environmental crimes such as oil and chemical spills. These concerns directly impact the states' economies and jeopardize the state's national security. The challenges do not merely affect economic security but influence all pillars of society and states because it has the potential to harm and deplete marine resources, restrict the free flow of trade, and pose, and escalate tensions and chaos not merely in coastal lines and settlements, but the entire state. The objectives of the undertaken research are; to examine the impact of NTMS challenges on the economic security of Pakistan, to understand the linkages between non-traditional maritime security challenges and the economic vulnerabilities of Pakistan, and to propose recommendations for mitigating non-traditional maritime security challenges.

The qualitative research method is used in this undertaken research. The research is explanatory and analytical in nature. Qualitative and quantitative data have been used to support the core argument which is the following: "The NTMS challenges profound influence on the economic security of states which does not only affect the economic security and stability of Pakistan, but is a formidable threat to its national security." Primary data is collected through survey. Four experts and scholars have responded to the survey. Jouni Laari is Security Advisor Indian Ocean Region at EEAS, Maliha Zeba Khan is an assistant professor at NUML, Sohail Ahmed Azmie is a commodore at Pakistan Navy, and Jude Cocodia is Associate Professor at Niger Delta University. The resilience theory is used to explain the under-discussion phenomenon. The resilience theory was coined by Dr. Norman Garmezy in 1991.³ It highlights the ability of systems to endure and bounce back from disruptions while preserving crucial functions and structures. The system emphasizes principles like adaptation, diversity, modularity, feedback loops, and thresholds to improve its capacity to handle uncertainty and change. Understanding the interconnected nature of maritime security with larger socio-economic and geopolitical systems, it is crucial for improving resilience.

This research paper is based on four sections which are i) Pakistan Strategic Geography and NTMS Threats in its Jurisdiction, ii) NTMS Challenges Impact on Economic Security of Pakistan, iii) Economic Security Impact on the other Sectors of Pakistan, and Conclusion

Pakistan Strategic Geography and NTMS Threats in its Jurisdiction

Oceans and seas are indispensable sources of food, water, energy, and mineral resources that are underpinning the prosperity of coastal states. Indian Ocean participates in the global trade and

¹The Lakshman Kadirgamar Institute. "The Importance of the Indian Ocean: Trade, Security and Norms - the Lakshman Kadirgamar Institute," February 1, 2019. <https://lki.lk/publication/the-importance-of-the-indian-ocean-trade-security-and-norms/>.

² Statista. "Distribution of the global population by continent 2024," November 19, 2024. <https://www.statista.com/statistics/237584/distribution-of-the-world-population-by-continent/>.

³Internet Public Library, "Norman Garmezy's Theoretical Framework For Resiliency," Essays, Research Papers, Term Papers | Internet Public Library, last modified August 20, 2020, <https://www.ipl.org/essay/Norman-Garmezys-Theoretical-Framework-For-Resiliency-PJF5AU3YG>.

commerce as well as connects. Situated at the geographic coordinates of 30.3753° N and 69.3451° E, Pakistan enjoys a strategic location at the intersection of these vital maritime trade routes. Connecting the Africa, Middle East, and South Asia not only for economic purposes but for, Military collaboration and cultural exchange as well. Pakistan is majorly benefited due to its strategic location, however, the NTMS challenges are undermining the economic as well as political stability of the country.

According to the UNCLOS, Pakistan contains maritime zones including a territorial zone up to 12nm, a contiguous zone up to 24nm, an exclusive economic zone (EEZ) up to 200 nm, and it also possess continental shelf of 350nm in its coastal belt based on 1046 km.⁴ Furthermore, Pakistan has complete jurisdiction as per the United Nations Law of Sea Convention (UNCLOS) and Law of the Sea. The International Maritime Organization (IMO) has also given the responsibility of search and rescue (SAR) operations up to 840nm from its coast. There are a number of maritime crimes reported in Pakistan Maritime Security Agency (PMSA) including IUUF, smuggling, trafficking, marine terrorism, cyber-attacks, marine pollution, and natural disasters (cyclones and floods).⁵ Moreover, Pakistan Coast Guards have taken a number of actions against narcotics in its jurisdiction. Pakistan Navy is indulged in eradication of NTMS challenges in the entire IOR in collaboration with regional and international defense forces.

NTMS Challenges and Economic Vulnerabilities of Pakistan

One of the key national security responsibilities entails maintaining and securing the states' economy. However, the transnational NTMS challenges exert a profound influence on the stability of economic security directly and national security indirectly. As Khan said, 'NTMS threats either those are linked with fishing practices, marine pollution, loss of biodiversity, ocean acidification, invasion of alien species, oil or chemical spills or other environmental issues, all are serious challenges for national economy directly'.⁶

Economic security, national security, and human security are the intents of maritime security for states in the current times and are interrelated to each other.⁷ Furthermore, maritime security ensures the marine environment and secures the blue economy by protecting trade and commerce, growth and development, food, and life. The World Bank highlights the economic vulnerabilities of Pakistan in its report, Pakistan's average annual GDP is 4.7% from 2002 to 2022.⁸ Moreover, it indicates the high inflation, low foreign reserves, and depreciating currency in Pakistan.

Pakistan has been facing economic loss due to cyclones, floods, cyber-attacks, and marine terrorism. Therefore, a significant amount has been spent every year to control and eradicate NTMS challenges under its jurisdiction which harnesses its economic security. Hence, it's a firm hurdle in the growth and development of states including Pakistan. According to Azmie, 'Any security incident on maritime traffic can adversely impact Pakistan's maritime trade, even if it doesn't directly target commercial vessels carrying Pakistani products or imports. Maritime crime

⁴Pakistan Maritime Security Agency, "Area of Responsibility," Pakistan Maritime Security Agency, accessed August 7, 2024, <https://pmsa.gov.pk/area-of-responsibility>.

⁵Laraib Ali, "Non-traditional Maritime Security Challenges in Indian Ocean and Regional Response: Role of Pakistan," (master's thesis, National University of Modern Languages, 2023), <https://norr.numl.edu.pk/repository/listing/department/13?page=5>.

⁶Maliha Zeba Khan, Assistant Professor at NUML, Sep 28, 2024, response via Email.

⁷Riccardo Trobbiani, "How Should National Security and Human Security Relate to Each Other? Written," *E-International Relations*, April 2013, <https://www.e-ir.info/pdf/36454>.

⁸World Bank Group, "Overview," World Bank, last modified April 4, 2022, <https://www.worldbank.org/en/country/pakistan/overview>.

can force trade routes to be lengthened, leading to increased insurance premiums and container shipping rates'.⁹

As Laari said, 'All global coastal states are dependent on maritime domain, especially economic wise, but also for blue economy (e.g. fishing), and transportations of humans. Pakistan is likewise dependent on maritime trade. Flight cargo is too expensive for general Pakistani products, and would raise their prices beyond affordable.'¹⁰

Illegal, Unreported, and Unregulated Fishing (IUUF)

IUUF is the historical issue in territorial, contagious, and exclusive economic zones of states worldwide as well as it's a formidable threat to the blue economy of states. IUUF poses a threat to national, human, food, and economic security of states. non-state actors and multiple fishermen have been using minute nets, gill nets, explosives, dynamite and cyanide to catch the fish; however, it destroys the coral reefs, and marine ecosystem, and causes endangerment of fisheries in the particular zone.¹¹ According to Khan, 'Wrong fishing practices like use of illegal nets (Guja) or other means, fishing in the season of breeding, poaching, or IUUF, all affect socioeconomic indicators of Pakistani fishermen, both vertically and horizontally.'¹² Due to the geographic location there are more chances of hurricanes, cyclones in the region which further expand in floods and cause mass destruction of marine infrastructure both onshore and offshore. Furthermore, it disturbs seafood supply chains, harms the fishing exports, lessens the opportunities for fishermen, endangers the fish and sea species, depletion of food resources, influences the biodiversity and ecology which impacts marine environment of the state. According to Cocodia, Overfishing leads to dwindling fortunes of local fishermen and so affects the economy of coastal towns which leads to migration.¹³ Coastal communities of Pakistan are reliant on fishes for food and source of earning.¹⁴ The tax and revenue of Pakistan has also been facing complications due to IUUF because it directly impacts on GDP and economy. Fisheries have contributed crucially to the GDP of Pakistan.¹⁵ According to Khan, "If fish stock is affected due to any reason, that would be damaging for the circular economy of the state. Similarly, environment related challenges have implications for marine biodiversity, ecological balance and even different marine production like sea kelp, corals, shellfish, minerals and sea cucumbers etc., again having direct linkage to national economic base."¹⁶

According to Ali, a total 14765 Indian boats have been caught while illegal fishing, having crews of 2580 from 1987 to 2022.¹⁷ Furthermore, Ilyas also claims, Pakistan has suffered a lot because of

⁹ Sohail Ahmed Azmie, Commodore Pakistan Navy, August 25, 2024, response via email.

¹⁰ Jouni Laari, is Security Advisor Indian Ocean Region at EEAS, August 26, 2024.

¹¹ Reef Resilience Network, "Local Threats," Reef Resilience |, last modified 2024, <https://reefresilience.org/stressors/local-stressors/>.

¹² Dr Maliha Zeba Khan, Assistant Professor NUML, Islamabad, Sep 28, 2024. response via email.

¹³ Jude Cocodia, Assistant Professor at Niger Delta University, Research Fellow, University of the Free State, Senior Research Fellow, MOFA Taiwan. 24 August 2024, response Via Email.

¹⁴ Asian Human Rights Commission, Fisherfolk Blues, (Pakistan: Asian Human Rights Commission, 2012), <http://www.humanrights.asia/news/ahrc-news/AHRC-ART-027-2012/>.

¹⁵ Salma Nusrat, Fisheries: Potential of Pakistan, (Pakistan: Trade Development Authority of Pakistan, 2021), <https://tdap.gov.pk/wp-content/uploads/2022/03/Fisheries-Potential-of-Pakistan-Salma-Nusrat.pdf>.

¹⁶ Khan.

¹⁷ Laraib Ali, "Non-traditional Maritime Security Challenges in Indian Ocean and Regional Response: Role of Pakistan," (master's thesis, National University of Modern Languages, 2023), <https://norr.numl.edu.pk/repository/listing/departement/13?page=5>.

Indian Fishermen in their oceanic spaces.¹⁸ All coastal states rely heavily on the maritime domain, especially for trade, fisheries, and transportation. Pakistan is particularly dependent on maritime trade, as air cargo is too expensive for most products. While China trade is limited, Pakistan's coastal regions are entirely reliant on the sea for food and trade. Maritime crime disrupting trade would significantly harm Pakistan, especially coastal areas.

Smuggling

Smuggling and trafficking are harmful for society as well as regular economy of Pakistan, e.g. smuggling of narcotics, small weapons have life threats, smuggling of diesel or edibles due to being unregulated trade have challenges for national economy. Even damage to fiber optic cables and pipelines damage economic activities across the country. As per information of Federal Board of Revenue (FBR) and Finance Ministry of Pakistan in 2023, unfortunately, Pakistan has incurred the setback of 10 billion oil. As per civil intelligence agency report 3023, the estimated annual loss to Pakistan as a result of smuggling is 60 billion.¹⁹ Furthermore, the Research and Development Department under the Lahore Chamber of Commerce has analyzed that Pakistan has been bearing a loss of US \$ 2.6 billion annually due to smuggling. The total amount of smuggled goods is 9 billion dollars which is equivalent to 3% GDB of Pakistan.²⁰ Khan, Even smuggling and trafficking of contrabands or unregulated economic activities have negative consequences for national economy due to a vast array of impacts.²¹

Table 1: Smuggled Products and their Mountainous Worth²²

Items/Products	Amount
FY2022 Mobile phones	US\$1100 million
Diesel	US\$874 m
Plastic	US\$222 m
auto parts	US\$184 m
Vehicles	US\$175 m
Tyres	US\$118m
steel sheets	US\$112
Tea	US\$77m
Cigarettes	US\$27m
Television	US\$9m
Garments	US\$2.5m

Source: Compiled by Researcher

¹⁸ Faiza Ilyas, "Pakistan suffers huge losses due to poaching by Indian fishing boats," *Dawn*, June 5, 2018, <https://www.dawn.com/news/1412015>.

¹⁹ Naveed Butt, "Smuggling of Iranian oil into Pakistan: 90 govt officials, 29 politicians found involved," *Business Recorder*, September 11, 2023, <https://www.brecorder.com/news/40262513/smuggling-of-iranian-oil-into-pakistan-90-govt-officials-29-politicians-found-involved>.

²⁰ Dr Hasnain Javed, "The Economics of Smuggling," *Daily Times*, May 12, 2023, <https://dailytimes.com.pk/1092388/the-economics-of-smuggling/>.

²¹ Khan.

²² Dr Hasnain Javed, "The Economics of Smuggling," *Daily Times*, May 12, 2023, <https://dailytimes.com.pk/1092388/the-economics-of-smuggling/>.

In a nutshell, one of the main reasons behind the economic crisis in Pakistan is smuggling because the indicators estimated that the informal economy value is around US\$150 billion which is incredibly astonishing.²³

Human Trafficking

Human security is not only an imperative of moral values but has a profound impact on the economic security of the states worldwide. The human traffickers have forced victims for sex, prostitution, and labor work, begging, and body parts removal etc.

Furthermore, the comprehensive efforts and prosecution demands finances and huge money, such as implementation of laws to prevent and prosecute human traffickers, recovery of victims, and supportive mechanisms for victims (shelter, doctors, healers, and job source), which are definitely a burden on economic security of the states including Pakistan. Human trafficking is also a serious concern for Pakistan's economic security. In addition, it influences labour markets, stresses the working conditions, and depressed wages, and a threat to human capital in developing states like Pakistan.

According to the United States report on trafficking 2023, the traffickers have been using the fake job recruitment strategy in underdeveloped countries worldwide to attract people of all ages. Pakistan is included in these countries.²⁴ Moreover, human traffickers are also involved in other non-traditional and illicit activities which includes money laundering, bribery, wage theft, and payments related to human trafficking.²⁵ The Federal Investigative Agency (FIA) and provincial law enforcement agencies have allocated a total of 1.1 billion PKR (\$6.2 million) for human trafficking investigations at various levels such as local, provincial and federal.²⁶

Anti-Narcotics

According to Ali, the Pakistan Navy and PMSA have engaged in anti-narcotics operations since its inception and recovered drugs worth billions of dollars in its waters. Pakistan spends millions of rupees, and efforts both at national and regional levels to reduce and eradicate the flow of narcotics worldwide. From 2017 to 2022, the 24 boats have been reported and seized full of drugs along with their crew.²⁷

Maritime Terrorism

²³ Dr Hasnain Javed, "The Economics of Smuggling," *Daily Times*, May 12, 2023, <https://dailytimes.com.pk/1092388/the-economics-of-smuggling/>.

²⁴ Department of States, United States of America, TRAFFICKING IN PERSONS REPORT JUNE 2023, (Department of States, United States of America, 2023), https://www.state.gov/wp-content/uploads/2023/09/Trafficking-in-Persons-Report-2023_Introduction-V3e.pdf.

²⁵ Department of States, United States of America, TRAFFICKING IN PERSONS REPORT JUNE 2023, (Department of States, United States of America, 2023), https://www.state.gov/wp-content/uploads/2023/09/Trafficking-in-Persons-Report-2023_Introduction-V3e.pdf.

²⁶ Department of States, United States of America, TRAFFICKING IN PERSONS REPORT 2022, (Department of States, United States of America, 2022), [https://www.state.gov/reports/2022-trafficking-in-persons-report/pakistan/#:~:text=The%20Federal%20Investigative%20Agency%20\(FIA,1.3%20million\)%20for%20Punjab%20police%2C](https://www.state.gov/reports/2022-trafficking-in-persons-report/pakistan/#:~:text=The%20Federal%20Investigative%20Agency%20(FIA,1.3%20million)%20for%20Punjab%20police%2C)

²⁷ Laraib Ali, "Non-traditional Maritime Security Challenges in Indian Ocean and Regional Response: Role of Pakistan," (master's thesis, National University of Modern Languages, 2023), <https://norr.numl.edu.pk/repository/listing/department/13?page=5>.

Maritime terrorism came into the limelight in post-9/11, however, maritime zones have been vulnerable due to terror attacks and threats to the critical Sea Lanes of Communication (SLOC) and maritime infrastructure worldwide for ages. Merchant ships, warships, oil tankers, and coastal establishments (lighthouses, ports and harbors, especially fishing ports, etc.) are included in the main targets of terrorists in waters. Pakistan has faced economic and human loss due to terror attacks in the maritime sector from time to time. Here is the list of few terror incidents which affect the maritime sector of Pakistan; In 2002, a tragic incident had occurred (suicide bomb attack on the bus belongs to Pakistan Navy) at Karachi outside the Sheraton Hotel, which is a direct threat to Pakistan Navy.²⁸ In August 2010 to June 2011, MV Suez Hijacked by Somali pirates and released after a ransom of 2.1 million dollars was again attacked on June 15, 2011. In 2011, PNS Mehran Naval Attack in Mehran Naval Base. Two maritime patrol aircraft have been completely destroyed by terrorists.²⁹ Furthermore, several warplanes have been destroyed including anti-submarine and marine surveillance aircraft (P-3C Orion).³⁰ In 2014, there was a failed terror attempt on the PNS Zulfiqar (Karachi Naval Dockyard).³¹ In 2021, there was an attack on a vehicle of Navy Personnel in the southwestern Gwadar district.

Cyber-Attacks

In the modern age, there are rapid technological advancements in all sectors including maritime sector such as radars, sonars, Global Positioning System (GPS), Automatic Identification System (AIS), Radio Frequency Identification (RFID), Electronic Data Interchange (EDI) and other tracking devices³² which are installed in the boats and ships for the purpose of navigation, monitoring, avoid collision, surveillance, impersonate vessels, and security of the devices. Moreover, these devices are directed by the internet and can be manipulated or hijacked by cyber attackers, causing miscommunication, disrupting communication, causing navigation hazards, and disrupting tracking. Therefore, these are vulnerable because it influence the national, regional, international, and global security systems.

Pakistan has also advanced its ships and boats in the era of technology-driven world. Along with its benefits, Pakistan faced cyber terror attack in 2014, there was an attack on Karachi shipyard engineering network.³³ In 2018, Pakistani shipping company, M.S.T.C.S, is another victim of cyber-attack which damaged important information and disrupted the operations.³⁴ In 2020, Pakistan National Shipping Corporation (PNSC) and in January 2022, the Karachi Port Trust

²⁸ Rory McCarthy and Paul Webster, "Suicide bomber kills 11 French engineers at Karachi hotel," *The Guardian*, May 9, 2002, <https://www.theguardian.com/world/2002/may/09/pakistan.rorymccarthy>.

²⁹ Al Jazeera, "Pakistani naval base under attack," *Al Jazeera*, May 23, 2011, <https://www.aljazeera.com/news/2011/5/23/pakistani-naval-base-under-attack-2>.

³⁰ BBC, "Pakistan: Troops end attack on Karachi naval air base," *BBC*, May 23, 2011, <https://www.bbc.com/news/world-south-asia-13495127>.

³¹ The Express Tribune, "PNS Zulfiqar attack: Five navy officers get death penalty," *The Express Tribune*, May 24, 2016, <https://tribune.com.pk/story/1110057/pns-zulfiqar-attack-five-navy-officers-get-death-penalty>.

³² Maliha Z. Khan and Muhammad F. Sadiq, "Emerging Cyber Technologies in the Maritime Domain: Challenges for Maritime Security and 'Order at Sea'," *THE BEACON JOURNAL* 2, no. 1 (2022), https://pnwc.paknavy.gov.pk/thebeaconjournal/crs/Vol2No1_2022/3.

³³ Muhammad S. Akram, "Cyber-Warfare and Pakistan Maritime Security," *stratheia*, March 8, 2023, <https://stratheia.com/cyber-warfare-and-pakistan-maritime-security/#:~:text=There%20have%20been%20several%20reported,and%20the%20disruption%20of%20operations>.

³⁴ Muhammad S. Akram, "Cyber-Warfare and Pakistan Maritime Security," *stratheia*, March 8, 2023, <https://stratheia.com/cyber-warfare-and-pakistan-maritime-security/#:~:text=There%20have%20been%20several%20reported,and%20the%20disruption%20of%20operations>.

(KPT) were affected due to cyber-attacks.³⁵ Furthermore, in 2023, NewsPenguin tried to flop the PIMAC-2023 which is another group of cyber attackers, whose focus is to damage the military and defense of the state.³⁶ Therefore, cyber-attacks on the nation-state's private and public sectors are considerable threats to the economy of states including Pakistan.

Marine Pollution and Effects on the Environment

Karachi's coast is more toxic than the Gwadar coast.³⁷ Oil and chemical spills, sea dumping, garbage sediments, and inadequate disposal of factory waste have polluted the fresh water and destroyed the ecology of the seas since industrialization and technological revolution. Marine pollution is a burden for the economy of Pakistan because of two reasons. Firstly, the procedure which is very expensive is to extract the pollutants from water. Secondly, marine pollution disturbs the ecology of oceans which further results in environmental degradation and endangerment of Fisheries, flora and fauna, and useful abiotics. According to Khan, 'Pollution due to any reason like waste disposal to the sea, spillage or any other accident affects economic conditions. Therefore, NTMS challenges need to be addressed as one of the priorities of the state.

According to Finance Division Pakistan, Pakistan has spent almost Rs. 450 billion rupees annually to counter environmental pollution including water pollution in its waters, and requires more rupees.³⁸ Oil Spill Contingency Plan Pakistan and Comprehensive National Marine Disaster Contingency Plan have been formulated and adopted to impede pollution in EEZ. PMSA and other stakeholders have been engaged from time to time in oil spill containment exercises at sea. PMSA has been trying to acquire vessels, helicopters, and modern equipment for pollution control and search and rescue (SAR).³⁹ According to Azmie, 'Karachi Harbor and its surroundings are defused by marine pollution. Untreated sewage and toxic and industrial waste (in millions of tons) continue to flow into the Arabian Sea on daily basis. Perhaps the most damaging impact is on the local coastal economy where livelihood depends on fisheries'.⁴⁰

Natural Disasters

Pakistan's coastal belt has been on the verge of natural disasters which include floods and cyclones since independence. There is collateral maritime infrastructure damage in various regions of Pakistan every year due to them. Billions of rupees have been spent to overcome the humanitarian crises resulting from natural disasters in maritime zones of Pakistan because the disasters are not limited to the waters, they affect the coastal communities of Pakistan as well.⁴¹ According to

³⁵ Jonathan Greig, "New hacking group targets Pakistan's Navy and maritime industry," *The Record*, February 9, 2023, <https://therecord.media/new-hacking-group-targets-pakistans-navy-and-maritime-industry>.

³⁶ Jonathan Greig, "New hacking group targets Pakistan's Navy and maritime industry," *The Record*, February 9, 2023, <https://therecord.media/new-hacking-group-targets-pakistans-navy-and-maritime-industry>.

³⁷ Riffat M. Qureshi et al., "SEAWATER POLLUTION STUDIES OF THE PAKISTAN COAST USING STABLE CARBON ISOTOPE TECHNIQUE," *Biological and Chemical Oceanography Data Management Office* 7, no. 3 (2018), http://sciencevision.org.pk/BackIssues/Vol7/Vol7No3-4/Vol7No3&4_19_Seawater_Pollution_RiffatQureshi_AMashiatullah.pdf.

³⁸ Government of Pakistan, Finance Division. *Pakistan Economic Survey: Environment*. Islamabad: Finance Division, 2024, https://www.finance.gov.pk/survey/chapters_14/16_Environment.pdf.

³⁹ Pakistan Maritime Security Agency, "Operation : Marine Pollution Control," Pakistan Maritime Security Agency, last modified 2024, <https://pmsa.gov.pk/operations/marine-pollution-control>.

⁴⁰ Azmie.

⁴¹ Hiroshi Higashiura, Pakistan: Cyclone 2-A Appeal No. 13/99 Final Situation Report, (Operations Funding and Reporting Department, 2000), <https://reliefweb.int/report/pakistan/pakistan-cyclone-2-appeal-no-1399-final-situation-report>.

Azmie, 'Pakistan's NDMA must prepare for major maritime disasters like oil spills and potential tsunamis from the Makran coast. A tsunami could devastate Karachi and severely impact the national economy'.⁴²

Inform Risk Index 2019 indicates that Pakistan is 18th among 191 states which are vulnerable to calamitous events including floods (riverine and coastal flooding), and tropical storms. The aforementioned natural disasters damage the socio-economic situation of Pakistan. Pakistan is ranked 37 out of 191 among vulnerable states.⁴³ As per World Bank Group, Climate Change Knowledge Portal, 'The annual rate of floods from 1980 to 2020 is 39.48% and the annual rate of storms from 1980 to 2020 is 9.87% in Pakistan.'⁴⁴

Table 2: Pakistan Maritime Natural Disasters (2010-2022)

Year	Floods	Cyclones/ Storm
2010	✓	✓
2011	✓	
2012	✓	
2013	✓	
2014	✓	✓
2015	✓	
2016	✓	✓
2017	✓	
2018		
2019		
2020	✓	✓
2021	✓	✓
2022	✓	

Source: Compiled by Researcher

NTMS Challenges Impact on Various Sectors of Pakistan

NTMS challenges directly hit the economic sector of the states, furthermore, economic security is the guarantor of all other sectors including agriculture, energy, manufacturing and industry, infrastructure development, political, government, military, societal, education, and environment. Moreover, national security of the state is also protected through the empowerment of economic security. Economic challenges affect the stability of the state by disturbing political and societal sectors. This disturbance could be converted anytime into chaos and force the military to control the situation. The environmental sector of the state is also dependent upon the economic security

⁴² Azmie,

⁴³ Climate Change Knowledge Portal, "World Bank Climate Change Knowledge Portal," Climate Change Knowledge Portal, last modified 2024, <https://climateknowledgeportal.worldbank.org/country/pakistan/vulnerability>.

⁴⁴ Climate Change Knowledge Portal, "World Bank Climate Change Knowledge Portal," Climate Change Knowledge Portal, last modified 2024, <https://climateknowledgeportal.worldbank.org/country/pakistan/vulnerability>.

of the state, because the programs and actions such as environmental awareness programs for sustainable development also require money.⁴⁵

Economic crisis has severe impacts on human development and security. As a result of the economic crisis in Pakistan, the inflation has been increasing day by day, moreover, devaluation of Pakistani Rupee lifts the food insecurity and lowers the living standards within the state. Economic insecurities have huge impacts on Foreign Direct Investment (FDI) because it lessens the confidence of investors because of chances of less profit. Moreover, due to lack of opportunities, unemployment, and inflation (deterioration of Rupee), Pakistani both skilled and unskilled youth migrate to America, Europe, Gulf, and the Middle East both legally and illegally which causes severe brain drain and intellectual loss to the national and economic security of Pakistan.

Furthermore, few of them have been trapped by the human traffickers which is again causing economic stress to Pakistan as mentioned above. Migration is one of the main threats to the economic security of states According to Cocodia, 'migrating peoples are sometimes seen as threats by communities through which they transit, or by communities where they hope to settle. The resistance that occurs sometimes leads to conflict among others'.⁴⁶

Jamal revealed that 198,000 unskilled, 164,1655 skilled individuals and 26,405 highly skilled people have migrated in the year 2023 in search for brighter future and financial opportunities.⁴⁷ Jamal further shared the 2022 data, 832,000 Pakistanis have migrated abroad in search of better future which is a serious concern for Pakistani government and the situation stressed towards the revision of policies for development of Pakistan which cannot be possible without its workforce and skilled individuals.

According to Azmie, 'despite ratifying UN SDG 14, Pakistan has primarily focused on marine protected areas. The growing blue economy and climate change challenges necessitate greater investment in ocean conservation. Neglecting these issues could lead to significant economic losses and human security risks'.⁴⁸ Few incidents highlighted the illegal migration of Pakistani youth which are Boat Tragedy in Mediterranean in June 2023,⁴⁹ and boat wreck off Libya in February in 2023.⁵⁰

Need of revenue generation and financial resources cannot be neglected in an era of expansion of non-traditional security challenges. Pakistan's security apparatus requires modern defensive mechanisms to deal with both traditional and non-traditional security challenges. Therefore, the economic crisis in Pakistan is also a challenge for the defensive agencies, security practitioners and

⁴⁵ Laraib Ali, "Non-traditional Maritime Security Challenges in Indian Ocean and Regional Response: Role of Pakistan," (master's thesis, National University of Modern Languages, 2023), <https://norr.numl.edu.pk/repository/listing/departement/13?page=5>.

⁴⁶ Cocodia.

⁴⁷ Sana Jamal, "Over 450,000 Pakistanis leave country in search of better jobs abroad in seven months this year," World Asia, August 23, 2023, <https://gulfnews.com/world/asia/pakistan/over-450000-pakistanis-leave-country-in-search-of-better-jobs-abroad-in-seven-months-this-year-1.9766555#:~:text=Exodus%20of%20the%20educated%20and%20skilled&text=As%20many%20as%2026%2C405%20individuals,hopes%20of%20securing%20employment%20overseas>.

⁴⁸ Azmie.

⁴⁹ Sarah Zaman, "Migrant Boat Tragedy in Mediterranean Might Not Deter Pakistanis," South and Central Asia, June 22, 2023, <https://www.voanews.com/a/migrant-boat-tragedy-in-mediterranean-might-not-deter-pakistanis/7148756.html>.

⁵⁰ The Express Tribune, "Three Pakistani die in another boat wreck off Libya," *The Express Tribune*, February 28, 2023, <https://tribune.com.pk/story/2403719/three-pakistanis-die-in-another-boat-wreck-off-libya>.

policymakers. There is a need for financial resources to upgrade security infrastructure, adopt the latest technology, and protect surveillance. The crux of the highlighted concerns is that the economic crisis has a potential to impact the defense system of Pakistan and hit its national interest and foreign policy and leads the country towards turmoil, chaos, and undefined vulnerabilities.

The energy sector of Pakistan has been suffering from the economic crisis. The subsidies on energy products have been lessened by the government of Pakistan. It does not only become a burden for the consumers but has a substantial impact on the society in the form of inflation and hits the businesses. Furthermore, shortage of resources, fluctuations in the supply of energy, and inadequate infrastructure (TAPI, IPI) hamper economic development.

Recommendations

Recognizing and controlling thresholds is essential to avoid severe disruptions to Pakistan's economic stability. Comprehending the limits of resilience in the marine sector is crucial for creating successful approaches to address NTMS concerns and maintain economic security. Developing states including Pakistan should be proactive and work to mitigate climate change issues pre-disaster measurements to mitigate destruction and losses. On issues such as overfishing, the Pakistani government should enact policies to check the activities of vessels within their territorial waters to control levels of fishing. Furthermore, adaptability necessitates a proactive stance to foresee upcoming challenges and design resilient methods to lessen their effects on economic security. Pakistan should diversify its maritime capabilities, resources, and industries, to reduce its susceptibilities and increase its resilience. This may entail advocating for the enhancement of biodiversity in marine ecosystems to bolster sustainable fisheries and coastal livelihoods, expanding the maritime economy's diversification beyond sectors susceptible to vulnerability, and cultivating collaboration among various sectors and stakeholders to construct resilience against shared hazards. Pakistan should formulate modular responses that are specifically designed to address various threats to adequately safeguard critical maritime operations and mitigate risks. Pakistan should enhance its ability to tackle NTMS concerns and protect economic security by integrating feedback mechanisms into its maritime security framework.

Conclusion

Security of offshore and onshore activities, trade, shipping lanes, and sea lanes of communication is necessary to maintain the economic security of the state which also comes under the umbrella of maritime security. The economic security of the states is embedded with the maritime security of the states because NTMS directly threatens states' blue economy including Pakistan. IUUF, smuggling, trafficking, marine terrorism, cyber-attacks, marine pollution, and natural disasters are the top-notch NTMS threats that challenge the economy of Pakistan.⁵¹ Therefore, it is vital for the Pakistan to focus on their Maritime Zones to foster its geostrategic and economic security from number of non-traditional security challenges in the IOR.

⁵¹ Laraib Ali, "Non-traditional Maritime Security Challenges in Indian Ocean and Regional Response: Role of Pakistan," (master's thesis, National University of Modern Languages, 2023), <https://norr.numl.edu.pk/repository/listing/departement/13?page=5>.