

CLIMATE CHANGE: IMPLICATIONS FOR PAKISTAN AND WAY FORWARD

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Abstract

Climate change, a global common with regional and national impact, has emerged as a significant challenge contributing to diverse aspects of national security. These range from impact on internal stability to different dimensions of human security each warrant specific responses under an overarching policy concept. Pakistan as a country is indexed for high vulnerability and diverse impact as witnessed in extreme climate change related events. Ministry of Climate Change formulated a national policy in 2012 to make Pakistan a climate change resilient country and outlined different areas of policy action. Five years on, it is appropriate now to reappraise the contributions of the policy while taking into account contemporary developments. Concurrently, different international and national initiatives are consistently being executed to enhance awareness of the recurrent effects of climate change. This paper aims to contribute towards analyzing the impact of climate change on different aspects of national security and suggest a way forward for Pakistan.

Keywords: Climate Change, Stability, Vulnerability, Global Phenomenon

Introduction

“All across the world, in every kind of environment and region known to man, increasingly dangerous weather patterns and devastating storms are abruptly putting an end to the long-running debate over whether or not climate change is real. Not only is it real, it's here, and its effects are giving rise to a frighteningly new global phenomenon: the man-made natural disaster”.

- Barack Obama, April. 3, 2006

Over the years, the phenomenon of climate change has evolved from an environmental issue to a serious security challenge, which is currently being debated as a security as well as development challenge around the globe. In the present day national security settings, climate change adds new hostile and stress factors which have serious consequences. Climate change, if not combated effectively can act as a catalyst for adverse political

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and social change. Pakistan is already facing multiple security and development challenges and an addition of climate change is likely to make the matrix even more complex. Therefore, a collective effort by state, society and international community is indispensable. If a state is fragile and society is not able to cope with climatic hazards, it results in environmental stress; which if exploited by hostile forces can generate negative societal consequences. Pakistan's vulnerability can be assessed from its huge population of 180 million of which nearly 54 Million are food deficient.²

Our youth is increasingly being affected by calorie insufficiency in their daily diet. Moreover, floods and droughts threaten agriculture; scarcity of water carries the potential to gravely affect human security. At the same time, societal capacity is adversely affected by extremely low human development index, poverty and societal fissures. Climate change is particularly a real national security threat however, there exists no proper research and policy framework on the subject. This paper attempts to deepen the knowledge and suggest policies and interventions to facilitate the process and combat it at all levels.

Climate Change: A Global Phenomenon

Climate change is impacting every region of the globe, but in Africa and Asia, the vulnerability is much higher. Most of the world's undernourished people 850 million live here.³ Spread of viral and vector-borne diseases, such as dengue, hepatitis and malaria are rampant. In Africa, according to an estimate, 600 million people would be water stressed by 2050⁴. In Asia, increasing floods would affect more than a billion people by 2050, while agriculture produce could fall by 50% by 2020⁵. In Central Asia alone about 10,000 sq km of desert is created every year⁶. Poverty, resource scarcity and lack of capacity accentuates national security concerns due to existing fault-lines, mistrust and exploitation of water resources leading to fissures, unrest and conflicts. Darfur is a prime example, where conflict began as an ecological crisis, partly from climate change, fuelled by a 20-year Sahelian drought. Climate change was seen as a stress factor in Arab Spring too, as rising food prices aggravated regional turmoil when political instability and

socio-economic fissures were already rife.⁷ Changes in precipitation patterns have caused dry regions to get drier and wet ones to get wetter, resulting in floods, desertification, droughts and lower crop yields. Globally 12 million hectares of land is lost every year, resulting in multiple human and physical security issues⁸. During last five years, Pakistan witnessed frequent and devastating floods and continuous droughts, mainly in Sindh and Baluchistan. It is time to adopt early prevention strategies to deal with this emerging security challenge. Political, military actions and mobilization of financial resources would play central role to deal with these challenges. More research on security dimensions of climate change will play a vital role to reshape and modify Pakistan's adaptation plan according to emerging human security needs and demands.

Climate Change Indicators in Pakistan

Environment and climate change are inextricably linked to sustainable development. Pakistan requires greater progress in environmental protection. Water scarcity is increasing, land productivity is decreasing and climate change is worsening these threats. The risk of natural disasters, exacerbated by climate change as well as economic shocks, is adding to existing vulnerabilities.⁹ Climate change is inevitable and is a prospective 'Threat Multiplier' for Pakistan's national security as Pakistan is placed very high in Climate Risk and Vulnerability. In recent years, visible changes in Pakistan's hydrological cycle have been observed in the form of:-

- Changing precipitation pattern
- Droughts
- Water availability periods
- Frequency and intensity of heat waves
- Precipitation events
- Weather-induced natural disasters

Precipitation over Pakistan has increased on an average of 25%. However, no significant change is expected in annual precipitation in near future. It is projected that climate change will increase the variability of monsoon rains resulting in increased frequency and severity of floods and

droughts. Pakistan contributes very little (135th) to Green House Gases (GHGs) but remains one of the most vulnerable countries¹⁰. It contributes only about 0.8% of the total global GHG emissions. Moreover, total estimated area under forest cover is around 4.22 million hectares, which comprises of 4.8% of total landmass¹¹.

Key Features of Climate Change Policy of Pakistan

Climate change is not only a development challenge, but also a development opportunity. In order to cope with the challenge and tap the opportunity, the Ministry of Climate Change has prepared a National Climate Change Policy (NCCP) approved by the Federal Cabinet in September 2012¹². Later on, a Framework for Implementation of National Climate Change Policy was developed in 2013¹³. Broader goal of the climate change policy is to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of economy to steer the country towards climate resilient development, whereas implementation framework includes all those things, which are doable and implementable. Adaptation, mitigation, and transfer of technology are the major areas, which require policy interventions. Provision of finance, capacity building, and raising awareness are the other important areas, which also require due attention.¹⁴

Adaptation and Mitigation are two key methods to respond to climate change. In adaptation, water resources, agriculture, livestock, health, forestry, biodiversity, disaster preparedness, vulnerable ecosystems and socio-economic measures are the key sectors which require policy interventions. Under mitigation, energy, transport, agriculture, livestock, forestry, town planning and waste management are the major areas needing policy interventions. International community is keen in mitigation measures, but Pakistan should focus more on adaptation measures. Pakistan needs to position itself and present its case to the developed world to secure adaptation funding. It should ensure the access and effective use of opportunities available internationally for adaptation and mitigation

through Green Climate Fund (GCF), Clean Development Mechanism (CDM), Adaptation Fund (AF), Global Environmental Facility (GEF), World Bank's Forest Carbon Partnership Facility (FCPF), and Carbon Credit Trading (CCT). Establishing Pakistan Climate Change Fund is essential to finance climate change

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related projects. Efforts should be made to push for transparent delivery of new and additional fast start funding by the developed countries. There is a need to develop public-corporate-civil society partnerships for financing and the implementation of climate change adaptation and mitigation projects. There should be a procedure/system in place to create domestic carbon market opportunities by introducing an appropriate investment framework linked with regional banking institutions. Pakistan's Government has formed a National Climate Change Policy Implementation Committee to ensure an effective implementation of National Climate Change Policy & Action Plans and to oversee progress in this regard. Tasks of the committee include regular monitoring and upgrading of the National Climate Change Policy after every five years.¹⁵ The composition of the committee is as under:

- Federal Minister for Climate Change (Chairman)
- Secretaries for the ministries of Climate Change and Planning and Development, Foreign Affairs, Science and Technology, Industries and Production, Finance, Water and Power, Food and Agriculture, Health and Defense
- Member Infrastructure of Planning Commission, Additional Chief Secretaries of Provincial Planning and Development Departments
- Chairman of National Disaster Management Authority (NDMA), Federal Flood Commission
- Secretaries of Provincial, AJK, GB, FATA Environment Departments

- Heads of Pakistan Meteorological Department (PMD), Global Change Impact Studies Centre (GCISC), Pakistan Environmental Protection Agency (Pak-EPA), National (Pakistan) Energy Conservation Center
- Chief of Environment, Planning and Development Division
- Three representatives from the corporate sector, Chambers of Commerce and Industries
- Three eminent experts from the field
- Three representatives from civil society organizations
- Director-General of Climate Change.¹⁶

After 18th Amendment, confusion prevails among institutions and provinces as to who will implement the policy. Therefore, provinces can develop their separate provincial climate change policies based on national climate change policy and adapt the best practices. Following are salient features of national climate change policy:¹⁷

- To pursue sustained economic growth by appropriately addressing the challenges of climate change
- To integrate climate change policy with other inter-related national policies
- To focus on pro-poor, gender sensitive adaptation, while promoting mitigation to the extent possible in a cost-effective manner
- To ensure water security, food security and energy security of the country in the face of challenges posed by climate change
- To minimize the risks arising out of the expected increase in frequency and intensity of extreme weather events such as floods, droughts and tropical storms
- To strengthen inter-ministerial decision-making and coordination mechanisms on climate change
- To facilitate an effective use of opportunities, particularly financial, available nationally and internationally

- To foster the development of appropriate economic incentives to encourage public and private sector investment in adaptation measures
- To enhance the awareness, skill and institutional capacity of relevant stakeholders
- To promote conservation of natural resources and long-term sustainability.

Climate Change as a Determinant of Security and Development

Pakistan's three major climate challenges are related to floods, drought and sea intrusion. The consequences are water and food scarcity, health issues and population displacement. Cognizant of these threats, government has taken some significant steps to address the issues like establishment of Global Change Impact Studies Centre (GCSIC). Vision 2025 also highlights resource scarcity issues among others, but the linkage with consequences of climate change and its negative impact needs amplification.¹⁸ The phenomenon of smog in Pakistan during winters has increased over the past 15 years.

India's share is 98% of total South Asian coal consumption with high ash content and low heating value, and is the biggest contributor to

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this phenomenon. It affects human health, crops and forests besides having mortifying impact on environment. Societal capacity is adversely affected by extremely low human development index, poverty and societal fissures. Restraint and civility can quickly perish when people are confronted with imperious necessity. Environmental stress in Pakistan is more pronounced due to limited capacities of the state and society to cope. Confronted with a hostile neighbour, ever ready to exploit our internal vulnerabilities, climate change becomes a serious threat to Pakistan's national security. In Pakistan, most of the socially vulnerable segments reside in areas that are more prone to climatic hazards, resulting in pronounced impact. Balochistan and KPK,

with very low human development and high deprivation indices, are a case in point wherein another major disaster can prove to be a tipping point. In physical security, we have witnessed several disasters in recent decades.

Implications for Pakistan

- **Food Security.** The Himalayan and Karakorum glaciers will retreat in the next 3 to 4 decades¹⁹, increasing flows in the Indus River System. Thereafter, it will reduce by 30 to 40%, threatening food and livelihood security of the Indus Basin Irrigation System dependants, besides impacting 95% of total irrigated land. 4,544 ha agriculture land has been destroyed along Humbas Wali creek since 1952.²⁰ This area was irrigated through Ochito River by regular flow of Indus River up to 1960s.
- **Public Health.** Climate change induces extreme temperatures, and rainfall events may cause increasing incidents of diarrheal and many vector borne and viral diseases. An alarming 20,000 got affected by Dengue in 2011. Since then Punjab, the central province, has harnessed it well while the situation in other two provinces is worrisome. A significant increase in epidemics would be a dire consequence bearing heavy price tags.
- **Water Security.** Pakistan is extremely short of fresh water resources. It is a Water-stressed country and water availability heading towards less than 1000 cubic meter/y by 2035 as predicted in World Bank report 2006. Pakistan's primary sources of water are rainfall (50 million acre feet) by monsoon and westerly winds and river inflows (141million acre feet) in the Indus River System fed by glaciers and snowmelt from the Hindukush-Karakoram-Himalayas. Water scarcity by 2030 would impact agricultural productivity and exacerbate food insecurity, threatening trans-boundary conflicts.

- **Coastline's Inundation.** As a result of rising sea level, large scale inundation of coastline and recession of flat sandy beaches, upstream incursion of saline water in the Indus delta, and risk to mangroves, coral reefs and breeding grounds of fish are expected. There is an enhanced risk to life and property in coastal areas due to increased intensity of tropical cyclones, combined with sea level rise; high risk for Karachi, the southern coastal mega city, and other coastal areas of Sindh-Makran coast.²¹
- **Rise in Sea Level.** There is proof of rise of sea level along the Pakistan coast which would have following implications:-²²
 - Erosion of coastal regions
 - Coastal plain flooding and wetland
 - Deltaic plains inundation
 - Salinization of aquifers and soils
 - Loss of habitation for wildlife, fish, birds, and plants.
- **National Security.** The destabilizing effects of droughts, storms, floods and intense weather could overwhelm disaster-response/management capabilities of a government or state. Pakistan has witnessed recurring floods and droughts in recent decades.

Policy Recommendations for International, Regional and National Levels

International Level

It is a reality that Pakistan is suffering from "climate injustice." While the developed world has been the major contributor to damaging the climate, the major sufferer is the developing world as the entire globe has been affected. Pakistan

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stands badly affected particularly when the availability and efficacy of coping or mitigating mechanisms are factored in. Therefore, there is a need and an

opportunity for countries to work together. Following should be done in this regard:-

- The international community should provide a platform to all developing / under developed countries and engage them to actively participate at international fora to highlight the impact of climate change on their national security, especially for countries like Pakistan, Nepal, India, Bangladesh etc.
- Provide access to Global Environmental Facility through training and workshops.
- Transferring internationally available technology and providing transfer and capacity building opportunities through:-²³
 - Green Climate Fund; US\$ 30 billion per annum
 - Clean Development Mechanism (CDM)
- It should be the responsibility of major powers to ensure that participation at these forums should be at an appropriate level with adequate specialist representation to enable significant contributions for the country
- All the climate change affected countries especially Pakistan must strategize as per 2015 Conference of the Parties (COP21) conference under auspices of United Nations Framework Convention on Climate Change held in Paris from 30 November to 11 December 2015.²⁴

Regional Level

Conservation of aquatic ecosystems, trans-boundary bio-diversity zones, automated network of weather stations and regular and systematic sharing of scientific data through:-

- Regional Cooperation and Knowledge Exchange through SAARC Convention on Cooperation Environment
- Adoption of eco-friendly approaches and technologies, South Asia could emerge as a world leader in low carbon technology.
- Effective regional programs in early warning, preparedness and management including response and rehabilitation like SAARC

Agreement on Rapid Response to Natural Disasters must be initiated in the region

National Level

For effective adaptation, mitigation and disaster management four major areas need to be worked on. Raising awareness, organizational and institutional adjustments, capacity building and infrastructure development are a priority.

- **Awareness.** Immediate action is required for raising awareness through targeted media and publicity campaigns to highlight the threats of climate change and its implications. Training and mobilizing local communities may be carried out for better disaster preparedness. Local government and NGOs would be required to cooperate in building awareness, particularly among the farming communities and in poor urban areas.
- **Organizational and Institutional Initiatives.** Organizational and institutional initiatives at the national level can be undertaken in short term through strengthening the Climate Change Division and making it more efficient as well as accountable. This will also help decentralize the Division giving it greater freedom to accomplish assigned tasks.
- **Capacity Building.** The institutions working on climate change must address human resource requirements for numerical modeling and climate system dynamics. It must be ensured by the Government that universities offer courses at graduate and post-graduate level on dynamics of climate system and related sciences. Moreover, irrigation system needs to be improved by introducing sprinkler and drip irrigation at a larger scale. Adequate funding for this is needed. Hence government policies have to encourage the use of modern and more efficient irrigation systems.
- **Infrastructural Development.** At the Federal level, for floods, drought and sea intrusion mitigation, Diamer-Bhasha, Akhori, Munda and Kalabagh dams are essential as we have very less

capacity in our country. These dams will provide regulated flow down the Indus deltaic area to counter sea intrusion and help in ecological preservation and saving livelihood of local inhabitants. Provincial and local governments need to be mobilized to ensure effective implementation. The harvesting of rain water at provincial and district level is needed to counter water scarcity and to charge sub-surface water. Government should incentivize household and small business for solar energy utilization and integrate excess generation with the national grid.

Conclusion

The uncertain and unpredictable nature of climate change poses an added challenge to policy makers who are tuned to making decisions based upon historical and known denominators. Resources remained a challenge. The international security environment writ large will face threats and pressures from climate change. Climate change, interacting with other risks to international security, is likely to have the greatest impact on unstable, conflict-prone, and strategically-significant regions. Political and demographic realities, combined with climate change, food and water insecurity, suggest that the Middle East, North, East and Central Africa, as well as certain nations in Central Asia, will face significant security risks from a changing climate. However, a growing coastal and urban population in the broader Asia-Pacific region, coupled with projected climate change-exacerbated stresses on water security, means that the nations of the Asia-Pacific are also particularly vulnerable to climate change effects. A rapidly-melting Arctic and shifting geopolitical dynamics in the area (including a worsening relationship between Russia and its Arctic neighbors) could combine to increase geopolitical tensions in a relatively stable area. Sea level rise also constitutes an existential threat to low-lying island nations. In identifying future climate-security “hotspots,” however, a better integration of climate and natural resources stressing into our analyses of state fragility is needed. Climate Change challenge that we are facing could be turned into a new opportunity based on cleaner

technology and a low-carbon economy. If we proactively use this opportunity, we will be able to turn the climate change issue into a new economic opportunity that advances sustainable development and encourages new kinds of cleaner technologies, industries and jobs. In this, we need partnerships between public and private sectors as well as civil society to bring about a paradigm shift not just formulation of policies. And most importantly, Pakistan needs national solidarity based upon genuine partnership at national and international levels. However, these threat multipliers test the ability of governments to take bold decisions that would prepare a nation to effectively combat negative impacts of climate change on its national security.

NOTES

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