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# Pakistan's Institutional Capacity for Climate Action: An Analysis



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Ramsha Mehboob Khan, and Dr Shafqat Munir Ahmad

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## Table of Contents

<b>1. Introduction</b>	<b>4</b>
<b>2. Methodology</b>	<b>5</b>
<b>3. Climate Change Impacts</b>	<b>5</b>
<b>4. Institutional Arrangements to Tackle Climate Change</b>	<b>7</b>
4.1 Federal Institutions	7
4.2 Provincial Institutions	9
<b>5. Climate Action in Pakistan</b>	<b>13</b>
<b>6. Challenges in Implementing Climate Action</b>	<b>15</b>
6.1 Implementation of climate change policies and initiatives	15
6.2 Enforcement and compliance to climate change-related action	15
6.3 Climate financing	15
6.4 Public awareness	15
6.5 Institutional coordination	16
<b>7. Discussion</b>	<b>18</b>
<b>8. Policy Recommendations</b>	<b>21</b>
<b>9. Conclusion</b>	<b>23</b>
<b>References</b>	<b>24</b>

## 1. Introduction

The Sustainable Development Goal -13 (SDG-13 - Climate Action) calls upon nations to “take urgent action to combat climate change and its impacts”. To achieve this objective, it sets five targets and eight indicators leading towards integration of climate change actions into national policies, strategies, and targets along with adopting and implementing national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction (SFDRR) to reflect a country's achievement towards the climate action mandated in the SDG-13.

Pakistan falls among the few developing countries whose climate change policy is based on the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement 2015. Initially, Pakistan's climate change policy 2012 focused on ‘climate-resilient development and adaptation’ but the latest version of climate change policy 2021 emphasizes ‘adaptation and mitigation’ through nature-based solutions and multiple initiatives. The Billion Tree Tsunami Programme, Clean Green Pakistan Initiative, Recharge Pakistan Programme, Protected Areas Initiative, and the Eco-system Restoration Fund are some of the initiatives of Pakistan in this regard.

If we look at the targets and indicators of the SDG-13, we find that much of them focus on strengthening capacities of the systems and governance mechanism and communities to undertake Climate Action through stringent policies and adaptive governance. SDG target 13.1 calls for strengthening resilience and adaptive capacity to climate-related hazards and natural disasters. Similarly, target 13.2 talks about integrating climate change measures into national policies, strategies, and planning. Target 13.3 seeks to improve institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

There is no doubt about the climate-induced hazards in terms of extreme weather conditions causing heatwaves, droughts, floods, and loss of biodiversity. Pakistan has a number of policies in place which exhibit the country's commitment to climate action; however, the effect of these policies may have a limited impact on the lives of the citizens of Pakistan as they are bearing the brunt of climate change amid capacity constraints.

In this backdrop, there is a need to analyze the capacities of the government institutions, including ministries, departments, and agencies which play a pivotal role in implementing climate action work. This study will discuss the existing and the required institutional capacity and expertise for climate action at the national, provincial, and local levels, and will suggest a way forward.

## 2. Methodology

The study used both the primary and secondary information to assess the capacities of the government institutions, which have a pivotal role to play in implementing climate action in the country. Interviews have been conducted with sector-specific experts, government officials, and leading voices from academia in the field of climate change to understand their perspectives on the progress of climate action in Pakistan. These stakeholders were identified in a mapping exercise, which was conducted on the basis of their relevance, influence, and role in the field. Moreover, the flood-affected communities from Sanghar, Badin, Ghotki, Sukkar, and Mirpur Khas districts in Sindh, Muzaffargarh in the Punjab, and Jaffarabad & Sohbatpur in Baluchistan were interviewed to know their perspectives on the community level knowledge and understanding of the climate change mitigation, adaptation, impact reduction, and early warning.

An open-ended questionnaire was used for semi-structured interviews that allowed respondents to provide a context of initiatives/projects implemented, the policy landscape, and the way forward for improving Pakistan's institutional capacity for climate action in the short, medium, and long term. The questionnaires were based on literature review of recent government policies, plans, and programmes around climate change. The secondary sources include reports from development partners and government ministries, interviews, newspaper articles, United Nations documents, and journal articles.

## 3. Climate Change Impacts

According to the global climate risk index 2021, Pakistan ranked 5th among the top 10 most affected countries by climate change from 2000 to 2019 (Eckstein et al. 2021). The country is at a high risk of various natural hazards, including floods, landslides, droughts, earthquakes, cyclones, heatwaves, GLOFs, pandemics, etc. They affect the lives and livelihoods of its citizens (Khan and Khan 2008). In addition, Pakistan has been experiencing a loss of biodiversity due to a high rate of deforestation, land degradation, soil erosion, and desertification. The unsustainable production and consumption patterns across the world drastically cause increase in greenhouse gas emissions, resulting in a rising global temperature, impacting countries such as Pakistan with adverse consequences of climate change.

Owing to global warming, heatwaves in Pakistan have become common and have taken the shape of disasters. For instance, the heatwave of 2015 resulted in the casualties of more than 2000 people in Sindh province (Ghumman and Horney 2016). The floods, a recurring disaster, affected around 20 million people and accounted for approximately 5.8% of GDP during 2009-10 (Ahmed 2013). Similarly, the floods in 2022 cost over US\$ 30 billion in losses and damage. Pakistan has also faced major earthquakes due to its active geo-tectonic settings, so the earthquakes of 2005 and 2008 affected seven million people (ibid). In 2010, due to a landslide near Attabad in the Gilgit region, a 100 meters deep lake (later named as Attabad Lake) emerged on the Hunza river, which submerged more than 20

villages and rendered many families homeless (Shah et al. 2013). Furthermore, the incidents of Glacial Lake Outburst Floods (GLOFs) are also very common, resulting in the loss of lives and damage to the infrastructure. The most recent one occurred in Shishper Glacier, which destroyed the Hassanabad bridge in Hunza. (Siddiqui 2022). The bridge would connect the region with the Karakoram Highway, which is an important trade route for Pakistan.

According to the National Climate Resilience and Adaptation Plan 2023-30, Pakistan's annual mean temperature has increased by 0.5°C over the past 50 years. The number of heatwaves per year has also surged by almost fivefold in the last 30 years. The annual precipitation has been historically unpredictable in the last 50 years, resulting in increased variability of river flows and glacier melting. In the 20th century, warming in Pakistan has been observed. There is an increase of 0.57°C, which is lower than the average of the South Asian Region of 0.75°C. Out of this 0.57°C increase, a 0.47°C increase was observed from 1961 to 2007. The warming phenomenon in Pakistan has been biased towards November to February - the winter and post-monsoon months. At sub-national level, warming is dominantly biased towards the southern regions such as the Punjab, Sindh, and Balochistan. These regions experience winter warming ranging from 0.91°C to 1.12°C during the winter and post-monsoon months in contrast to the northern region of Khyber Pakhtunkhwa with a comparatively lower increase of 0.52°C during the same period. Similarly, the average daily maximum temperature has shown a more significant rising trend, which is 0.87°C, over the increase in annual mean temperature from 1961 to 2007. A shift in Summer monsoon onset has been observed in Pakistan which will notably affect the society.

Pakistan contributes only 0.9% of global GHG emissions, but it is among the topmost vulnerable countries to climate impacts (Government of Pakistan 2021). Energy, agriculture, and livestock sectors are among the main contributors to GHG emissions in Pakistan. The energy sector alone is responsible for 51 per cent of total emissions followed by the agriculture and livestock sectors with 39 per cent contribution (Government of Pakistan 2019). The transport sector also significantly contributes to GHG emissions. The high population growth along with rapid urbanization puts pressure on the natural ecosystems resulting in loss of biodiversity, and deteriorating water and air quality. This overstretched ecosystem poses an immense challenge to the environmental and socio-economic sustainability of the country.

Climate change impacts in Pakistan can be seen in the form of heatwaves, floods, droughts, cyclones, GLOFs, etc. The climate extremes can be translated into the variability of monsoons, glacier melting, threatening water inflows into Indus River System (IRS) in the long run, decreasing water availability for agriculture production in the arid and semi-arid regions, decreasing forest cover, and increasing the level of salinity in the Indus delta adversely affecting coastal agriculture, mangroves, and breeding grounds of fish (Khan et al. 2021).

## 4. Institutional Arrangements to Tackle Climate Change

After the 18th Constitutional Amendment, environment is now the subject of provinces and hence the climate change institutions and policies, both at the federal and provincial levels, are functional in their respective domains.

### 4.1 Federal Institutions

#### Federal Ministry of Climate Change

Pakistan has a dedicated Ministry of Climate Change (MoCC) at the federal level, though with a limited capacity and resources which prevent it from having a significant impact on the overall outcomes of the targets and indicators of SDG-13- Climate Action. The MoCC is responsible for liaising with global climate change regimes and processes to fulfil Pakistan's national commitments, climate change policymaking, and playing the role of a facilitator and coordinator, encouraging the mainstreaming of climate-change policies and programmes within federal and provincial line departments relating to climate change or associated to climate actions. At the federal level, the ministry oversees environmental protection measures and disaster risk management. Additionally, the ministry is responsible for monitoring the progress of international agreements and exploring and accessing funds from the international community. However, the implementation of policies is devolved to the provinces after the 18th Constitutional Amendment. The MoCC's capabilities are limited by its inadequate resources, budget, and programme execution capability, making it poorly placed to influence the outcomes. The mainstreaming of climate change actions into sectoral policies through planning and development departments would have more effective results. This could be achieved by incorporating climate considerations into project and programme development during the preparation of the government's Annual Development Plans and Budgetary Frameworks. The Ministry has the following four attached departments.

#### Pakistan Environmental Protection Agency (Pak-EPA)

At the federal level, 'Pakistan Environmental Protection Agency (Pak-EPA) is a lead agency that undertakes a series of functions relating to environmental protection. The agency was established under section (5) of Pakistan Environmental Protection Act (PEPA) 1997.1 A Director-General, who heads the agency is appointed by the Prime Minister on the advice of the Federal Minister for Climate Change.

The agency enforces the PEPA-1997 rules and regulations, approves Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), and Issues certificates for the establishment of environment labs in Islamabad Capital Territory. The Pak-EPA is mandated to prepare

1 <https://environment.gov.pk/Detail/MGRiNzFkNDUtZTFjNS00N2ZkLWEwM2UtZiBiNGI3OGViZDA3#:~:text=Basic%20functions%20of%20Pak%20EPA,in%20the%20Islamabad%20Capital%20Territory>

or revise and establish the National Environmental Quality Standards (NEQS) with the approval of Pakistan Environmental Protection Council (PEPC). The Pak-EPA takes measures to promote research and development (R&D) in the field of science and technology, which may contribute to the prevention of pollution, protection of the environment, and sustainable development. The Agency identifies the needs for, and initiates legislation on environmental issues and disseminates information and guidance to the public in this regard.

### **Global Climate-Change Impact Studies Centre**

Global Climate Change Impact Studies Centre (GCCISC) is a dedicated research institute for climate change studies in Islamabad. The Centre is mandated for national level R&D efforts, capacity building, policy analysis, information dissemination, and assistance to national planners and policymakers on issues related to past and projected future climatic changes in the country, their likely impacts on the key socio-economic sectors of the country such as water, food, agriculture, energy, forestry, health, and ecology, and appropriate adaptation and mitigation measures.<sup>2</sup> The Centre has published landmark studies and also developed Pakistan's NDCs 2021. The research work so far conducted by the Centre has bridged to a larger extent the knowledge gap on climate change, largely in the country context, which was lacking earlier.

### **Islamabad Wildlife Management Board**

The Islamabad Wildlife Management Board (IWMB) was set up in 2015 to protect the Margala Hills National Park (MHNP) in terms of climate and biodiversity.<sup>3</sup> The Board, due to lack of resources and powers to execute actions, had lacked the capacity to play its effective role. Considering the importance of protection of MHNP, parliament passed 'The Islamabad Nature Conservation and Wildlife Management Act 2023 in August 2023 to strengthen IWMB by giving it the powers to raise funds from multiple sources and impose penalties against violators of environmental laws.<sup>4</sup> The Act provides a comprehensive framework for the protection of nature and biodiversity in the federal capital thus fulfilling the country's international commitments on climate change and biodiversity conservation. This will help access international finance and support set aside for biodiversity protection. The new law will certainly make IWMB vibrant in terms of its scope of action.

### **Zoological Survey of Pakistan (ZSP)**

Zoological Survey of Pakistan (ZSP) is an attached Department of the Ministry of Climate Change. First established in June 1948 in Karachi under the then Ministry of Food & Agriculture, it collects information on distribution, population dynamics, migratory patterns, status, habits and habitat and

<sup>2</sup> <http://www.gcisc.org.pk>

<sup>3</sup> <https://www.facebook.com/IWMBMHNP/>

<sup>4</sup> <https://www.dawn.com/news/1770021/new-law-equips-iwmb-with-powers-to-protect-margallas>

taxonomy of animal life through surveys.<sup>5</sup> The department maintains standard zoological collections for reference, raises awareness among masses about conservation and provides guidelines to policy makers for wildlife related matters. It conducts research on ecology, biology, physiology, and biochemistry of important marine animals. ZSP imparts specific trainings to personnel of the governmental and non-governmental organizations related to biodiversity.

### **Climate Resilient Urban Human Settlements (CRUHS) Unit**

Climate Resilient Urban Human Settlements"(CRUHS) Unit was established in 2019 under the Ministry of Climate Change in Islamabad to address urban environmental and climatic issues in a sustainable and resilient way. The unit will serve for 05 years as the Secretariat to follow up and coordinate with provincial urban units to conduct research studies on developing Climate Resilient Sustainable Cities. The unit will also build the capacity of the provincial governments in engaging with line departments, agencies, and private sector to deal with the urban development challenges across Pakistan to achieve targets of the federal government under various international obligations, e.g. the UNEP, UNFCCC & UN-Habitat, Rio+20 Declaration; New Urban Agenda, and SDGs.

## **4.2 Provincial Institutions**

After the 18th Amendment to the Constitution in 2010, the devolution has bolstered provincial autonomy. Now, the responsibility of implementing environmental and climate change policies and actions have been given to provinces. The other key service delivery functions such as education, health, water, sanitation, and solid waste management as well as support to major economic activities such as agriculture, irrigation, industry, and business, have also been devolved to the provinces. The Council of Common Interest (CCI) settles matters relating to common interests and coordination among the provinces. The financial resources are allocated to provinces through the National Finance Commission (NFC) Award.

The devolution agenda is still inconclusive as the devolution from the federal level to provincial level has been completed but it has not been transcended at the local government levels, which as the third tier of democracy, can play greater role in building resilience against impacts of climate change and natural hazards at local levels in the context of attracting investment in climate-resilient infrastructure or municipal services. If powers are devolved at local level, it would strengthen the local governments to plan and act to take climate action and to mobilize resources at local level in addition to fund transfers from the provinces for climate and disaster resilience.

Climate and environmental challenges are multi-layered and multisectoral; therefore, they require close coordination and coherence across departments within the provincial governments, as well as across provincial boundaries, and with federal departments. The capacity and skills to develop the required level of coordination and coherence are lacking. The institutional mechanisms and incentives

to promote cooperation and joint climate actions are weak, and there is often a lack of coherence between federal and provincial spending plans. The institutional and capacity challenges limit policy formulation and implementation, particularly at the local level. These constraints undermine Pakistan's ability to respond to the climatic hazards at all the three tiers of governance, i.e. local, provincial, and national.

The provinces have climate change/environment departments which are equipped with their provincial policies and provincial instrument to handle the climate change issues. In each province, Environmental Protection Agency (EPA) set up under the climate change/environment department is responsible for environmental policy, and programmes, including climate-change mitigation and adaptation measures. Following are the key institutional arrangements in the provinces.

### **Environment Protection Department (Punjab)**

The Environment Protection Department, Punjab was established to tackle rapidly increasing deterioration of environment. The department created the Environment Protection Agency (EPA) to safeguard, conserve, and rehabilitate environment. The EPA is responsible for preventing and controlling pollution and promoting sustainable development in the province.

### **Environment, Climate Change, Coastal Development Department (Sindh)**

The government of Sindh established an Environment, Climate Change and Coastal Development Department (ECC&CDD) in 2016 to serve as a key provincial institution to liaise and work with the Federal Ministry of Climate Change, international agencies, and other stakeholders in the field of environment and climate change. The department comprises Sindh Environment Protection Agency (SEPA), Sindh Environment Protection Tribunal (SEPT), Sindh Coastal Development Authority (SCDA), and Directorate of Climate Change (DoCC). The ECC&CDD is actively involved in the on-site work, along with the implementation and monitoring of development projects. The Sindh Coastal Development Authority (SCDA) works in Karachi South, Malir, Kemari, Korangi, Thatta, Sujawal, and Badin districts for the development of these areas. The SCDA is responsible for the identification and selection of development activities to address community needs in the coastal districts of the province. The Directorate of Climate Change (DoCC) devised the 'Sindh Climate Change Policy 2022', which suggests measures for mitigation, adaptation, and capacity development processes for agriculture, irrigation, forestry, industries, health, nutrition, education, and energy sectors.

### **Climate Change, Forestry, Environment and Wildlife Department in KP**

The department focuses on forestry, environment, and wildlife in the Khyber Pakhtunkhwa province to enhance the management of natural resources through development and application of innovative technologies in Forest, Environment, and Wildlife and efficient management of natural resources.

## Climate Change and Environment Department (Balochistan)

The Climate Change and Environment Department was established in Balochistan to integrate environmental concerns into economic growth pursuits, enhance regulatory frameworks, and improve enforcement mechanisms to achieve sustainable development in the province. The department aims to protect, conserve, and restore the environment in Balochistan, thereby improving the quality of life of its citizens and achieving sustainable development goals.

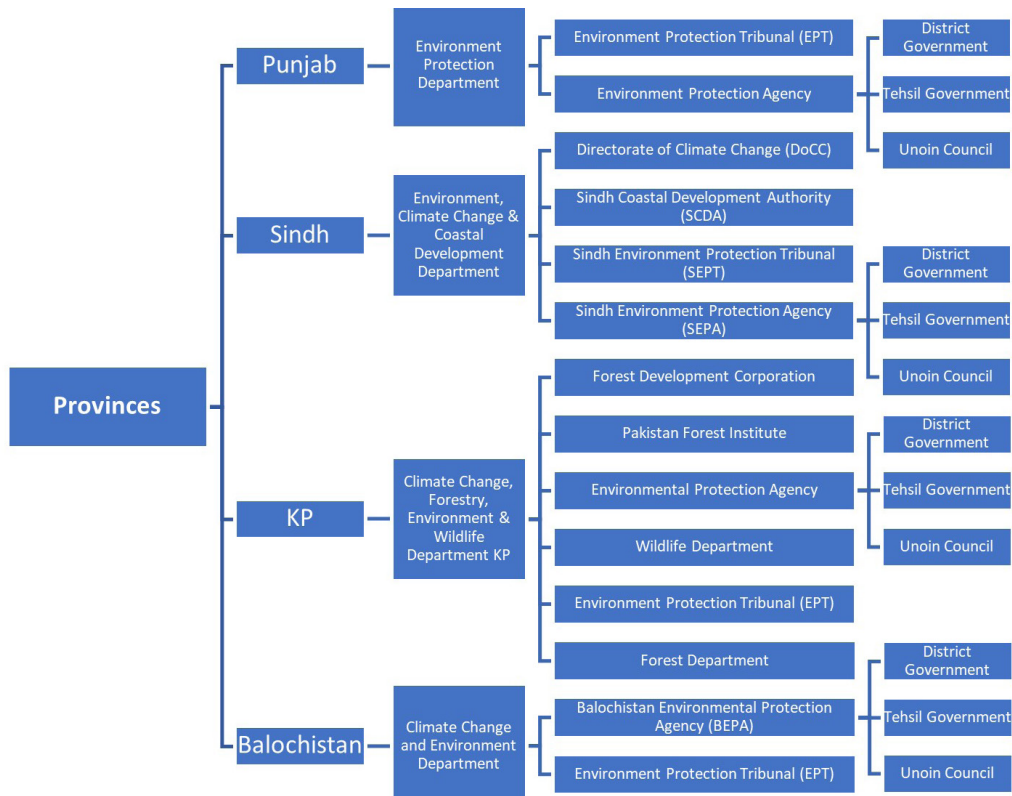


Figure 1: Institutional Arrangements in Provinces

Source: Websites of Provincial departments

## Environmental Protection Agencies (EPAs)

Environmental protection agencies have been established in all the four provinces (Punjab, Sindh, Baluchistan, and KP) as well as Azad Kashmir and Gilgit-Baltistan. After devolution, the provincial EPAs have the full authority to handle environmental management in their respective provinces. In Punjab, the EPA was set up under the Environment Protection Department; in Sindh, it is a part of the Environment, Climate Change and Coastal Development Department; in KP, it was established under the Climate Change, Forestry, Environment and Wildlife Department, and in Balochistan, it was established under the Climate Change and Environment Department.

The provincial EPAs are responsible for: a) Enforcing the rules and regulations of PEPA 1997, collaborating and supporting the stakeholders especially the local governments in the implementation of environmental policies, b) monitoring the implementation of provincial environmental standards and pollution charges, c) conducting research and development to introduce viable environmental technologies, d) issuing certificates for environment labs in provinces, e) raising awareness on environmental issues through educational curriculums, f) preparing disaster management plans, g) mobilizing financial resources for environmental projects, h) introducing incentives for compliance with environmental standards, i) implementing IEE/EIA Rules, Regulations, and Guidelines, J) ensuring the implementation of Hazardous Substance (HS) Rules to manage hazardous waste, and k) monitoring vehicles for controlling air pollution.

### **Environment Sections**

Provincial Planning and Development departments have a designated environment section, which reviews the development plan and activities to determine their impact on the environment (Environmental Impact Assessment-EIA). The environment section is responsible for preparing provincial environment profiles, state of environment reports, and provincial environment conservational strategies. The implementation of provincial environmental conservation strategy also comes under the mandate of Environment Sections in their respective provinces.

### **Environmental Tribunals**

Environmental Tribunals have been established under the Environment Protection Act 1997 in each province to settle matters relating to the legal actions of EPAs in line with the rules and regulations of the environmental protection act 1997. The tribunal is an ultimate fact-finding committee to resolve the complaints and appeals against EPAs. The individuals can also approach the Tribunal seeking relief for their grievances against the alleged polluters. The tribunal consists of three people, a Chairperson (BPS-21), a technical expert (BPS-21), and a legal expert (BPS-20). At present, the environmental tribunal is functional only in the Punjab whereas the tribunals of Sindh, Balochistan, and KP are non-functional mainly due to the vacant positions of the members.

In addition to the above institutional arrangements, provincial line departments such as agriculture, water resources, forestry, wildlife and fisheries, health, energy, transport, industry, waste management, and urban planning play a major role in the management of resources and in environmental protection in each province. The Punjab and KP have developed their climate change action plans, which provide a comprehensive framework for adaptation and mitigation actions for each line department. The government of Sindh plans to develop its implementation framework and action plan for climate change and climate adaptation initiatives under the Climate Change Policy 2022 while Balochistan is still struggling to develop its climate change policy.

## 5. Climate Action in Pakistan

Climate action (SDG-13) calls for immediate measures to prevent climate change impacts as climate change has far-reaching repercussions for the present and future generations in all regions, nations, and communities. Climate action focuses on the implementation of international conventions and the integration of climate measures into policies and actions to strengthen resilience and adaptive capacity of both the systems and the communities. Furthermore, it highlights the importance of awareness and knowledge about mitigation and adaptation measures to reduce the impact of climate-induced disasters.

Pakistan aims to reduce 50% of its projected GHG emissions by 2030; 15% of which will be achieved through the country's own resources and the remaining 35% is subject to the availability of international financial support (Government of Pakistan 2021). Since 2013, Pakistan has been making significant strides in improving its environmental and climate governance structure through various key initiatives, e.g. Reducing

Emission from Deforestation and Forest Degradation (REDD+) preparedness project; rehabilitation of nine irrigation plantation sites; and the amendment of the Forest Act 1927 to engage private sector in accelerating afforestation. These initiatives collectively contributed to a reduction of 8.7% in emissions between 2016-18 (Government of Pakistan 2021).

The Federal Ministry of Climate Change is responsible for the implementation of climate action. The Ministry is mandated to develop and implement policies, projects, and plans for climate mitigation and adaptation. Pakistan has achieved much of its SDG-13 (Climate Action) targets. The Ministry of Climate Change has revised its national climate change policy (2012) to align it with the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement 2015. Similarly, the Framework for the Implementation of the Climate Change Policy (2014-30)<sup>6</sup> was also revised in line with these international commitments. The framework contains more than 700 recommended actions, among them 240 are on high priority while 380 are short-term, 108 medium-term, and five are long-term actions. On the eve of the COP26 in Glasgow (2021), Pakistan submitted to the UNFCCC its revised NDCs which demonstrated climate actions and proactive policy approaches adopted by the Ministry of

### Box 1: SDG-13 “Climate Action”

SDG 13 calls for taking urgent action to combat climate change and its impacts. It recognizes that climate change is a pressing global challenge which affects all countries, regions, and communities; and its consequences have far-reaching implications for both present and future generations.

The main targets of SDG 13 are as follows:

1. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters.
2. Integrate climate change measures into policies, strategies, and planning at national and local levels.
3. Improve education, awareness, and capacity on climate change mitigation, adaptation, impact reduction, and early warning.
4. Implement the UN framework convention on climate change.
5. Promote mechanisms to raise capacity for planning and management.

<sup>6</sup> <http://www.gcisc.org.pk/Framework%20for%20Implementation%20of%20CC%20Policy.pdf>

Climate Change for the decade ahead to reduce climate vulnerabilities. To protect the country's natural resource base, Pakistan has also developed its National Forest Policy 2015 and revisited its Biodiversity Action Plan in 2016.

To address the challenges of climate-related vulnerabilities, Pakistan has also developed sector-specific policies, e.g., National Drinking Water Policy 2009, Khyber Pakhtunkhwa Rangeland Policy 2014, National Forest Policy 2015, National Climate Change Policy 2012, National Environmental Policy 2005, National Sanitation Policy 2006, and National Resettlement Policy 2002, etc. Pakistan revised its National Climate Change Policy in 2021 to mainstream climate change into the socially and economically vulnerable sectors of the economy to steer Pakistan towards climate-compatible development. To achieve its emission reduction targets under the revised Nationally Determined Commitments (NDCs) 2021, Pakistan has also launched its National Electric Vehicle Policy 2020-25. Pakistan has developed National Climate Resilience and Adaptation Plan 2023-30 (NAP 2023), which identified climate-induced vulnerabilities and outlined policies, strategies, and possible adaptation actions to save lives and keep the country on track for sustainable growth. The NAP 2023 focuses on the eight most vulnerable sectors to climate change including Water Resources, Agriculture and Livestock, Forestry, Human Health, Biodiversity and other Living Ecosystems, Disaster Preparedness, Urban Resilience, and Gender.

For effective implementation, coordination, and monitoring of disaster management activities Pakistan has established three tiers of the disaster management authorities named National Disaster Management Authority (NDMA), Provincial Disaster Management Authorities (PDMAs), and District Disaster Management Authorities (DDMAs) at national, provincial, and district levels respectively. Along with NDMA, there are line agencies, such as the Federal Flood Commission, Pakistan Meteorological Department, Water and Power Development Authority, etc., which also play their role in supporting the implementation of the DRR policy.

To fulfil Pakistan's commitments under international conventions related to climate change, the Climate Change Council and Climate Change Authority was established under the Climate Change Act (2017). The Act provides a legal framework for addressing the impacts of climate change, including adaptation and mitigation policies, plans, programmes, projects, and related actions, along with any associated and supplementary matters. The Climate Change Council headed by the Prime Minister consists of the ministers of climate change, finance, agriculture, food security and research, planning, development and reforms, petroleum and natural resources, science and technology, water and power and foreign affairs; the chief ministers of the provinces; ministers-in-charge of the department allocated with the subject of the environment in the provinces; representatives of the chambers of commerce and industry, non-governmental organizations concerned with climate change, the environment and development experts, scientists, researchers, technical experts, and educationists; the Chairman of the National Disaster Management Authority; the Chairman, Pakistan Climate Change Authority; and the Secretary of the Division allocated with the subject of climate change, who shall also be the Secretary of the Council.

## 6. Challenges in Implementing Climate Action

### 6.1 Implementation of climate change policies and initiatives

As mentioned above, Pakistan has formulated comprehensive policies for climate change and started implementing various initiatives. However, there is a gap between policy formulation and its effective implementation. Resource constraints, institutional capacities and more importantly coordination have been the major causes of delays in the effective implementation of climate action plans. The respondents highlighted some common challenges that every climate change plan or target has been facing in Pakistan. The implementation of every policy and initiative requires a clear financial strategy, strong measurable reporting and verification frameworks, integration with national development planning and policies, and above all a strong political commitment.

### 6.2 Enforcement and compliance to climate change-related action

It has been observed that the government institutions responsible for implementing climate action failed to effectively implement the regulations and environmental standards, the ban on plastic bags in Islamabad is one of the recent examples, where the government could not fully enforce the decision and shopkeepers and vendors continue the use of polyethylene bags (Shahid 2022). To ensure effective compliance and enforcement, stringent efforts are required to make climate action a public good by raising awareness. This requires a strong commitment not only from the policymakers but also from the political parties. Furthermore, institutional synergies are also essential to take robust actions across multiple sectors and tiers.

### 6.3 Climate financing

The mitigation and adaptation of climate change impacts require adequate funding; Pakistan has been facing challenges in securing sufficient financial support from the international community. Pakistan has aligned its Nationally Determined Contributions (NDCs) with its economic and sustainable vision to reduce 50% of its projected GHG emissions by 2030. Only the transition (60% on renewable energy and 30% electric vehicles targets mentioned in NDCs) requires around \$101 billion. Similarly, for climate change adaptation, Pakistan requires \$7-14 billion per annum.

Furthermore, a climate-sensitive development requires a significant budgetary allocation to climate change related line ministries and departments so that the ministries can execute sector-specific climate actions without compromising their sectoral development priorities.

### 6.4 Public awareness

Knowledge and awareness about climate change is a prerequisite for developing strategies to respond to threats imposed on the society. An effective engagement of people in mitigation and adaptation

measures largely depends upon their knowledge and understanding of climate change. In Pakistan, mitigation and adaptation require a strong collective response from all segments of the society, but poor knowledge and understanding hinder such a collective response. Although the government has launched various awareness-raising campaigns, there is still a need for comprehensive awareness campaigns, strategies, and educational initiatives to promote sustainable practices.

The community's perspective on knowledge and understanding of climate change and its impacts can be seen in Box 2 below.

## 6.5 Institutional coordination

In Pakistan, efficient institutional coordination mechanism seems weak. The dichotomy of goals and responsibilities, institutional overlaps, and lack of information sharing among the institutions and ministries at the federal and provincial levels are the major challenges in undertaking well-coordinated climate actions in Pakistan.

The community's perspective on knowledge and understanding of climate change and its impacts can be seen in Box 2 below.

### Box 2: Community Perspective

Designing response strategies for disaster risk requires knowledge and understanding of climate change and its impacts. However, rural communities in Pakistan lack such opportunities to respond or prepare for climate disasters. For this study, community perspective was sought through FGDs and interviews. Following is the crux of the community perspective on some of the key points emerged.

**Access to information:** The available sources of information for the communities were limited prior to, during, and after disaster/flood as the government agencies, non-governmental organizations, and local authorities were providing only partial information to the communities. Baseline data for disaster preparedness, appropriate coordination, and timely information were not available for a coordinated response during the emergency. The inadequate information mechanism called for improved communication, especially when the cell phones were the only source of information available among at risk-communities to send across early warning messages as part of the preparedness. Though the past experiences were informative, but they were not fully utilized. This emphasizes the need for developing strategies to making the at risk-communities understand disaster risks and early warning message and a well-informed humanitarian response. Therefore, establishing a centralized communication platform and enhancing real-time data sharing would contribute to designing an effective and collaborative disaster response.

**Early Warning:** According to the respondents, there has been inappropriate early warning systems for floods or heavy rain at the community level. Instead, community members rely on mobile phones and the internet for weather updates. The absence of a comprehensive early warning system indicates the

lack of preparedness against disasters and lack of dissemination of risk sensitive information to the communities. An effective and clearly worded early warning messages could help the community take proactive measures to protect themselves and their assets from potential disasters.

**Capacity Building Opportunities:** The government and non-governmental organizations that work in disaster-prone areas preferably focused on distributing humanitarian aid rather than providing training on community-based disaster risk reduction (CBDRR). Despite the fact that the community members did express their interest in forming a rain/flood response group and receiving CBDRR training, no specific programmes related to disaster risk reduction training were initiated. Training workshops and awareness campaigns empower the community to identify local risks and contribute to tailored Disaster Risk Reduction (DRR) strategies and solutions. This can help create a more resilient and prepared community better equipped to minimize the impact of future disasters. The lack of community-level training in disaster preparedness makes it difficult to coordinate effective responses during emergencies, hindering timely assistance. Additionally, the absence of public awareness campaigns led to an inadequate understanding of evacuation procedures, causing confusion and delays in rescuing the people.

To improve community preparedness for disaster risk reduction, the respondents recommended to establish early warning systems, conduct regular community trainings, and foster collaborative partnerships among government agencies, NGOs, and local communities. Additionally, comprehensive training programmes, community-based workshops, and integration of traditional knowledge with modern frameworks are essential measures. To undertake all these actions, there is a dire need for strong institutions right from local and provincial levels to the federal level.

## 7. Discussion

Pakistan is among the first countries that has integrated Sustainable Development Goals into its national development agenda in 2016. In 2018, Pakistan prepared its national SDG framework to translate most of the SDGs' potential in the local context. At National level, the SDGs parliamentary task force was established to oversee progress in implementation and to provide the necessary legislative support. To ensure coordination among stakeholders, seven SDG support units were set up at national and provincial levels. Despite facing economic and financial constraints, Pakistan aims to achieve its SDGs targets related to social, economic, and environmental fields. Despite having a low carbon footprint, Pakistan is highly vulnerable to the effects of climate change. Therefore, adapting to and mitigating the impacts of climate change has become a critical reality for Pakistan to minimize adverse effects. Adaptation and mitigation are central to Pakistan's climate-related policies and frameworks.

Pakistan has actively been taking steps to build its resilience against climate change. Pakistan has updated its National Climate Change Policy in 2021 and developed a National Climate Resilience and Adaptation Plan 2023 with a series of initiatives such as Clean and Green Pakistan, One Billion Tree Tsunami, 10 Billion Tree Tsunami, Pakistan Recharge Programme, enhancement of reserved protected areas, etc. The One and later the Ten Billion Tree Tsunami programmes, aimed at restoring Pakistan's forest and wildlife resources. Furthermore, sector-specific initiatives in water, agriculture, energy, and disaster risk reduction are underway in various provinces, which include Punjab Green Development Programme (PGDP), Punjab Rural Sustainable Water Supply and Sanitation Project, Innovative Technologies to Improve Water Use Efficiency in Agriculture, Punjab Irrigated-Agriculture Productivity Improvement Project, Sindh Irrigated Agriculture Productivity Enhancement Programme, Project, Sindh Water and Agriculture Transformation Project, Balochistan Disaster Management Project, Balochistan Community Irrigation and Agriculture Project, Integrated Agricultural Development in Merged Areas of KP, Development of Renewable Energy in KP, Disaster Mitigation Preparedness and Rehabilitation in KP and many more. These efforts are the examples for enhancing biodiversity and generating livelihoods.

The Ministry of Climate Change plays a lead role in climate action, and the provincial environmental departments have their respective roles and responsibilities in addressing climate change. The Ministry of Climate Change devises national policies related to climate change to guide the country's overall approach to addressing climate change challenges while the provincial environmental departments are playing an important role in supporting the Ministry of Climate Change in implementing policies, strategies, and programmes across the country. Overall, climate action in Pakistan requires a multi-level governance approach with both the federal and provincial governments working together to tackle the country's climate change challenges effectively.

For implementation on the National Climate Change Policy 2012 across all provinces, a National Climate Change Policy Implementation Committee (NCCPIC) was established in 2014. The Committee was responsible for overseeing the progress of effective implementation of the climate change policy.

To implement the decision of NCCPIC, climate change units/implementing committees have been established under the planning and development departments in all the provinces. These provincial committees are responsible for reporting the progress on climate action to the national committee and the national committee is responsible for regularly reporting the progress to the prime minister.

The National Climate Change Policy 2012 requires the development of provincial climate change policies to ensure the effective implementation of climate actions across Pakistan. So far, not all the provinces have been able to finalize their climate change policies. Only Sindh and KP have been able to finalize and approve their climate change policies, however, Punjab is still in the process of approving its internal draft of the climate change policy (2017) whereas Balochistan is struggling to develop its climate change policy. At the moment, Balochistan Implementation Framework is functional in line with the national policy.

Pakistan also developed a 'Framework for Implementation of National Climate Change Policy' (2014-30). The framework provides a roadmap for the integration of climate change into national planning to make development more climate compatible. Despite having such a comprehensive framework and guiding documents for the implementation of climate change policy, progress remains slow and that too with multiple challenges.

In addition to the dearth of financial and technical resources to fund adaptation actions, Pakistan lacks institutional capacity to undertake an overall climate action at national and subnational levels, which requires special attention. While the role of strong institutions at the federal level is crucial to deal with climate change impacts, there is a strong need to enhance knowledge and to build capacity at the provincial level amid the transition of responsibilities to the provincial under the 18th constitutional amendment. Presently, climate change policies, plans, and knowledge about the associated climate risks are quite limited at the provincial level. There is a need to mainstream climate change into sectoral policies in the provinces so that these policies are implemented at local levels. Similarly, the climate action agenda should reflect in the planning processes of the key federal ministries such as Finance, Water and Power, Planning and Development, Food Security, and Health Services Regulation and Coordination. There is a need to establish systems for monitoring and evaluation to measure the progress toward achievement of the goals and objectives outlined in the NCCP and associated framework.

The lack of capacity and knowledge regarding climate action in the provinces indicates a major disconnect between the Federal Ministry of Climate Change (with policy development function) and the provincial governments' departments relating to environment/climate change (with implementation function). In some cases, the provincial environment departments are the focal points for climate change while in others the responsibilities are diverted to the provincial planning and development departments.

Limited knowledge and technical capacity at the local level is also a major barrier in the way of

implementation of climate action in the country (see Box 2 for local level of knowledge). Therefore, policies developed at the federal level are less effective than policies which take into consideration the grass root information to create harmony among multiple levels of authority. The route-dependent fragmented governance system in Pakistan leads to an absence of effective policy implementation at the grass roots level (Masud and Khan 2023). The centralized climate change policy implementation framework in a decentralized governance system resulted in an unclear line of coordination and integration among the key government departments and organizations at the national, subnational, and local levels. Therefore, there is a need to move away from the historical institutional approach to incorporate innovative and effective forms of interactions.

Climate change threats not only have environmental impacts, but also have serious challenges to economy and development. Therefore, the integration of climate change into national planning is essential to ensure risk-sensitive and climate-smart development. As discussed earlier, the Framework for Implementation of the National Climate Change Policy (NCCP) provides guidelines for such an institutional integration. The success of this framework to achieve the desired results highly depends on the level of interest and action taken by the line ministries, provincial governments, the private sector, and civil society through a strong institutional mechanism.

Coordination barriers, lack of common understanding on how to govern climate change-related actions, and issues of differing federal and local priorities and knowledge gaps have been identified as the major problems in implementing climate change policy in Pakistan (Masud and Khan 2023). Currently, there is no provincial-level climate change council (CCC) to link with the Federal CCC for coordination of a common mandate. Further down to the third tier, it is unclear as to which is the competent authority to carry forward the mandate of climate change policy at the local level. Similarly, the effectiveness of the federal climate change authority established under the Climate Change Act 2017 remains unclear as it only duplicates the work of disaster risk management authorities. No alignment mechanism is in place for the national disaster protection plan and flood risk management plan of disaster management authorities to improve sectoral cohesions. The provincial departments/institutions lack the technical capacities to address climate change issues, therefore, it creates challenges in prioritizing climate action.

## 8. Policy Recommendations

Structured and well-coordinated efforts should be made to sensitize the end-user stakeholders and beneficiaries on the implementation of climate actions. The line workers in the departments concerned and ministries should be oriented or trained on the targets, goals, and mechanisms outlined in the Implementation framework of NCCP to achieve maximum coverage instead of merely nominating top officials for training as they may or may not be able to adequately and/or timely pass down instructions to their subordinates where the trained line workers will themselves take direct climate action. There is a need to build the capacity of line departments' personnel so as to enable them to follow the procedures and mechanisms required to achieve targets and report progress.

In addition, it should be kept in mind that all departments have focused mandate and they should not be assigned or made liable for priorities and targets that do not fall in their ambit, as this was an often-heard grievance from the respondents that certain targets which are marked to their departments are not something that they are able to achieve within their limits.

There should be a Central Secretariat for reporting, compilation, and databasing of data on climate action coming in from both provincial and federal sources. Additionally, there needs to be some form of capacity building and resources provided to actualize the Secretariat. The Secretariat shall keep engaging with a cohort from within the departments and ministries concerned and have their regular capacity-building sessions as well as cohort meetings to ensure built-in capacity for reporting progress on the implementation of climate actions.

Although Sindh and KP approved their climate change policies, and the Punjab is in the process of doing so, the implementation of these policies shall remain a challenge due to lack of resources. To address this issue, it is essential to explore how donor priorities can align with national strategies and how donor-funded schemes can allocate resources more effectively. By doing so, financial resources can be channeled enabling planning to translate into concrete actions. It is crucial for Pakistan to develop a climate risk finance strategy to address the substantial financial and fiscal costs that arise from climate change. This is important in terms of strengthening institutional capacities with adequate funding for climate action projects.

The availability of information and baseline data to strengthen understanding of climate change impacts should be a priority. The data should be available to all tiers in the development architecture to mainstream climate resilience in the sectoral development. Technical competencies in collecting, managing, and analyzing disaster risk information must be extended to the sub-national planners, including sectoral planners, town planners, local planning authorities, and data collection and management agencies at the provincial and district levels.

The centralized climate change policy implementation framework in a decentralized governance system has resulted in an unclear line of coordination and integration among the key government departments and organizations at the national, subnational, and local levels. Therefore, there is a need to move away from the historical institutional approach to incorporate innovative and effective forms of interactions.

A centralized climate change policy implementation framework in a decentralized governance system may fail to cover a diverse range of climate change threats because each province and region has its own climatic and topographic characteristics. Therefore, a decentralized implementation framework is essential to achieve the desired results, which may address the specific problems and needs of each locality.

## 9. Conclusion

If we realistically gauge a country's progress towards SDG-13 (Climate Action), we have to see its commitments in terms of its NDCs as well as implementation mechanism through institutionally strong governance, appropriate climate policies, and action plans backed by resources. The climate action focuses on building resilience of communities and state infrastructure against climatic hazards. Though the mainstreaming of climate-compatible development in government policy documents is important, it is only a means to an end. Pakistan has made progress on some of the targets of the SDG-13, there are still significant challenges that need to be addressed to effectively combat climate change and its impact in Pakistan.

In addition to various climate action policies, the country has launched its National Resilience and Adaptation Plan along with other initiatives, but more needs to be done to ensure that these policies are implemented effectively at grass roots level. It has been noted during the evaluation process (scanning of policies, documents, and interviews with the sector-specific experts and the officials from the ministries) that the MoCC has not been able to implement climate action at full spectrum because of the lack of interest, financial and capacity constraints, and inactiveness of implementation committees especially at the local levels.

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