

TOWARDS CLIMATE-RESILIENT HEALTH SYSTEMS IN PAKISTAN A FRAMEWORK OF ACTION



**Ministry of National Health Services,
Regulations & Coordination**



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June 2023

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Regulations & Coordination**



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Towards Climate-Resilient Health System in Pakistan
A Framework of Action

Approved by
Ministry of National Health Services, Regulations & Coordination

Produced by
Health Planning, System Strengthening & Information Analysis Unit (HPSIU)

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Web: <http://www.nhsrsc.gov.pk/>

MESSAGE FROM THE FEDERAL HEALTH MINISTER

Pakistan consistently remains amongst the top nations to be extremely vulnerable to the negative impact of climate change, despite having a minimum share in global carbon emissions. Our country, with its diverse ecosystems and vulnerable communities, has experienced firsthand the devastating effects of extreme weather events, rising temperatures, and changing precipitation patterns.



It is therefore, imperative to not only spread awareness amongst the local population, but to adopt adequate mitigation and adaptation policies to help protect the vulnerable communities against the negative impacts of climate change.

The 26th United Nations Climate Change Conference of the Parties (COP26) provided a platform to expand and promote global ambition for building the resilience of national health systems in order to aid communities negatively impacted by climate change. The government of Pakistan is committed to the five primary objectives of COP26 to establish climate-resilient health systems.

Pakistan is committed to introduce sustainable healthcare systems that will aid in the reduction of emissions, thereby lowering the negative impact of greenhouse gases in the atmosphere, and enhance our capacity for adaptation. It is on this basis, that I aim to ensure that climate resilience will be a cross cutting priority in all future health policies, programmatic reforms, while ensuring the goal of climate financing is met in the health sector. We must work more on integrated climate and health monitoring systems, while emphasising and promoting further research in this area.

As climate change has an increasing impact on public health, a scoping study was conducted by the Ministry of National Health Services, Regulations & Coordination as an initial starting point to commence deliberations on how best to progress towards building a climate resilience health system.

I appreciate the efforts of the Ministry of National Health Services Regulation and Coordination (M/o NHR&C), British High Commission and especially UK's Foreign Commonwealth & Development Office (FCDO) in generating evidence and setting strategic directions in this area. I expect that all stakeholders will make the best of health sector reforms as recommended in the document to improve the health and well-being of the people of Pakistan.

A handwritten signature in blue ink, appearing to read 'A. Qadir Patel', positioned above the printed name and title.

Mr Abdul Qadir Patel
Federal Health Minister

FOREWORD

Pakistan has emerged as the eighth most vulnerable country to the negative and disastrous impacts of climate change. As we navigate the challenges and opportunities presented by climate change, Pakistan stands ready to be an active and constructive partner in global climate efforts.

The government of Pakistan is actively involved in international climate negotiations and has ratified the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.



Climate change is not a problem that can be solved by one entity or one nation alone. The scoping study on Climate Resilient Health Systems in Pakistan is a testament to our commitment to work hand in hand with the development partners to forge a sustainable and resilient future.

As Pakistan is moving forward with the strategic framework on a climate resilient health system, there are some key actions recommended by the WHO that governments and their partners can put into practice. These include: 1) Understanding all health-related vulnerabilities to climate change, including at the system level; 2) Bringing together the right actors to establish integrated approaches for adaptation; 3) Gathering the resources to implement health adaptation actions; and 4) Monitoring, evaluating, learning, and adjusting approaches to better protect health.

Pakistan's commitment to COP26 is not merely symbolic; it is backed by concrete actions and the determination of the government of Pakistan. We recognise the urgency of the climate crisis, and we are resolved to confront it head-on.

The key ingredients for success will be the mobilisation of all stakeholders and society around the goal of achieving health for all. Let us move ahead with the ambitious action to ensure climate resilient health systems that deliver for everyone.

A handwritten signature in blue ink, consisting of a stylized 'I' followed by a series of loops and a horizontal line at the end.

Dr Iftikhar Ali Shallwani
Secretary Health

ACKNOWLEDGMENTS

Health is notably overwhelmed by the global climatic changes. Populations around the world struggle with food and water security, face the threat of waterborne and vector-borne disease outbreaks, and experience increased pressure on scarce resources triggering climate-related migration and conflicts.

Such threats lead to more serious consequences in developing countries, such as Pakistan. The combination of extreme exposure to climate-related disasters, such as heat waves, floods, droughts, and the long-term rise in sea level coupled with fragile health systems is detrimental to the health of the people of Pakistan.



The climate resilient health system scoping study aimed to identify priority areas for action to build climate resilience within health systems. It sought to identify key actions that can enhance the capacity of health systems to anticipate, respond to, and recover from the negative health impacts of climate change.

Here, I would like to extend my special thanks to Federal Health Minister, Mr Abdul Qadir Patel for his vision and Dr Iftikhar Ali Shallwani, Secretary Health for his leadership in prioritising climate resilience and public health. Special thanks are also due to Special Secretary, Mr Nasir Uddin Mashhood for his commitment and guidance to complete the task successfully.

This task of developing a strategic framework on climate resilient health systems became a reality with the technical support from the British High Commission in Pakistan. In this regard, I am especially thankful to Mr Ahmer Akhtar and Dr Bilal Zafar from the UK's Foreign, Commonwealth & Development Office (FCDO) and Dr Mahwish Hayee from Oxford Policy Management for their valuable insight, contribution, and commitment.

Dr Ambreen Nadeem, Deputy Director General (Primary Health Care) provided the overarching technical leadership for the collaboration to broaden our understanding of the challenges and opportunities that lie ahead. I extend my deepest thanks and hereby acknowledge the efforts of the dedicated team at the Health Planning, System Strengthening & Information Analysis Unit (HPSIU). I am especially thankful to the experts including Dr Hasan bin Hamza from HPSIU and Dr Pir Shaukat Ali, Consultant Climate Change for their tireless work to compile the scoping study, providing us with valuable insights into the intersection of climate change and public health.

In the end, I wish to have a shared commitment and collaborative actions from all stakeholders that will pave the way for a healthier and more resilient future.

Dr Baseer Khan Achakzai
Director General (Health)

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ACRONYMS

| | |
|-----------|--|
| COP26 | 26 th United Nations Climate Change Conference of the Parties |
| DHIS | District Health Information System |
| EPA | Environmental Protection Agency |
| EPHS | Essential Package of Health Services |
| FCDO | Foreign Commonwealth & Development Office |
| GFATM | Global Fund to fight against AIDS, Tuberculosis and Malaria |
| GHG | Greenhouse Gas |
| GOP | Government of Pakistan |
| HIS | Health Information System |
| HPSIU | Health Planning, System Strengthening & Information Analysis Unit |
| HSA | Health Services Academy |
| IDSRS | Integrated Disease Surveillance and Response System |
| IHR | International Health Regulations |
| M/o NHR&C | Ministry of National Health Services, Regulations & Coordination |
| MOCC | Ministry of Climate Change |
| NCCP | National Climate Change Policy |
| NDCs | Nationally Determined Contributions |
| NDMA | National Disaster Management Authority |
| NDRMF | National Disaster Risk Management Fund |
| NHEPRN | National Health Emergency Preparedness and Response Network |
| NIH | National Institute of Health |
| OPM | Oxford Policy Management |
| PDMA | Provincial Disaster Management Authority |
| PMDC | Pakistan Medical & Dental Council |
| PNC | Pakistan Nursing Council |
| TWG | Technical Working Group |
| UN | United Nations |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WASH | Water, Sanitation, and Hygiene |
| WHO | World Health Organisation |

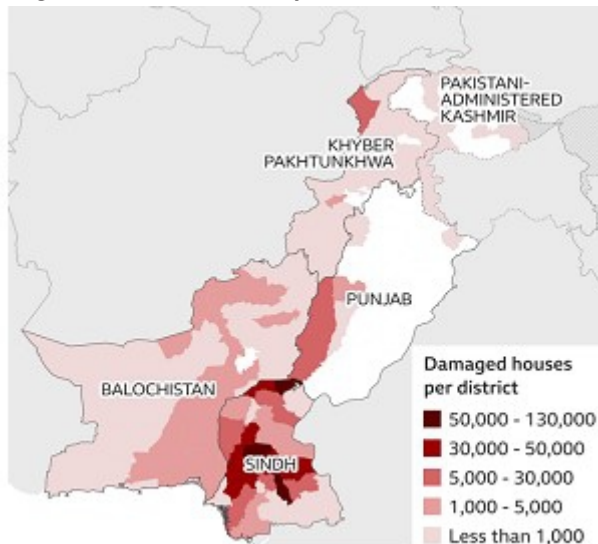
Introduction

Pakistan, as the eighth-most climate-vulnerable country in the world, finds itself confronted with an array of challenges, including but not limited to natural disasters such as floods, unpredictable rainfall patterns, and prolonged droughts leading to a surge in vector-borne diseases, food shortages, and humanitarian crises. Given Pakistan's unique geographical location, coupled with the challenges of dwindling water resources and complex environmental issues, the intricate connection between the shifting climate and deleterious health implications cannot be overlooked. As the implications of climate change on public health become more pronounced, it is imperative to evaluate the current standing and efficacy of public health policies and systems to anticipate, respond, adapt, and recover from climate risks and events. Thus, it is of paramount importance for public health experts and policymakers to collaborate in a concerted effort to build resilience to climate change within the country's health systems and health service delivery units.

This report presents the findings of an extensive scoping study conducted by the Ministry of National Health Services Regulation and Coordination (M/o NHR&C) with support of the British High Commission to assess the current level of attention given to climate resilience in health policies, planning, and implementation in Pakistan.

The findings from this study provide the foundation for a comprehensive framework to stimulate action, establishing a flexible roadmap that outlines actionable steps towards creating more climate-resilient health systems in Pakistan. By examining the existing landscape, this study aims to arm policymakers and stakeholders with valuable insights, empowering them to amplify climate resilience within the health sector.

Figure 1: Areas hit by monsoon rains



Source: UN OCHA

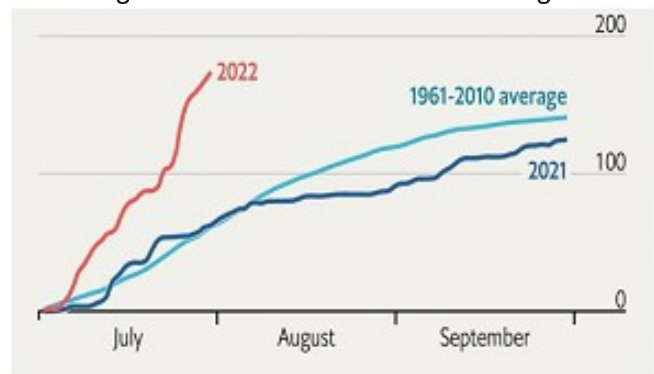
*During the 2022 floods, nearly **1600 lives** were lost in Pakistan. More than **32 million** people were displaced and nearly half of all districts across the country were submerged under water. About **2000** health facilities have been fully or partially damaged (Nature, 2022; WHO, 2022). The floods have highlighted Pakistan's extreme vulnerability to adverse climate change impacts. Despite the increasing impact and rising climate risks, the systems and tools to monitor and **address climate change and its impacts on population health remain nascent in Pakistan.***

¹German Watch (2021) Global Climate Risk Index. [Last accessed 1 July 2023]. Available from www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

² Fahad, S., Wang, J. Climate change, vulnerability, and its impacts in rural Pakistan: a review. Environment Science Pollution Res 27, 1334–1338 (2020). <https://doi.org/10.1007/s11356-019-06878-1>

The **actual rainfall** in Pakistan in 2022, charted against the average rainfall over the last **60 years**. Precipitation in the **seven months** of 2022 is already **double the average in prior years**.

Figure 2: Rainfall in 2022 vs average



Source: Pakistan Meteorological Department

Methodology

The 26th United Nations Climate Change Conference of the Parties (COP26) provided a significant opportunity to expand global ambition for building the resilience of health systems from adverse climate impacts, by reducing emissions, and enhancing the capacity for adaptation. The principal report adopted at COP26 advises countries to establish climate-resilient health systems that take current and future climate projections into account to protect population health from the impacts of climate change. More than 60 countries, including Pakistan, committed to the five primary objectives³ of COP26:

Objectives

1. Deepening adaptation research for health
2. Building climate-resilient health systems
3. Developing low-carbon sustainable health systems⁴
4. Including health priorities in Nationally Determined Contributions (NDCs)
5. Raising the voice of health professionals as advocates for stronger ambition on climate change

After COP26, the M/o NHR&C recognised the importance of health sector preparedness and mitigation measures to reduce the impact of climate change and its impact on human health. Thus, the Director General (Health) commissioned a scoping study to understand the current situation and formulate an approach to support development of climate resilient health systems in Pakistan. The methodology employed for the scoping study was formulated to ensure accuracy, reliability, and relevancy of the findings. The approach adopted was brief yet effective, leveraging a combination of a thorough literature review and primary data collection methods, specifically in-depth interviews.

A comprehensive literature review was conducted to establish a solid foundation for the study. Extensive research was undertaken, encompassing a broad range of sources with a geographical focus of Pakistan such as policy documents, research studies, and grey literature. This thorough examination of existing knowledge provided valuable insights into the current state of knowledge

³HOME - UN Climate Change Conference (COP26) at the SEC – Glasgow 2021 (ukcop26.org)

⁴<https://www.who.int/initiatives/cop26-health-programme/country-commitments>

and identified key gaps that needed to be addressed and in-depth interviews were conducted with high-level key informants from provincial and federal governments, private and public academia, and multilateral and bilateral donors working on climate change and health to collect valuable insights and first-hand information that contributed to a comprehensive analysis. The findings from the study are reported below:

High-Level Findings of the Scoping Study

While there are a range of areas where efforts have been made related to the climate resilience of the overall health system in the country, the study has identified important gaps, which must be addressed if Pakistan is to meet its commitments.

1. **An urgent need to improve leadership and governance for building climate-resilient health systems.** The establishment and development of climate-resistant health systems is uncharted territory in Pakistan. There is a need for stronger institutional leadership and clear governance arrangements to drive forward evidence-based policy and adaptation. Technical capacity to formulate relevant climate-resilient policies and interventions is weak, which is compounded further by a lack of clarity among policymakers at the federal and provincial levels regarding their roles as well as responsibilities following the 18th Constitutional amendment. Thus, a comprehensive coordination mechanism to take the agenda forward is needed.
2. **There is an impression that the opportunity for reducing Greenhouse Gas (GHG) emissions within the current health system is limited.** There is a prevailing perception among policymakers that the health sector has a negligible impact on national carbon emissions, and its significance is often underestimated. Nevertheless, considering the substantial investment needed for new health infrastructure in Pakistan, it is pertinent to prioritise low-carbon and energy-efficient technology going forward.
3. **Taking an evidence-based approach to highlight the health impacts of climate change offers great potential.** Within current policymaking circles, planned climate-related interventions are not appropriately utilising data or evidence to estimate possible or expected health impacts. The omission of considerations regarding the removal or reduction of fossil fuel subsidies, which holds substantial influence over health outcomes, is an example of this oversight. Moreover, there exists a notable opportunity to incorporate data pertaining to anticipated health impacts into climate emergency planning, alongside recognising climate change as a pivotal risk factor in the strategic preparation and response to national emergencies.
4. **Policymakers are more likely to be convinced by arguments that focus on the economic impact of health challenges arising from climate change and the benefits of mitigation, and adaptation strategies.** The effects of extreme variations in temperatures, rainfall, drought, and other major climatic events inevitably lead to increased catastrophic expenditure. Future climate risk projections and economic analyses should be used to evaluate the costs that could potentially be incurred if appropriate measures are not in place. These can act as strong motivators to accelerate action for climate change mitigation and resilience, both within the health sector and more widely.

5. **Climate-resilient health systems are a neglected area of research in Pakistan, little mention is made of climate resilience in national health policy and planning documents.** There is limited Pakistan-specific scientific literature and policy documentation that explicitly addresses the development of climate-resilient health systems. There are some policy documents that recognise disruptions due to climatic emergencies, such as the destruction of health infrastructure, but there is little evidence of research that suggests concrete steps to be taken to strengthen the health system with respect to climate change. Moreover, research from Pakistan is mostly disjointed with limited support from academic institutions. Capacity to undertake research that fits the global climate agenda and meets international standards is also limited requiring targeted capacity building initiatives.
6. **The disease surveillance system in Pakistan has not been adapted to consider climate-sensitive health risks.** While isolated structures are in place, such as tracking heat-related casualties, there is a lack of integration with wider disease surveillance and health information systems (HIS). This absence of surveillance data concerning health risks associated with climate conditions results in limited evidence of health authorities actively fostering climate resilience within health systems and programmes.
7. **Little research exists in Pakistan about how to best reduce GHG emissions in the health sector.** Stakeholders interviewed for the scoping study emphasised that GHG emission assessments and reduction plans are essential areas that must be prioritised. There is enormous potential in minimising climate risks and reduce GHG emissions, but there has been little research conducted on how to do this within the health sector.

Based on the comprehensive findings of the scoping study, a set of practical recommendations have been proposed to address the challenges identified. These recommendations serve as a roadmap for action and are detailed in the subsequent section.

Key Recommendations

The recommendations have been cross referenced and structured in accordance with the WHO's Operational Framework for Climate Resilient Health Systems. The recommendations presented in this report have been contextualised considering the specific needs of Pakistan and against the findings from the study, recognising the capacity and challenges faced by the public health system in the country.

1. Leadership & governance



Better coordination and harmonisation between climate change and health.

- **Designate focal points for climate change and health** within the Ministries of Health and Climate Change, and other key health institutions, with careful selection to ensure a high enough level of authority to work across and within the relevant parts of the government.
- **Develop a steering mechanism for collaboration**, in the form of a Technical Working Group (TWG) similar to disaster risk management, which combines the health and climate divisions at the national and provincial levels along with relevant ministries such as the Pakistan Meteorological Department, Provincial Irrigation Departments, National Disaster Management Authorities (NDMAs), Provincial Disaster Management Authorities (PDMAs), Environmental Protection Authorities (EPA) (federal and provincial), and Education Departments.
- The National Health Vision (2016-2025) and Provincial Health Policies mention disaster-resilient health systems and climate change. The new **Vision document could explicitly focus on climate-resilient health systems and integrate it with disaster resilience**. This could be accompanied with Provincial **health policies** to recommend changes/updates with respect to climate-resilient health systems.
- Pakistan has Nationally Determined Contributions (NDCs), but has yet to develop a **National Health Adaptation Plan** on climate resilient health systems.
- **Develop monitoring, evaluation, and accountability mechanisms** within the M/o NHSR&C and relevant line ministries, on prioritised actions related to climate change after the climate and health vulnerability assessment will be undertaken in Pakistan.

⁵ The entire health care system will be made resilient to disasters (climate change, natural disasters, disease outbreak, etc.) through disaster mitigation responses and continued provision of services during acute crises and emergencies.

- **Strengthen community leadership** through the District Essential Package of Health Services (EPHS) to raise awareness and ownership for improved engagement on climate-resilient health systems.
- **Develop a coordination group** with UN agencies and other bilateral and multilateral partners to harmonise efforts to strengthen climate-resilient health systems and adaptation/mitigation initiatives.

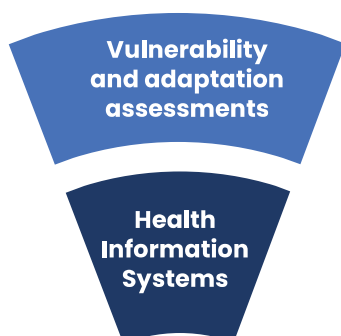
2. Health workforce



The health workforce is unaware of climate change-related health risks and unprepared to address these risks. It is essential to build the capacities of current and future health workers.

- Develop undergraduate and in-service training courses approved by the Pakistan Medical and Dental Council (PMDC) and Pakistan Nursing Council (PNC) on climate resilience for various levels of health professionals/students training in the medical/health field.
- Develop a communication strategy and information materials for health personnel in collaboration with the M/o NHR&C on climate-related health risks, resilience and adaptation strategies, and mitigation efforts.

3. Vulnerability and adaptation assessments



The health vulnerability assessment in Pakistan needs to emphasise the associated multisectoral assessments. These are necessary to guide actions in other sectors that are dependent on health information.

- Urgently implement a climate health vulnerability and risk assessment of the national health system in Pakistan.
- Following the assessment, establish a system of periodic review of progress in health system capacity with respect to climate vulnerabilities.
- Identify options for health system adaptation to climate shocks through further review and conduct an evaluation of adaptation strategies in Pakistan, including a cost-benefit analysis.

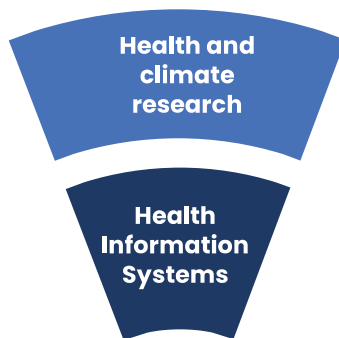
4. Integration of risk monitoring



Understanding health risks linked to climate change is essential for a well-prepared, resilient health system. Integrating “climate indicators” like extreme weather or precipitation warnings into early warning systems for disease surveillance will help detect near-term health risks.

- **The M/o NHR&C to develop a risk profile** of the range of expected health impacts of climate change in Pakistan.
- **The MoCC to develop and define the baseline** indicators for climate change in Pakistan.
- **Review and update disease-surveillance** tools with respect to climate risks for health and link with environmental health and surveillance systems.
- **The MoCC to develop and promote the integration of climate early warning system** information into health risk monitoring systems
- **Engage the community** with the help of Lady Health Workers and community-based organisations for effective communication on climate threats and health risks, including surveillance.

5. Health and climate research

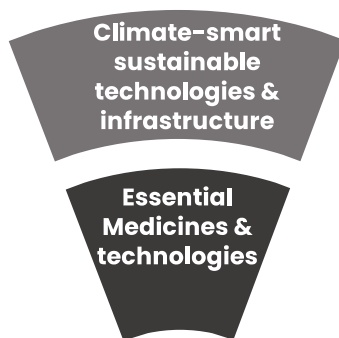


The scientific community urgently needs support to expand research on the climate-health nexus, with an emphasis on transforming these findings into effective, actionable policy solutions.

- **Establish a national register of experts** researching climate-resilient health systems and nominate the M/o NHSC&R and MoCC as their custodians.
- **Establish and formalise a network of researchers** linked across academia, international and national development partners, public sector institutes, and relevant organisations.
- **Promote/support collaborative research efforts with the government**, including federal departments—such as the EPA, MoCC, M/o NHR&C, and provincial health departments to ensure the relevance and implementation of the findings.

- Engage existing stakeholders' fora on climate change and health to include the comprehensive participation of climate and health researchers and organise a workshop to set the research agenda to guide policy responses to climate and health.
- Promote research to develop the GHG inventory in Pakistan and explore the possibility to link it with health systems to record health systems emissions annually.

6. Climate-smart technology and climate-resilient infrastructure and sustainable technologies and infrastructure



Health technology and infrastructure are sensitive to the impacts of climate change, as well as vital for the delivery of services. Actions within these areas are likely to be an important contributor in building a climate-resilient health system.

- **Explore global best practices** that can be applicable to Pakistan for upgrading/retrofitting existing health infrastructure to make it more resilient and adaptive to climate change.
- **Undertake an identification, evaluation, and feasibility assessment** of innovative technologies in the health sector that would lower emissions and/or increase resilience by adopting climate-smart and cost-effective technology.
- **Identify the parts of the medical supply chain** that may contribute to increased emissions and explore the best options to reduce emissions, for instance, by installation of climate-friendly incinerators and/or replacement of existing ones.

7. Impact of environmental determinants on health

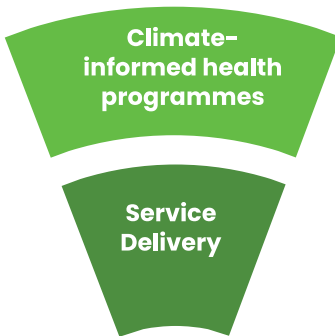


Climate change, a dominant environmental force, directly and indirectly affects health. It's vital for the health sector to lead multisectoral collaboration for improved tracking of climate-induced environmental changes.

- **The M/o NHR&C and provincial Health Departments should coordinate with the federal and provincial EPAs** to develop integrated monitoring mechanisms involving other areas such as air, water, soil, irrigation, agriculture, and municipal services.

- **Review and update existing National Environmental Quality Standards** for air quality, soil quality, water quality, and industry in the context of building health system resilience towards climate change.
- **Develop intersectoral protocols** and management tools for climate-resilient health systems.

8. Climate-informed health programmes



Climate change's impact on regional epidemiology necessitates its integral consideration in health sector strategy and planning.

- **There is considerable evidence emerging that communicable and non-communicable diseases will be complicated by rising temperatures.** Public health programme managers need to be aware of these emerging changes and adjust public health programming and service delivery accordingly, with a specific focus on impacts on access and inequitable outcomes. These include the National HIV & AIDS, Tuberculosis and Malaria Control Programme, Prevention and Control of Hepatitis, Universal Health Coverage – EPHS, and Prevention and Control of Dengue, etc.
- **Vulnerability escalates in regions where climate-sensitive livelihoods** predominate, governance is inadequate, and access to fundamental services and resources is limited. This imbalanced condition intensifies the prevailing disparities and inequalities, primarily affecting women belonging to less privileged socioeconomic strata.

9. Emergency preparedness and management

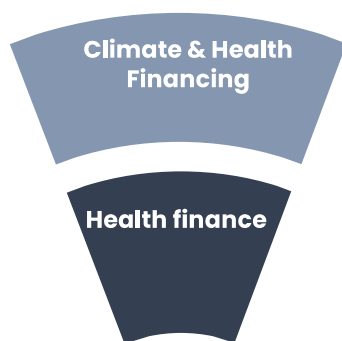


Climate shocks often lead to health emergencies; thus, the health sector needs to identify risks and be prepared to take actions in case of such events within the framework of disaster risk management.

- **Enhance health sector emergency preparedness and planning.** The M/o NHR&C along with the NDMA and National Health Emergency Preparedness and Response Network (NHEPRN) should develop health sector contingency plans for extreme weather events.

- **Review and update emergency response plans** for health facilities at primary, secondary, and tertiary levels.
- **Review and update policies of NHEPRN and NDMA** that govern emergency preparedness and disaster reduction to include needs that may arise under a more extreme future climate.
- **Develop community-based risk reduction capacity** by advocating to increase the mandate of the PDMA's to engage with community groups, including joint planning exercises to help them develop strategies for resilience.

10. Climate and health financing



Many opportunities exist to mobilise financing for climate action that also address health needs and adaptation.

- **Develop cost estimations of non-adaptation.** M/o NHR&C, MoCC, along with the Finance Ministry, to estimate the economic costs of not acting to build a climate-resilient health system.
- **Enhance capability to access global climate funds.** Intensify efforts to develop proposals on building health system resilience for submission to the main international climate change funds (e.g., the Green Climate Fund, Global Financing Facility on Climate Change, the Adaptation Fund, and bilateral donors, among others).
- **Include climate-change considerations in proposals** for climate-sensitive diseases (e.g., malaria eradication project proposals with the Global Fund to fight against AIDS, Tuberculosis and Malaria, (GFATM)).
- **Include climate change criteria in future projects in key health-determining sectors,** such as water, sanitation, and hygiene (WASH), food security, and others.
- **Collaborate with development partners on climate finance initiatives** that can improve health sector access to diversified financing.
- **The National Disaster Risk Management Fund (NDRMF)** manages a pool of international funds and is mandated to manage funds earmarked for climate change-induced risks and vulnerability. The MoCC being a key implementation agency of this Fund, can work in collaboration with the M/o NHR&C to leverage the climate fund for designing and implementing climate resilient health system projects.

Moving Forward with a Framework of Action

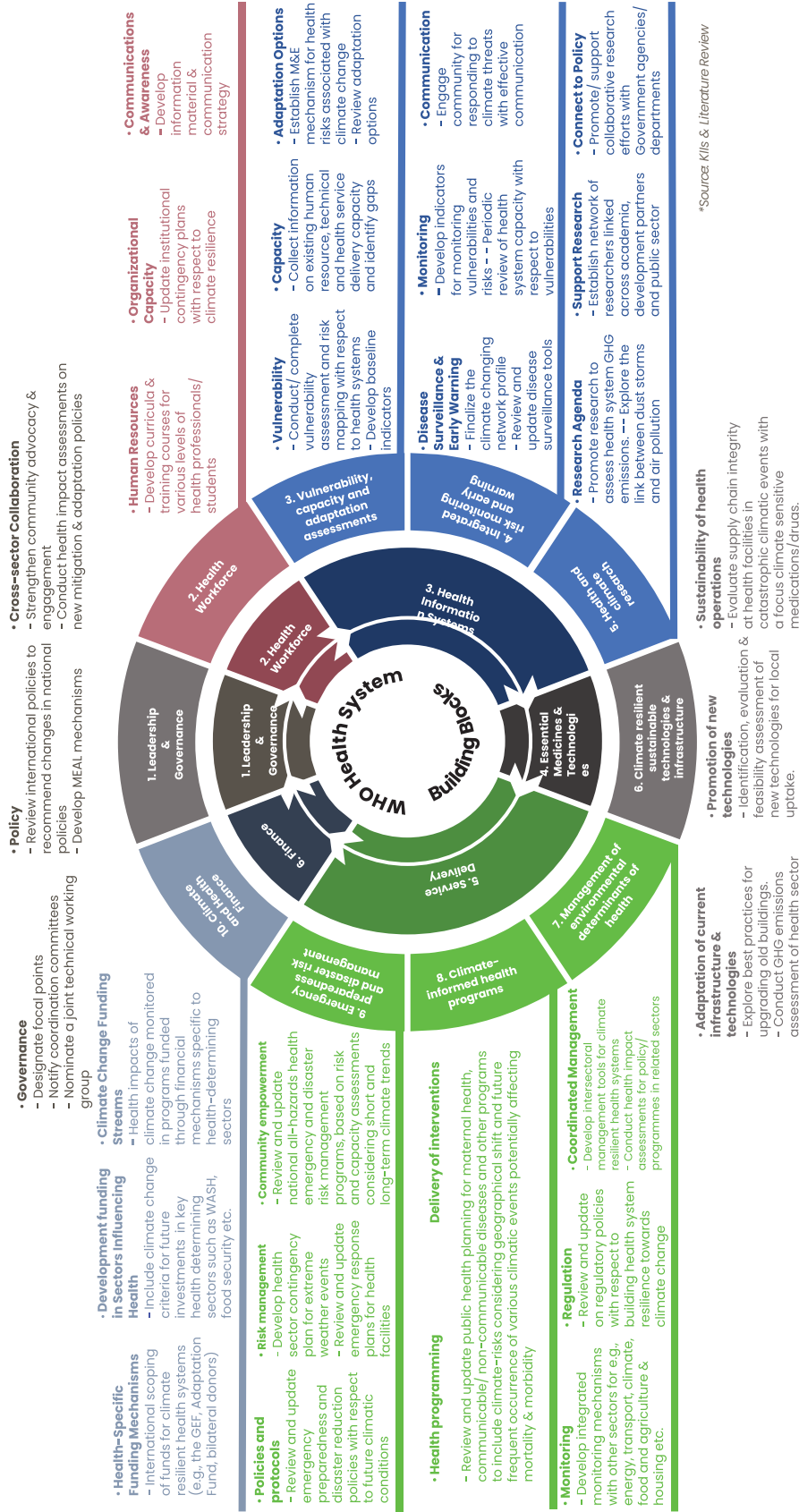
The aforementioned recommendations have been utilised to develop a comprehensive **Framework of Action** designed to strengthen climate-resilient health systems in Pakistan. This Framework is structured around **resilience domains and health system building blocks**, offering guidance on developing fundamental functions within the health system that are crucial for enhancing climate resilience.

The World Health Organisation's (WHO) Operational Framework for Building Climate Resilient Health Systems was used as the analytical and organising framework to develop a Framework of Action for climate resilient health systems in Pakistan. The framework's structure outlines a set of actions to accelerate progress toward a better prepared, greener, more adaptive, and resilient health system. It serves as a foundational starting point for collective actions for key strategies, goals, and objectives to support building climate resilient health systems.

These elements have been formulated based on the scoping study and review, conducted by the government, integrating the best practices recommended by the WHO. Additionally, the valuable insights gathered from stakeholders during the consultation process have been utilised to tailor these elements to the specific context of Pakistan. Moreover, this framework is not intended as a final solution, but rather a dynamic process and roadmap that encourages active participation, consensus-building, review, and continuous progress. It signifies the importance of the joint commitment of all partners, donors, and stakeholders to collaborate, develop consensus, and advance beyond this initial stage. Therefore, this framework serves as a transitional milestone rather than a conclusive endpoint. efore, this framework serves as a transitional milestone rather than a conclusive endpoint.

⁶ Reply: Operational framework for building climate resilient health systems
<https://www.who.int/publications/i/item/9789241565073>

Fig 1: Framework for Climate Resilient Health System



1. Leadership and governance

The rationale for building climate-resilient health systems is clear. Although isolated efforts are taking place in the political, social, as well as academic side of the climate change debate, an integrated plan for health is missing. The promotion of multisectoral coordination needs strengthening and various platforms are available for this purpose, such as the One Health, International Health Regulations (IHR), and UHC technical working groups. One way forward could be the establishment of a TWG comprising of M/o NHR&C and the MoCC. In this regard, it would be best to utilise the capacity of the health sector as a catalyst. A key institutional step would be the designation of focal points and a climate unit at the federal level with defined roles and responsibilities at key public/private health facilities/institutes and government departments.

Objectives

- Leadership: Create momentum, institutional capacity for adaptation, and intersectoral evidence-based policy.
- Governance: Specific responsibility and accountability mechanisms on climate change and health established within the federal M/o NHR&C and Provincial Health Departments.

⁷ One health (who.int)

Table 1: Governance and leadership actions

| Resilience domain | Actions |
|---|---|
| <p>Governance</p> <p>Establish a mechanism for ensuring effective governance and coordination</p> <p>Cross-sectoral collaboration: Strengthen partnerships with health-determining sectors</p> <p>Establish a coordination mechanism with international development partners</p> | <p>Designate focal points for climate change and health within the Ministries of NHR&C and CC, and other key health institutions, with careful selection to ensure authority to work across and within parts of the government.</p> <p>Formalise a TWG with cross-sectoral representation from climate, health, water, education, and meteorological ministries, federal EPA, and the NDMA.</p> <p>Develop a mechanism to raise awareness and ownership for localised climate-resilient health systems and plans.</p> <p>Strengthen local leadership by integrating climate resilience into the District EPHS, linking it with World Bank's National Health Support Programme (NHSP).</p> <p>Develop a coordination group with key donors, UN agencies, and international partners to support the progress in climate-resilient health systems and adaptation/mitigation initiatives.</p> |
| <p>Policy</p> <p>Develop a Health National Adaptation Framework that addresses climate-resilient health system components and monitoring mechanisms</p> | <p>The National Climate Change Policy (NCCP) promulgated in 2012, was updated in 2022 and now identifies health as a critical area of policy intervention in terms of climate adaptation.</p> <p>Conduct health vulnerability and adaptation assessments. Develop monitoring, evaluation, and accountability mechanisms within the M/o NHR&C and between relevant ministries</p> <p>Develop a National Health Adaptation Framework coordinating with MoCC relevant ministries, such as M/o NHR&C, Forestry, Water, and Disaster.</p> <p>The up-coming new National Health Vision could focus on climate-resilient health systems and align with disaster resilience as well as the provincial health strategic plans to recommend changes/updates with respect to climate-resilient health systems.</p> |

2. Health workforce

There is a lack of formal training for health professionals on climate change adaptation and health. While some efforts are underway to address the lack of technical capacity of the health workforce, this needs to be scaled up and holistic with multiple sectors.

Objectives

- **Human resources:** a sufficient number of health workers with the required technical capacity are available to deal with the health risks posed by climate variability and change.
- **Organisational capacity development:** the resources, information, knowledge, and processes employed by health organisations are used in an efficient and targeted manner in the face of additional risks posed by climate variability and change.
- **Communications and raising awareness:** the connection between climate change and health outcomes is elucidated, heightening awareness among various target groups, such as policymakers, senior personnel, media, and communication specialists.

Table 2: Health workforce resilience actions

| Resilience domain | Actions |
|---|---|
| <p>Human resources</p> <p>Availability of trained professionals for health and other sectors capable of responding to changes in climate-sensitive health risks</p> | <p>Investment in M/o NHR&C, provincial, and district levels is essential to build technical and organisational capacity for climate-resilient health systems.</p> <p>Initial professional development for health professionals can be undertaken through WHO or Aga Khan University short courses.</p> <p>Develop undergraduate and in-service training courses approved by the Pakistan Medical Dental Council and Pakistan Nursing Council on climate resilience with respect to health for various levels of health professionals/students training in the medical field.</p> <p>Support for federal M/o NHR&C, Health Services Academy and National Institute of Health (NIH) to establish a teaching/research hub for climate and health policy implementation and evaluation.</p> |
| <p>Organisational capacity</p> <p>Availability of information addressing additional risks presented by climate change</p> | <p>Health workforce contingency planning at national, provincial, and district levels for the deployment of health personnel to respond to large scale climate-health events.</p> <p>Develop institutional contingency plans with respect to climate change at primary, secondary, and tertiary level public facilities.</p> <p>With the help of the Health Care Commissions/ Authority, support the private sector to develop contingency plans.</p> |
| <p>Communications and awareness</p> <p>Advocacy and awareness raising regarding links between climate change and health for policymakers, health managers and providers, media, and the public</p> | <p>Mo/NHR&C along with public sector teaching institutes (Health Services Academy or Provincial Health Services Academies) and private sector universities develop communication plans and knowledge products for dissemination.</p> |

3. Vulnerability and adaptation assessments

Vulnerability to climate change has been assessed for the agriculture, livestock, households, and the food, energy, and water security sectors. However, an assessment of health system vulnerability to climate change is lacking. For example, an understanding of the health impacts of decisions in other sectors, or the economic impacts of health service disruption due to climatic events, is missing. Decision makers, planners, and managers of health do not have a mechanism in place that provides climate change projections to identify long-term health risks or vulnerabilities, such as heat waves, floods, or changing epidemiological profiles. Another limitation in this regard is that the disease surveillance systems currently in place are not climate sensitive. A lack of data has led to a gap in prioritising resource allocations for effective interventions in health and associated sectors, particularly for high-risk and vulnerable groups.

Moreover, although Pakistan has multiple Health Information Systems (HIS) designed for health issues these are not developed or integrated to provide information on climate change. HIS should be strengthened as part of health system resilience to climate change. However, before any integration happens there is a need to make a Monitoring and Evaluation Framework that is based on a comprehensive climate health vulnerability and adaptation assessment in Pakistan.

Objectives

- **Vulnerability:** a sound understanding of the main health risks posed by climate change, and of the most vulnerable population groups in the country or region.
- **Capacity:** baseline data regarding the strengths and weaknesses of the health system in responding to the challenges presented by climate change is necessary.
- **Adaptation:** adaptation options along with their merits, potential costs, and benefits, should be provided for health system leaders to guide decision-making.

Table 3: Vulnerability and adaptation assessment

| Resilience domain | Actions |
|---|---|
| <p>Vulnerability</p> <p>Information on the main health impacts of climate change with a focus on vulnerable groups and locations</p> | <p>Implement a climate health vulnerability and risk assessment of the national health system.</p> <p>Establish periodic reviews of health climate vulnerabilities.</p> <p>Conduct a cost-benefit analysis for health system adaptation to climate shocks.</p> <p>Establish a monitoring and evaluation mechanism for health risks associated with climate change</p> <p>Government of Pakistan to develop and define the baseline indicators for climate change in Pakistan.</p> |

| Resilience domain | Actions |
|---|---|
| <p>Capacity</p> <p>Capacity baseline to identify gaps within the health systems</p> | <p>Conduct an assessment, using an expanded Human Resource for Health registry, to comprehend existing capacities to address climate health vulnerabilities and adaptation.</p> |
| <p>Adaptation options</p> <p>Information on available adaptation options, their benefits, costs, and efficiency are available to the health system and policy makers</p> | <p>Develop mechanisms of climate health vulnerability and adaptability assessments that are iterative.</p> |

4. Integrated risk monitoring and early warning

Early warning systems are mostly centred on flood-prone areas or flood disaster management. Even when advisories are issued related to disaster warnings, there is little guidance for health which makes it difficult for health facilities to prepare for upcoming extreme climate events. Some examples do exist related to heatwaves, but overall, integrated health warnings remain a gap in the country. There is a need for an overarching and joined up early warning system coupled with a robust communication strategy.

Objectives

- **Integrated disease surveillance and early warning systems:** data on climate-sensitive environmental risks and epidemiological trends are collected, analysed, and interpreted on a continual basis and timely response to risks is promoted.
- **Monitoring:** information on climate change impacts, vulnerability, and response capacity is available.

Table 4: Integrated risk monitoring and early warning resilience actions

| Resilience domain | Actions |
|--|---|
| <p>Disease surveillance and early warning</p> <p>Data on climate-sensitive environmental risks and epidemiological trends are collected, analysed, and interpreted on a continuous basis and timely response to risks is promoted</p> | <p>Development of climatic early warning systems linked with provincial and district health departments and hospitals, with possibly an interface with District Health Information Systems (DHIS).</p> <p>Review the Integrated Disease Surveillance and Response System (IDSRS) and DHIS II system (currently implemented in half of districts across Pakistan) and identify the most climate-sensitive diseases amongst the list of 33 priority diseases.</p> |

| Resilience domain | Actions |
|--|---|
| <p>Monitoring</p> <p>Information on climate change impacts, vulnerability, response capacity, and emergency preparedness capacity is monitored and reported over time</p> | <p>Develop indicators for monitoring vulnerabilities and risks for climate change impacts on health.</p> <p>Periodic review of health system capacity with respect to vulnerabilities.</p> <p>Impacts of the main environmental determinants of health monitored by the health sector.</p> |
| <p>Communication</p> <p>Timely warnings to health decision-makers, the media, and the public for prevention</p> | <p>Use the climate change and health systems communication strategy integrated in the recently developed Behaviour Change Communication Strategy by the Mo/ NHR&C.</p> <p>Enhance community engagement by collaborating with Lady Health Workers and community-based organizations to facilitate effective communication on climate threats and health risks.</p> |

5. Health and climate research

Currently, research on climate change adaptation and health in Pakistan is disjointed. Although there are some individual efforts, institutional involvement and support are minimal. A future research agenda needs to be formally identified, in consultation with relevant stakeholders, and with the objective of garnering information on making health systems resilient to climate change.

Objectives

- **Research agenda:** multidisciplinary national research agenda on climate change and health defined and endorsed by stakeholders.
- **Support for research:** research on climate change and health is supported by fostering multidisciplinary networks, allocating financial resources, and establishing training opportunities.
- **Bridge research to policy:** disseminate climate change and health research findings for utilisation by policy makers.

Table 5: Research and connect to policy reforms

| Resilience domain | Actions |
|---|--|
| <p>Research agenda</p> <p>National research agenda-setting on climate change and health</p> | <p>Establish a Health Climate Alliance on climate-resilient health systems with participation from M/o NHR&C, MoCC, and other relevant line ministries such as the Meteorology Department and NDMA, along with academic institutes, think tanks, private sector, and non-governmental institutes.</p> <p>Sensitise academic institutes to develop research and teaching hubs focused on research on climate-resilient health systems in Pakistan with a focus on action research.</p> <p>Sensitise the MoCC to develop the GHG inventory in Pakistan and extend it to record health systems emissions annually.</p> |
| <p>Support research</p> <p>Establishment of a health and climate change research network, identifying training and funding opportunities</p> | <p>Establish a national register of experts researching climate-resilient health systems and nominate the M/o NHR&C and MoCC as its custodians.</p> <p>Establish and formalise a network of researchers linked across academia, international and national development partners, public sector institutes, and relevant organisations.</p> <p>Involve local and global stakeholders focused on climate-resilient health systems. Regularly host seminars and workshops for the capacity-building of Pakistani experts and set research agendas to shape policy responses to climate and health.</p> <p>Build capacity amongst institutions to apply for international research grants.</p> |
| <p>Connect to policy:</p> <p>Research findings dissemination</p> | <p>Establish mechanisms within M/o NHR&C and MoCC that streamline evidence generation and its translation by researchers for decision-makers and policymakers' utilisation.</p> <p>Using innovative technology and social media to increase outreach and information to relevant groups on climate resilient health systems.</p> |

6. Climate-smart technology and climate-resilient infrastructure

The role of climate-resilient sustainable technologies and infrastructure has not been studied in detail in Pakistan. While policy directions are in place with respect to meeting carbon emissions targets, the contribution of the health sector requires an in-depth study.

While the Pakistan Engineering Council (PEC) has guidelines for new public sector infrastructure construction, they lack the explicit mention of climate-resilient health infrastructure. Therefore, it's essential for the PEC to devise guidelines on constructing climate-resilient health facilities, at least infrastructure-wise in the first instance.

Objectives:

- **Adaptation of current infrastructure, technologies, and processes:** systematically integrate future climate risks into the revision or enhancement of existing infrastructure, technologies, and health system service delivery methods.
- **Promotion of new technologies:** select and deploy new technologies, processes, and products that increase climate resilience through enhanced health service delivery.
- **Sustainability of health operations:** procure and promote low-environmental impact technologies within the health sector to boost resilience against climate change and foster long-term sustainability.

Table 6: Climate-smart technology and climate-resilient infrastructure

| Resilience domain | Actions |
|---|---|
| <p>Adaptation of current infrastructure and technologies</p> <p>Evaluation of climate risks with regard to technology adaptation for optimum health service delivery</p> | <p>Explore global best practices that can be applicable in Pakistan for upgrading/retrofitting existing health infrastructure to make it more resilient and adaptive to climate change and apply these to post floods reconstruction.</p> <p>Undertake a review and feasibility assessment of new technologies in the health sector that would lower emissions and/or increase resilience by adopting climate-smart and cost-effective technology.</p> <p>Conduct a GHG emission assessment of the health sector and its possible impact on health, integrate health sector GHG emissions with the national GHG inventory, if one is formalised for Pakistan.</p> |
| <p>Sustainability of health operations</p> <p>Identify low-environmental impact technologies</p> | <p>Evaluate current supply chain mechanisms and adapt climate integrity at health facilities.</p> <p>Evaluate options to use renewable energy sources to generate power for healthcare facilities.</p> <p>Evaluate the most cost-effective methods to introduce solar power generation mechanisms in primary, secondary, and tertiary healthcare facilities in the public sector.</p> |

7. Impact of environmental determinants on health

The climate resilience of a health system essentially translates into the capacity of the system to deliver services before, during, and after a major climatic event. This capacity needs to be strengthened in terms of i) preventative measures addressing the environmental determinants of health (such as clean drinking water), ii) ensuring that health programme planning is informed by climate change matters, and iii) having a robust emergency preparedness plan in place for major events.

Objectives

- **Monitoring:** joint monitoring of climate-sensitive environmental risks against evidence-based standards is conducted.
- **Regulation:** regulatory policies that protect populations against climate-sensitive environmental risks are defined, revised, and enforced.
- **Coordinated management:** the environmental determinants of health are jointly managed, with clear roles and responsibilities defined across sectors.

Table 7: Impact of the environmental determinants on health

| Resilience domain | Actions |
|---|---|
| Monitoring Monitor progress by developing monitoring groups that are cross-sectoral | Establish cooperative surveillance working groups that proactively connect climate, environmental, and public health risks, contributing to public health planning, intervention, and warning systems. |
| Regulation Ensure that the relevant information is available | Assess current regulatory systems to provide an enabling institutional environment for joined up environmental, climate and health risks. Where relevant create synergies with Health Care Commissions and Authority. |
| Coordinated management Have well defined roles and responsibilities | Include climate change in the technical working groups mentioned under governance. |

8. Climate-informed health programmes

Objectives

- **Health programming:** information on current and projected (future) climatic conditions is integrated into the strategic planning of health programmes for climate-sensitive diseases.
- **Delivery of interventions:** public health programmes revise their standard operating procedures to respond to climate risks in the delivery of interventions.

Table 8: Climate-informed health programmes recommendations

| Resilience domain | Actions |
|--|--|
| <p>Health programming:</p> <p>Include climate change information in the strategic planning of health programmes</p> | <p>Enhance public health planning for integrated health programmes in Pakistan, including National HIV & AIDS, Tuberculosis and Malaria Control, Prevention and Control of Hepatitis, Universal Health Coverage - EPHS, Prevention and Control of Dengue, etc., by integrating considerations of climate change and climatic shocks. Place particular emphasis on assessing impacts on access and addressing inequitable outcomes.</p> <p>Integrate the forthcoming climate and health vulnerability and adaptation assessments that may be conducted in Pakistan with public health programmes. Identify capacity gaps, recommend strategic actions, and enhance decision-making capabilities within the programmes. Adjust the scale of intervention accordingly based on assessment findings.</p> |
| <p>Delivery of interventions:</p> <p>Public health standard operating procedures are updated to cater to changing risks presented by climate change</p> | <p>Risk mapping of areas with high levels of climate-sensitive livelihoods, poor governance, and restricted access to essential services and resources which may further increase the inequity and inequality gap, particularly for women from lower social strata and the development of contingency plans in these areas.</p> <p>Assess how many standard operating procedures in healthcare programmes may be impossible to follow in the face of climate risks.</p> |

⁸ 2006 IPCC Guidelines for National Greenhouse Gas Inventories — IPCC

9. Emergency preparedness and management

Objectives

- **Inform policies and protocols:** emergency and disaster risk management protocols and policies are adequately informed by current and likely future climatic conditions.
- **Risk management:** health system capacity is strengthened to manage risks so that overall vulnerability and exposure to hazards are reduced and residual risks and uncertainties are effectively managed.
- **Empowerment of communities:** communities are empowered to effectively prevent and respond to the health risks posed by extreme weather events.

Table 9: Emergency preparedness and management resilience actions

| Resilience domain | Actions |
|---|--|
| <p>Policies and protocols:</p> <p>Informed by current and likely future climatic events</p> | <p>Review and update emergency response plans for health facilities at primary, secondary, and tertiary levels.</p> <p>Review and update policies of NHEPRN and NDMA that govern emergency preparedness and disaster reduction to include needs that may arise under a more extreme future climate.</p> <p>Review and update emergency preparedness and disaster reduction policies of the NDMA and PDMAs with respect to future climatic conditions.</p> |
| <p>Risk management:</p> <p>Strengthen health system capacity to manage risks</p> | <p>The M/o NHR&C, along with NDMA and NHEPRN, should develop health sector contingency plans for extreme weather events.</p> <p>Review and update emergency response plans for health facilities.</p> <p>Sensitise the Drug Regulatory Authority and the Provincial Directorates of Drug control to work with pharmacies to have protocols and standard operating procedures in place for the safe storage and transport of pharmaceuticals, vaccines, and medical equipment in extreme heat conditions or during climatic shocks.</p> |
| <p>Community empowerment:</p> <p>Enable communities to effectively prevent and respond to the health risks posed by extreme weather events</p> | <p>Develop community-based risk reduction capacity by advocating to expand the mandate of the PDMAs to engage with community groups, including joint planning exercises to help them develop strategies for resilience.</p> |

10. Climate and health financing

Extreme variations in temperatures, rainfall, drought, and other major climatic events inevitably lead to increased public expenditure. Future climate risk projections should be used to evaluate the costs that could potentially be incurred if appropriate mitigation measures are not in place. There are various potential sources to tap into to finance the implementation of adaptation policies. At the international level, several sources provide limited funding for low-income countries, through mechanisms such as the UNFCCC's Green Climate Fund (Pakistan has a National Designated Authority established for this), the Global Environmental Facility's Least Developed Countries Fund, and the Kyoto Protocol's Adaptation Fund.

Objectives

- **Health-specific funding mechanisms:** climate change considerations are included in proposals related to climate-sensitive diseases submitted to and funded by health funding mechanisms.
- **Funding for sectors influencing health:** health and climate change considerations are incorporated into projects and programmes that are supported through development funding available for the main health-determining sectors.
- **Climate change funding streams:** climate change funding mechanisms available at the national level are accessed.

Table 10: Climate and health financing resilience

| Resilience domain | Actions |
|---|---|
| <p>Health-specific funding mechanisms:</p> <p>Climate change considerations are included in proposals related to climate-sensitive diseases submitted to and funded by health funding mechanisms</p> | <p>Intensify efforts to develop proposals on building health system resilience for submission to the main international climate change funds (e.g., the Green Climate Fund, the Adaptation Fund, and bilateral donors).</p> <p>MoCC being a key implementation agency of the NDRMF can work in collaboration with the M/o NHSR&C to leverage the climate fund for designing and implementing climate-resilient health systems projects.</p> |
| <p>Development funding in sectors influencing health:</p> <p>Health and climate change considerations are incorporated in projects and programmes funded through development funding available for the main health-determining sectors</p> | <p>Include climate-change considerations in proposals for funding projects addressing climate-sensitive diseases (e.g., malaria eradication project proposals with the Global Fund to fight against AIDS, Tuberculosis and Malaria) and other key health-determining sectors, such as WASH and food security, etc.</p> |

⁹ National Designated Authorities (NDAs) are government institutions that serve as the interface between each country and the Fund. They provide broad strategic oversight of the GCF's activities in the country and communicate the country's priorities for financing low-emission and climate-resilient development.

| Resilience domain | Actions |
|--|--|
| <p data-bbox="181 297 545 360">Climate change funding streams:</p> <p data-bbox="164 405 563 501">Climate change funding mechanisms available at the national level are accessed</p> | <p data-bbox="616 329 1455 425">Monitor the health impacts of climate change in programmes funded through financial mechanisms specific to health-determining sectors.</p> |

Next Steps

Being the eighth-most climate-vulnerable country globally, Pakistan faces a wide range of climate-related issues, including natural disasters, unpredictable rainfall patterns, prolonged droughts, food shortages, and resultant humanitarian crises. These challenges necessitate a thorough evaluation of the existing public health policies and systems to enhance climate resilience within the country. The findings of the scoping study conducted by the M/o NHR&C emphasise the urgent need to address the challenges posed by climate change to public health in Pakistan as current preparedness and mitigation planning is at a nascent stage.

The development of the Framework of Action, based on the WHO Operational Framework for Building Climate Resilient Health Systems, provides a vital starting point for discussions among stakeholders including government, development partners, and civil society. The Framework's structure, encompassing resilience domains and health system building blocks, outlines actionable strategies, goals, and objectives. These elements, formulated through a combination of the scoping study, government, and stakeholder consultations, are tailored to the specific context of Pakistan and incorporate the best practices recommended by the WHO.

It is important to recognise that the Framework of Action is not intended as a final solution, but rather as a dynamic roadmap that requires collaborative discussions and iterative refinements. The collaborative engagement of stakeholders is crucial in shaping and advancing the framework through consensus-building and ongoing dialogue. This collective commitment to collaboration and continuous improvement is fundamental to effectively strengthen climate-resilient health systems in Pakistan.

Appropriate stewardship and oversight mechanisms such as technical working groups can be established for furthering the implementation of the Framework of Action and identification of untapped financial opportunities at both local and international levels. This may offer a potential avenue for supporting the implementation of climate change mitigation and adaptation measures within the health sector. Leveraging these opportunities can not only enhance the resilience of the health system but also contribute to lowering emissions and achieving the health-related Sustainable Development Goals, positioning Pakistan as progressing well in climate action.



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