***Gilgit-Baltistan Disaster Management Authority***

Pakistan NDC implementation framework template Document

# Background

Pakistan is a lower middle-income country with GDP at USD 284 billion. Pakistan’s contribution to global greenhouse gas emissions is meager however the impacts of climate change faced in the country are abundant. Pakistan has been ranked 8th most vulnerable country to the impacts of climate change[[1]](#footnote-1) and adaptation is biggest domestic climate change challenge faced by Pakistan today. ND-Gain Index[[2]](#footnote-2) has placed Pakistan as the 27th least ready’ country in the world to address the impacts of climate change. The increased temperatures, varied precipitation and monsoon patterns, and increased emissions have resulted in increased frequency of extreme weather events (floods, tropical cyclones, droughts, landslides, Glacial Lake Outburst Floods (GLOFs)); consequently impacting livelihood and food security. In addition, Pakistan’s air quality has been significantly worsening accounting for PKR 62-65 Billion losses annually. Government of Pakistan (GoP) has lately taken multiple actions to respond to air pollution and climate change in an integrated manner and plans to continue the efforts through focused interventions.

## Paris Agreement and Pakistan’s Contribution

Pakistan ratified the Paris Agreement in 2016 and as an obligation under Article 4 of the Paris Agreement’s Nationally Determined Contribution (NDC) update process, the Ministry of Climate Change, Government of Pakistan (MoCC) submitted Pakistan’s updated NDCs in 2021. Aimed at achieving reduced poverty and ensuring stable economy, the updated NDCs commit to abate overall 50% of Pakistan’s projected GHG emissions by 2030. The enhanced commitment will be contributed by the shift to 60% renewable energy for electricity generation, and 30% to electric vehicles by 2030 and complete ban on the use of imported coal. The success of restoring the forest cover and conservation efforts was corroborated when the latest GHG inventory of 2018 reported an 8.7% decline in projected GHG emissions for the year 2018 (sequestration of 8.4 Mt CO2e). Encouraged by these analytics, Pakistan commits to enhance its reliance on Nature-based Solutions (NbS) underpinned by the fact that Ten Billion Tree Tsunami program (TBTTP) will alone sequester 148.76 MtCO2e if fully implemented.

To achieve these set commitments, it is estimated that transition to renewable energy will cost Pakistan US$ 101 billion by 2030 plus additional US$ 65 billion by 2040 given costs involved in completing in-progress renewable energy projects, building additional hydropower (US$50 Billion by 2030 and US$80 Billion by 2040) and transmission lines (US$ 20 billion), and phasing out coal (US$ 18 billon to buy out Pakistan’s coal power plants and US$ 13 billion to replace the energy production capacity of coal power plants with solar). Pakistan’s adaptation cost ranges of between US$ 7–14 billion per annum to 2050. Financing these initiatives is considered a challenge in NDCs and Pakistan in the NDCs commits to employing the instruments on enhanced ambition provided in Article 6 of the Paris Agreement, public-private partnerships and international climate finance opportunities including Green Climate Fund (GCF), Global Environment Fund (GEF) etc.

# NDC Implementation

## Strategic objectives

It illustrates a pathway for implementing outlined activities and articulates aspects of the enabling environment that may need strengthening to reach the targets set out in the updated NDC. To achieve this goal, following **objectives** are pursued:

* Strengthening enabling environment (e.g., policies, regulations, institutional arrangements) to overcome articulated challenges and barriers to implementing activities committed
* Identify possible sources of funding and Monitoring Reporting and Verification (MRV) for the implementation of the NDC in all economic sectors, with a view to develop a financial investment plan
* Increasing awareness among stakeholders[[3]](#footnote-3) about what is required to achieve the NDC targets by seeking technical expertise, increasing buy-in for action in new areas and building knowledge capital in key institutions

### Provincial Chapters

The 18th amendment to Pakistan’s constitution in 2010 has led to delegating more power to provinces. MoCC being the national entity, is responsible for formulating the national policies and provinces are responsible to adopt these policies into their planning and operations in different economic sectors. Since climate change is a cross sectoral subject and in some cases provincial and local capacities are limited on climate change concepts, MoCC understands the need for provinces to adopt NDCs in to a form of a roadmap with monitoring and evaluation mechanism. This activity is a subsequent action to “Priority actions, Implementation schedule and Costs” which will essentially provide a good evidence on what actions to prioritize in what sectors based on the costs and logistics and when to implement. The **provincial roadmap formulation** will follow following proposed steps:

* *Taking stock of the NDC sectors at sub-national level which will essentially cover the understanding of what targets are being committed in NDCs and how provincial level policy instruments and actions will be implemented. This will also require identification of gaps for regular stock-taking to report back to UNFCCC.*
* *Assessing the human and information capacities required for NDC implementation for prioritized actions in priority sectors which will help devise a plan to build capacity in both short and long terms.*
* *Assessing the policy instruments and institutional readiness for implementing the NDC which will cover analysis of different mitigation and adaptation policy instruments and deciding most suitable approach to attain desired NDC outcomes. This will also require an overhaul of existing practices in terms of policies as well as roles and responsibilities among different economic sectors based on addressing bottle-necks to NDC implementation.*
* *Assessing the regulatory framework to review regulatory frameworks to ensure that these can help drive NDC implementation and bring about the agreed policy objectives*
* *Mapping the financial support which will then inform national climate finance framework*
* *Monitoring progress and reporting back to MoCC on decided set of indicators consistent and captured within the national inventory, BTR reporting, and feed into the Paris Agreement’s global stocktake*

The proposed steps will require extensive stakeholder consultations to ensure larger political buy-in and ownership among various actors involved in successful implementation of the roadmap. Through literature and data collected during NDC update process, following impacts are recognized in provinces:

**Gilgit Baltistan and Azad Jammu and Kashmir**: Just like KPK, GB and AJK are responsible for the supply of electricity for the entire country from its hydro-power stations. The regions are responsible for the operation and maintenance of these infrastructures and require additional resources to convert these to climate resilient infrastructure. In addition, region is also prone to GLOFs, flash floods, avalanches, heatwaves etc.

Provinces will undergo the stages highlighted under **provincial roadmap formulation** to prioritize areas of intervention for short, medium and long-term. Based on these prioritization, MoCC will be coordinating with provinces and will regularly monitor and evaluate their progress. The quarterly progress reports submitted by provinces will also be a way for provinces to communicate their needs like finances, technical assistance etc. to MoCC to make necessary arrangements. These financial needs will then inform financial framework covered in next section.

Based on the national and sub-national situation analysis, following actions with responsibilities and targets were committed in updated NDCs:

**Table 1: Supporting Adaptation Actions & Indicators**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Objective | Supporting Actions | Lead Organization | Indicators | Priority by Provinces (H,M,L) |
| Mitigate impacts of extreme events through preparedness and capacity building. | A hydro-meteorological monitoring system for developing an operational system on water-related DRR products and effective dissemination through online systems | NDMA, FFC, MoWR / Provincial department | Hydro-meteorological monitoring system developed |  |
| Establishment of a credible national water, weather, and climate database to tackle natural disasters | NDMA, FFC, GCISC, Pakistan Metrological Department (PMD)/ Provincial department | Climate database established |  |
| Promote the use of space technologies and digital innovation in DRR, agriculture water management through gender-segregated data and capacity development for national partners | NDMA, FFC, GCISC, PMD/ Provincial department | Number of capacity development initiatives undertaken |  |
| Cost-effective innovative disaster risk management solutions to reduce the loss of life, infrastructure, and livelihoods at all scales | PDMAs/ Provincial department | Number of cost-effective innovative disaster risk management solutions implemented |  |
| Develop a nationwide scale Multi-Hazard Vulnerability and Risk Assessment (MHVRA) in a Spatio-temporal format including detailed and location-specific assessments to providing comprehensive risk information | NDMA / Provincial department | MHVRA developed |  |

## **Template to be completed by Department**

**Table 1: Adaptation Actions**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Objective | Indicators | Priority by Provinces (H,M,L) | Immediate Action/ Long term Action | Activity Cost | Timeframe | Stakeholders |
| Mitigate impacts of extreme events through preparedness and capacity building. | Hydro-meteorological monitoring system developed |  |  |  |  |  |
| Climate database established |  |  |  |  |  |
| Number of capacity development initiatives undertaken |  |  |  |  |  |
| Number of cost-effective innovative disaster risk management solutions implemented |  |  |  |  |  |
| MHVRA developed |  |  |  |  |  |
| Introduce social-safety nets with a focus on climate change adaptation for socio-economic development | Number of safety net schemes |  |  |  |  |  |
| Number of awareness programs |  |  |  |  |  |
| Education material developed |  |  |  |  |  |
| Sensitization sessions conducted  |  |  |  |  |  |
| Number of livelihood options designed  |  |  |  |  |  |
| Number of women earning income |  |  |  |  |  |

# Ministry of Climate Change- Climate Change Implementation Framework

Goal: Streamline the implementation of National Climate Change Policy and Nationally Determined Contribution (Pak-NDC) to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate compatible development.

**Objectives:**

The main objectives include:

1. To pursue sustained economic growth by appropriately addressing the challenges of climate change;

2. To integrate climate change policy with other inter-related national policies;

3. To focus on pro-poor gender sensitive adaptation while also promoting mitigation to the extent possible in a cost-effective manner;

4. To build climate-resilient infrastructure;

5. To track impact of climate change on water, food and energy security of the country, and to implement remedial plans to support water, energy and food policies;

6. To minimize the risks arising from the potential increase in frequency and intensity of extreme weather events such as floods, droughts and tropical storms;

7. To develop climate-resilient agriculture and food systems for all agro-ecological zones in the country;

8. To promote country’s transition to cleaner, lower emission and less carbon intensive development;

9. To accelerate the policy coherence and integration to achieve the United Nations’ Sustainable Development Goals (SDGs) in the light of its Sustainable Development Report 2020 (SDR2020) and our Nationally Determined Contributions;

10. To strengthen inter-ministerial and inter-provincial decision making and coordination mechanisms on climate change;

11. To facilitate effective use of the opportunities, particularly financial, available both nationally and internationally;

12. To foster the development of appropriate economic incentives to encourage public and private sector investment in adaptation and mitigation measures;

13. To enhance the awareness, skill and institutional capacity of relevant stakeholders;

14. To promote tree plantation, conservation of natural resources, nature-based solutions and long- term sustainability

15. Improve NDC planning, policy, strategy, and legislation

16. Strengthen an enabling environment for NDC implementation

17. Accelerate the policy coherence and integration to achieve the United Nations’ Sustainable Development Goals (SDGs) in the light of its Sustainable Development Report 2020 (SDR2020)

18. Enhance NDC measurement, reporting and verification, and transparency of climate action.

# Implementation targets and priority objectives

The implementation framework presents the targets and objectives of NCCP and NDC divided under three broad categories of adaptation, mitigation and cross-cutting issues. The framework is informed by the NCCP and NDCs where the localized actions to achieve these objectives and reporting mechanisms will be decided by provinces.

**Sectors:**

1. **Adaptation**
* **Water Resources**
* **Agriculture and Livestock**
* **Human Health**
* **Forestry**
* **Biodiversity**
* **Other Vulnerable Ecosystems**
* **Disaster Preparedness**
1. **Socio Economic Measures**
* **Gender**
* **Youth**
1. **Mitigation**
* **Energy Generation**
* **Energy Efficiency and Energy Conservation**
* **Transport**
* **Urban Planning and waste management**
* **Industries**
* **Agriculture and livestock**
* **Caron Sequestration and forestry**

## **Template to be completed by Department**

|  |
| --- |
| **Legend** |
| Pak-NDC 2021 Stop |
| NCCP 2021Stop |
| Immediate In 2 years |
| **Medium-term** In 5 years |
| Long-term In 10 years |

| **Sectors** | **Objectives****(NCCP and NDCs 2021)** | **Stakeholders** | **Activities*****(Options for the provinces to select from or they can add more relevant activities )*** | **Indicators** | **Timeline** | **Tentative Cost** |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Immediate** | **Medium-term** | **Long-term** | **Implementation** | **Performance tracking**  | **Reporting** |  |  |  |  |
| **Adaptation** |  |  |  | **IMMEDIATE, MEDIUM-TERM AND LONG-TERM** |  |  |  |
| **Disaster Preparedness** | Invest in cost-effective and no-regret ‘nature-based solutions’ (NBS) to disaster risk reduction Stop | Ensure that infrastructure, including health facilities, schools, telecommunication, power, utilities and transport are resilient to disasters Stop |  |  |  | Immediate:* Conserving forests, wetlands and coral reefs through collaboration of institutions and private stakeholders.
* Sand dunes and mangroves can provide protection from storm surges, strong winds and cyclones.
* Adopt and aggressively implement the SAARC Agreement on Rapid Response to Natural Disasters 2011 to protect the environment, abate climate change, and regional cooperation on the environment.

Medium-term:Undertake detailed studies to assess the requirements of flood embankments, dykes and protective bunds to protect vulnerable areas particularly urban areas with large populations in light of likely flood level.* Strengthen the existing flood embankments and dykes and protective bunds.
* Rehabilitate the 2010 flood damaged embankments, bunds and irrigation infrastructure on priority.
* Enhance, restore and strengthen the capacity of Barrages.
* Strengthen telecommunication, power, utilities, and transport infrastructure to withstand climate change induced extreme weather events.
* Construct cyclone shelters in vulnerable coastal areas.
* Redesign and construct disaster resilience multipurpose school buildings to be used as shelters during natural calamities.
* Ensure regular periodic maintenance of irrigation and other related infrastructure to enhance its sustenance and minimize its damage during natural disasters.

Long-term:* Redesign and upgrade storm drainage capacity of major cities especially Karachi and Lahore keeping in view climate change related likely increase in short duration intense rainfall events.
* Redesign and upgrade Left Bank Outfall Drain (LBOD) capacity, particularly in southern Sindh, keeping in view the experience gained during climate change related short duration intense rainfall events in Southern Sindh during July, 2003 & Aug, 2010.
* Construct escape structures at suitable places along the existing flood embankments, dykes and protective bunds, and identify suitable places that could be used for recharging depleting aquifers from surplus flood water.
* National, Provincial, District and local emergency preparedness and response plans are developed for ensuring provision of safe water to the people affected by emergencies such as floods, earthquakes, droughts and conflicts, in line with defined Standards.
* Policies are formulated to prevent threats of pollution and risks to water bodies and underground water for providing safe sanitation to communities affected by disasters like floods and earthquakes.
 |  |  |  |
| Ensure the implementation of Sendai Framework for Disaster Risk Reduction StopStop |  |  |  |  | Immediate:* Treating disaster risk reduction as a cross-cutting theme
* Increasing investment in prevention, risk reduction, climate change adaptation and anticipatory approaches to enhance resilience.
* Asia-Pacific Action Plan 2021-2024 and its implementation
 |  |  |  |
| Ensure community participation in early warning dissemination and disaster risk reduction Stop |  | Develop a nationwidescale Multi-HazardVulnerability and RiskAssessment (MHVRA) Stop |  |  |  | Immediate:* Develop mechanism to formalize and promote strong sectoral coordination among sectors responsible for DRM and the general community.
* Conduct special awareness campaigns for different segments of society and particularly for those communities living in vulnerable areas, through radio, TV, print media and participatory workshops.
* Develop an integrated information system to manage temporal and spatial information on climate change and disaster risk reduction.
* Improving access to credible climate information by engaging civil society .
* Include disaster management as a discipline in the curriculum of universities

Medium-term:* Develop remote-sensing and in situ techniques to monitor temperature & moisture contents of the atmosphere at different levels using satellite and weather radars etc.
* Develop data assimilation techniques for running high resolution Numerical Weather Prediction (NWP) models to predict precise weather conditions for 7 to 10 days.
* Improve knowledge and understanding of available technologies for disaster reduction among professional engineers, building contractors etc.

Long-term:* The National Disaster Management Authority develops holistic and unified guidelines for the conduct of MHVRA.
* Set-up remote-sensing and ground-base mechanism to monitor the development of Glacial Lakes Outburst Floods (GLOF).
 |  |  |  |
| Allocate adequate financial and other resources to implement “National Disaster Risk Management Framework ” Stop |  |  |  |  | Immediate:* Set-up a system to ensure that policy and regulatory framework is implemented and enforced.
* Huge investment in disaster prone areas of Pakistan.
* Enhance the institutional capacities of all agencies involved in disaster management related activities (NDMA, PDMAs, SDMA Provincial Irrigation Departments, PMD, FFC, WAPDA and Emergency Relief Cells Civil Defense, Health Deptt, Education Dept, Hydel Board, Highways Deptt, CBO, Academia).
* Mainstreaming children into policy and disaster response plans.
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| Strengthen flood forecasting, drought monitoring and early warning systems Stop Stop |  |  |  |  | Immediate:* Improve real-time meteorological and hydrological data collection and processing for better understanding of natural processes and evolving disasters.
* Upgrade and expand the weather monitoring station network in the country.
* Strengthen natural disaster’s early warning system for making it more efficient and linked it with improved mitigation measures and actions.
* Develop an improved early warning dissemination system using radio, TV, SMS, and mosque loudspeakers etc.
* Develop standard operating procedures, clearly defining the role and responsibilities of each concerned department during natural disasters.
* Establish the local flash flood warning centers in vulnerable mountain areas.
* Improve and strengthen flash flood response mechanism of local & district disaster managers to minimize the damages keeping in view generally rapid on-set of flash floods with short warning lead-time.
* Establish regional flood forecasting and warning centers in each province and sub-regional centers at each vulnerable district.
* Strengthen linkages with media, particularly with electronic media, for timely dissemination of early warning in easy to understand local languages.
* Develop universally adopted standards for sharing and storing hazard-related data for easy analysis and integration with other data sets.

Long-term:* Set-up a national data center for easy sharing of all climate, water and disaster related data.
* Upgrade & install Flood Early Warning System (FEWS) model in PMD, Mangla Dam and Tarbela Dam with proper staff training.
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1. GermanWatch Climate Risk Index 2021 Available at: https://germanwatch.org/en/19777 [↑](#footnote-ref-1)
2. ND-Gain Index Available at: https://gain-new.crc.nd.edu/country/pakistan [↑](#footnote-ref-2)
3. Public, private, donors/investors, academia, development banks, etc. [↑](#footnote-ref-3)