



CLIMATE CHANGE DIRECTORY FOR PAKISTAN



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CLIMATE CHANGE DIRECTORY FOR PAKISTAN

By:
Shehri - Citizens for a Better Environment

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This directory on climate change is developed with an aim to provide a quick reference to anyone who wishes to learn about legislations, policies and efforts being undertaken to tackle climate change in Pakistan.



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Friedrich Naumann
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E-mail: pakistan@fnst.org Website : www.southasia.fnst.org

ISBN: 978-969-9491-13-2

EDITION: 2016

NO OF PRINTED COPIES: 1,000

PRODUCTION:

SAUDAGAR ENTERPRISES

Group

www.thegridart.com

www.graphitework.com

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OBJECTIVES

1. Develop an easy to use climate change directory for Pakistan
2. Document legislative and policy framework related to climate change
3. Profile organizations and institutions working on climate change

I. INTRODUCTION

This toolkit on climate change is developed with an aim to provide a quick reference guide to anyone who wishes to learn about the legislations, policies and efforts being undertaken to tackle climate change in Pakistan. It begins by giving an overview of what climate change means for Pakistan and lists the climate treaties Pakistan is a signatory to, going into a little detail about Pakistan's commitments laid out in its Intended Nationally Determined Contributions (INDC) submitted for the Paris Agreement last year.

It then specifies climate change policy framework developed in Pakistan as a result and the institutions that are working on climate change projects, providing details about its objectives and contact information. The toolkit concludes with providing a list of current and proposed climate change projects, important web links and relevant abbreviations.

DISCLAIMER: This document is a baseline exercise in developing a Climate Change guidebook for Pakistan. Efforts have been made to document the major organizations and agencies engaged specifically with climate change related works and not generally all organizations working in areas covering social and environmental issues. Given the defined financial and resource scope for this work, it is a preliminary effort and as such if any organization may feel that it has not been mentioned, regrets are expressed in advance and hopefully an updated version or other research work that builds on this document can cover any gaps that may be identified here.

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II. CLIMATE CHANGE IN PAKISTAN

There is significant scientific consensus that climate change is caused by human activities and is here to stay. Its impact on water, biodiversity, forests, agriculture, and human health are making themselves felt all over the globe. According to Intergovernmental Panel on Climate Change (IPCC), the last century has seen the average global temperature rise by 0.6°C which is expected to increase by 1.4 to 5.8 °C by the end of this century. The developing and least developed countries are more likely to suffer the worst impacts of climate change due to lack of finances and resources.

"The developing and least developed countries are more likely to suffer the worst impacts of climate change due to lack of finances and resources"

Pakistan's contribution to cause global climate change is negligible. Its per capita greenhouse gas emissions are one of the lowest in the world. Despite its low historic and present emission record, it faces the brunt of climate change. Germanwatch has ranked it as one of the top ten countries in the world that suffer the most due to climatic disasters.

Pakistan contributes 0.8 percent of total global greenhouse gas emissions and ranks 135th per capita emissions in the world.

Pakistan is the second largest country in South Asia. Since it is a developing country, it is particularly vulnerable to climate change impacts. Owing to its geographical location, temperature increases are expected to be higher than the global average. The world's worst polluters are neighbors to the country.

Its climate is arid to semi-arid in most areas and its rainfall relies predominantly on the monsoon season. Furthermore, Pakistan's rivers are fed by the Hindu Kush-Karakoram Himalayan glaciers which are receding fast and freshwater availability is likely to be threatened by reduced river flows.

TABLE-1: SUMMARY OF CLIMATE RISKS BY SOUTH ASIAN COUNTRIES

	Afghanistan	Bangladesh	Bhutan	India	Nepal	Pakistan	Maldives	Sri Lanka
Sea Level Rise	-	High	-	Modest	-	Modest	High	High
Glacier Retreat	High	High	High	High	High	High	-	-
Temperature Increase	-	High	High	High	High	High	Modest	High
Floods more Frequent	-	-	Likely	High	High	Likely	High	-
Drought more Frequent	Likely	High some areas	-	High	-	Likely	-	-

The above table indicates that Pakistan is faced with high climate risks as compared to other South Asian Countries.

Reference:

<https://www.pecongress.org.pk/images/upload/books/8Climate%20Change%20and%20its%20Impact%20with%20Special%20Focus%20in%20Pakistan.pdf>

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Pakistan's economic dependence on agriculture and natural resources for livelihoods makes it more susceptible to the effects of changing climate. Temperature fluctuations may seriously put at risk water, food and energy security of the country unless appropriate and timely adaptation measures are adopted.

Preliminary studies carried out by the government indicate that Pakistan's 22.8 percent area and 49.6 percent population is at risk due to climate change.

Climate change is no longer a distant threat but an everyday reality. Pakistan has already started witnessing the adverse climate impacts such as the recurrent floods of 2010, 2011, 2012, 2013 and 2014, drought during 1999-2003, two cyclones within one month in 2008 on Karachi/Gwadar Coast, extreme heat wave claiming hundreds of human lives in summer 2015 and increased incidences of landslides, and Glacier Lake Outburst Floods (GLOFs) in the northern areas of Pakistan. These extreme weather events have resulted in huge losses of life and property, severely affected the country's economy. These events are likely to grow in intensity, magnitude and frequency in the future.

"The government estimates that Pakistan has, collectively, suffered losses to the tune of \$20 billion due to the adverse and increasing effects of climate change. The country requires an additional \$14 billion per year to mitigate disaster risks from climate change."

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A. MAJOR CLIMATE IMPACTS IN PAKISTAN

- **Increased variability of monsoon and rainfall patterns.**
- **Projected recession of Karakorum-Himalayas Glaciers threatening Indus river flows and freshwater availability.**
- **Increased frequency and magnitude of natural disasters such as floods, droughts, cyclones, heat waves, etc.**
- **Decreased agricultural productivity leading to increased risk of hunger, malnutrition, poverty and food insecurity.**
- **Increased morbidity and mortality due to climate-related diseases like malaria, cholera, dengue, zika, etc.**
- **Salt-water intrusion in the Indus river delta due to rise in sea-level rise and high risk of coastal area flooding.**
- **High risk to social and economic stability triggered by climate migration, and property and biodiversity loss.**

B. EFFORTS SO FAR

The government sector in Pakistan has concentrated its efforts on climate change mitigation, especially in the energy sector. According to the Green House Gases (GHG) inventory undertaken in 2008, the energy sector is responsible for 50.8% of these emissions (NEEDS study). This makes it the largest contributor of greenhouse gases in the country, but at the same time this sector also promises strong mitigation potential.

The emissions in energy sector are expected to grow 17-fold by 2050 (GHG inventory, 2008) due to increased reliance on coal reserves to meet the power demand of the growing population and industrial sector.

Simultaneously, increased use of renewable energy shall also cut down GHG emissions within this sector. In addition to supplying clean energy, renewables would also aid in decreasing Pakistan's dependence on foreign countries to fulfil its energy needs.

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Below are some of the efforts being undertaken in the renewable energy field as well as its potential in Pakistan:

Technology	Description	Current Achievement	Potential
Solar	Pakistan receives some of the highest isolation in the world. Though the solar water heaters are being used, the overall costs are quite prohibitive. Balochistan, Sindh and southern Punjab receive 2 MW H/m ² solar radiation and 3000 hours of sunshine per year at an average of 5.5 KW/m ² solar radiation per day.	0 MW (Few pilot projects)	2.9 Million MW
Wind	Gharo corridor alone has a potential of 11,000 MW with a >30% load factor. Pakistan has immense potential for wind power but it has not been exploited yet. Pilot projects are active but not on a significant scale.	0 MW (Some pilot projects)	200,000 MW +
Hydro	Pakistan is only making use of 14% of its hydropower potential. Besides providing energy, development of this potential would also improve irrigation and flood management.	6440 MW	46,000 MW
Biologically derived energy	Biogas generation from organic waste, and distillation of fermentation products (carbohydrates) to produce ethanol could save Pakistan valuable foreign reserves. Bio-diesel potential also exists, however care is needed to ensure a sustainable ratio of land use against crop production.	Small scale production (Not on a significant scale)	4,000 MW
Geothermal	The occurrence of hot water zones in southern Balochistan, Sindh and Khyber Pakhtunkhwa suggest potential for Geothermal, however not much work has been done in this field.	Few pilot projects	80,000 MW

***Data used from Pakistan Council of Renewable Energy Technologies, Alternative Energy Development Board, and TFCC Report.**

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C. PAKISTAN IN GLOBAL CLIMATE NEGOTIATIONS

Pakistan has been part of the global discussion on climate change since the inception of negotiations at the Rio Earth Summit in 1992. The country has signed and ratified a number of conventions and agreements pertaining to climate change, the list of which is given below:

INTERNATIONAL CONVENTIONS AND TREATIES ON CLIMATE CHANGE PAKISTAN IS A SIGNATORY OF:

- 1. United Nations Framework Convention on Climate Change (UNFCCC), Rio De Janeiro, 1992**
- 2. Kyoto Protocol to the UNFCCC, 1997**
- 3. The Paris Agreement, 2015**

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III. LEGISLATIONS, POLICIES & FRAMEWORKS

This section covers the important legislations and policies developed to tackle the problem of climate change. These laws and rules help charter a course for the implementation of national and provincial adaptation plans and mitigation efforts.

A. LEGISLATIONS

1. PAKISTAN ENVIRONMENTAL PROTECTION ACT, 1997

The first comprehensive environmental legislation prepared in the country was the Environmental Protection Ordinance of Pakistan in 1983.

Pakistan Environmental Protection Act, 1997

The Gazette of Pakistan

EXTRAORDINARY
PUBLISHED BY AUTHORITY

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ISLAMABAD, SATURDAY, DECEMBER 6, 1997

PART I

Acts, Ordinance, President's Order and Regulations

SENATE SECRETARIAT

Islamabad, the 6th December, 1997

No. F. 9(46)/97-Legis- The following Acts of Majlis-e-Shoora (Parliament) received the assent of the Acting President on 3rd December, 1997 are hereby published for general information:-

Act No. XXXIV OF 1997

An Act to provide for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development

WHEREAS it is expedient to provide for the protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution, promotion of sustainable development, and for matters connected therewith and incidental thereto:

This legislation established Federal and Provincial Environmental Protection Agencies, and the Pakistan Environmental Protection Council (PEPC). Pakistan later prepared its National Conservation Strategy (NCS) to provide a framework for addressing the environmental concerns in 1992. A year later in 1993, the National Environmental Quality Standards (NEQS) were designed.

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The Pakistan Environmental Protection Act provided the framework for implementation of the National Conservation Strategy as well as the establishment of Provincial Sustainable Development Funds, Environmental Tribunals, and appointment of Environmental Magistrates.

The Pakistan Environmental Protection Act (PEPA) was enacted on 6th December 1997, consequently repealing the 1983 Pakistan Environmental Protection Ordinance.

It also provided guidelines for the protection and conservation of species, conservation of renewable resources, process of Initial Environmental Examination (IEE), and Environmental Impact Assessment (EIA) in the country.

2. PAKISTAN CLIMATE CHANGE BILL DRAFT 2016

The Bill titled "Pakistan Climate Change Act 2016" was drafted in April 2016 to address the challenge of climate change in Pakistan and to meet the country's obligations under international climate change conventions.

The Bill proposes to establish a Pakistan Climate Change Authority under section 5; establish Pakistan Climate Change Fund under section 2; and appoint Pakistan Climate Change Council under section 3.

It also determines the functions and powers of the Council including provincial representation and Chief Ministers under the leadership of the Prime Minister. The Ministry of Climate Change will act as its Secretariat.

Furthermore, it details the composition, powers and functions of the Pakistan Climate Change Authority established under the Act, specifying its role in the development of an annual report to be submitted to the Parliament. It also details the powers and functions of the Chairperson. The Pakistan Climate Change Authority will act under the guidance of the Council and work to provide a framework for mitigation and adaptation.

Lastly, the Bill proposes a Pakistan Climate Change Fund. This Fund will be used to meet expenses of the Authority, and adaptation and mitigation projects.

B. POLICIES & FRAMEWORKS

Climate change is pushing for a shift in the traditional policy development models and approaches to sustainable ones. The world is realizing that the climate impacts are far too serious to ignore while developing national policies.

Policies must be aligned with environmental consciousness and sustainability.

Pakistan, like many developing countries, is focused on fast economic growth and accelerated development. Climate compatibility in our approach would promise sustainability and survival as our climate changes.

National Economic, Environment and Development Study (NEEDS) 2011 states that Pakistan contributes less than one percent to the total global Green House Gas emissions yet it bears great losses caused by its overall impact.

Germanwatch Global Climate Change Index 2016 ranks Pakistan 8th in the list of countries severely affected by climate change since the country witnessed severe flooding, drought, freshwater scarcity, and rising sea levels in recent years.

Strategies to address climate impact mitigation and adaptation will have to be made a part of economic growth and poverty alleviation national plans to overcome the current and impending challenges.

Thereby, to address imminent and future climate risks, Pakistan came up with a national climate change policy in 2012 and a framework for its implementation in 2013. Furthermore, in its vision for 2025, Pakistan acknowledges climate change and its impact on agriculture, energy sector, water, and land.

Let us examine some key climate change related policy frameworks developed by Pakistan:

1. CLEAN DEVELOPMENT MECHANISM, NATIONAL OPERATIONAL STRATEGY, 2005

Pakistan became eligible for Clean Development Mechanism (CDM) Projects on January 11, 2005 when it submitted its Instrument of Accession to the Kyoto Protocol, UN Secretariat.

Climate Change Policy Initiatives

- *Clean Development Mechanism, National Operational Strategy, 2005*
- *National Climate Change Policy, 2012*
- *Framework for Implementation of Climate Change Policy, 2014-2030*
- *Vision 2025, 2014*
- *Pakistan's INDC submitted for Paris Agreement, 2015*

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Clean Development Mechanism was defined in Article 12 of Kyoto Protocol, to which Pakistan is a signatory. It allows countries to implement emission reduction projects in developing countries to earn Certified Emission Reduction (CER) credits. Each CER credit is equivalent to one ton of CO₂ offset and can be used to meet Kyoto targets (UNFCCC website, CDM).

In order to fulfil the requirement of an effective, participatory and transparent CDM process in the country, Pakistan established a Designated National Authority (DNA). It also developed a National Operating Strategy which lays out the functions and powers of DNA and explains the national approval process for CDM projects.

Designated National Authority consists of the National CDM Steering Committee, Technical Committees and the CDM Secretariat, and will be spearheaded by the Prime Minister's Committee on Climate Change.

2. NATIONAL CLIMATE CHANGE POLICY 2012

Pakistan simultaneously launched its National Climate Change Policy and National Ministry of Climate Change in 2012.

The policy addresses challenges posed by climate change and suggests measures for adaptation and mitigation. It outlines its goal as "Ensuring that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate resilient development".

Other important policy objectives include, "Integrating climate change policy with other inter-related national policies, ensuring water, food and energy security, minimizing climate-related disaster risks, and offering economic incentives to encourage public and private sector investment in adaptation and mitigation".

The focus area of this policy is adaptation followed by mitigation, capacity-building, institutional strengthening, awareness raising, international cooperation, finance, technology acquisition, and policy implementation mechanism. The policy also includes introducing climate curricula in higher education, ensuring environmental compliance, promoting clean development mechanism and participating in international climate change forums.

Given the country's low financial and technical capacity to deal with climate impacts, the only way to effectively adapt is to devise and implement appropriate and timely

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adaptation measures. Policy measures for adaptation have been proposed for key sectors as they were found to be the most vulnerable to adverse climate impacts:

KEY SECTORS

- Water Resources
- Agriculture and Livestock
- Health
- Forestry
- Biodiversity
- Other vulnerable ecosystems: Mountains, Rangelands and Pastures, Arid and Hyper Arid Areas, Coastal and Marine Ecosystems, and Wetlands.

Pakistan recognizes that its Energy sector is the single largest source of GHG emission accounting for nearly 51% of these emissions, followed by emissions from Agriculture (39%), Industry (6%), Land Use, Land Use Change and Forestry (LULUCF) (3%) and Waste (1%) [National GHG inventory, 2008].

The policy, therefore, sets important targets for mitigation particularly in the energy and agricultural sectors and pays attention to energy efficiency and conservation. It also acknowledges GHG reduction potential through long-term transport and urban planning, modern industrial processes, environmentally friendly agriculture and livestock rearing, carbon sequestration and forestry science.

What this policy does is to provide a framework for developing action plans on national, provincial and local levels to undertake mitigation and adaptation efforts. As part of its implementation mechanism, it established "Climate Change Policy Implementation Committees" at the federal and provincial levels which will also be responsible for reviewing and updating the policy on a regular basis.

3. FRAMEWORK FOR IMPLEMENTATION OF CLIMATE CHANGE POLICY 2014-2030

The National Climate Change Policy called for an implementation mechanism and this framework was developed, as a result, to facilitate climate compatibility in all sectors outlined in the parent policy document. It is expected to facilitate preparation of provincial and local adaptation plans which are still pending after three years.

The framework provides a schedule for the implementation of proposed actions and categorizes them into four time frame sectors: Priority Actions (PA): to be completed within 2-years; Short-term Actions (SA): to be completed within 5-years; Medium-term Actions (MA): to be completed within 10 years; and Long-term Actions (LA): to be completed within 20-years of being proposed.

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The sectors with an adaptation focus include water, agriculture and livestock, forestry, disaster-preparedness and other vulnerable ecosystems; while a mitigation focus is placed on sectors such as energy, industry, transport and urban planning. It also provides a list of implementing institutions after laying out what proposed actions are needed in each sector.

The documents next in line are the National Adaptation Plan (NAP), National Appropriate Mitigation Action (NAMAs) Framework and the second National Communication to be submitted to United Nations Framework Convention on Climate Change.

4. PAKISTAN'S INDC SUBMITTED FOR PARIS AGREEMENT, 2015

161 countries of the world submitted their Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC) prior to 21st Conference of Parties (COP21) held last December in Paris.

These INDCs reflect a country's intended efforts to reduce greenhouse gas emissions by providing a roadmap of how it plans to achieve the set reduction targets. Pakistan submitted its INDC in November 2015.

The submitted INDC was a mere one-page document offering no set emission reduction targets for Pakistan. It has seven vague points about INDC being rooted in Vision 2025 and the specific commitments Pakistan will adhere to, once reliable peak emission levels data becomes available. In reality, this was an opportunity missed for Pakistan to undertake serious action on climate change.

Compared to this, the original INDC draft submitted to the Prime Minister Nawaz Sharif had set targets, for example it promised 5% emissions reduction by 2030 and up to 18% emissions reduction if provided sufficient technological and financial support.

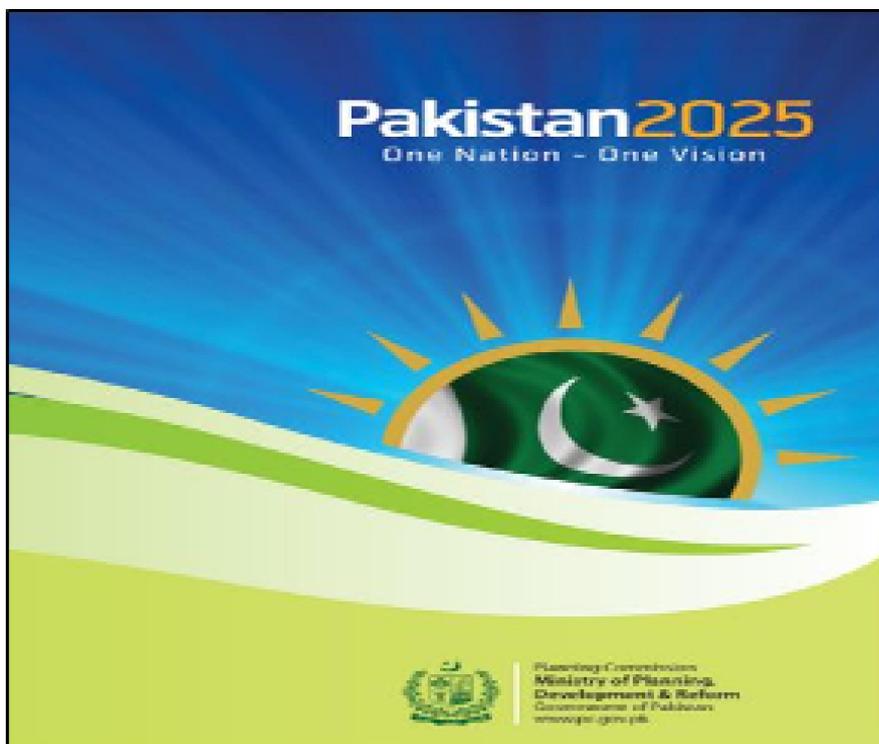
Moreover, Pakistan has also formulated national policy frameworks such as the National Environment Policy (2005), National Forest Policy (Draft), National Energy Conservation Policy (2006), National Renewable Energy Policy (2006), and Policy for Development of Renewable Energy for Power Generation (2006).

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5. PAKISTAN VISION 2025

In 2014, the government prepared a vision to achieve their goals by the year 2025 which confirmed the previously formulated Vision 2030.

This vision was prepared after consultation with nation-wide stakeholders who helped identify seven priority areas or pillars, as they are termed, in the document. These pillars are linked with Sustainable Development Goals (SDGs) so that their fulfilment is made possible through the country's five-year plans.



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Pakistan Vision 2025 Seven Pillars linked with Sustainable Development Goals		
Sr.	Pillars	SDGs
1.	People First: Developing social and human capital, and empowering women	1 (No Poverty), 3 (Good Health and Wellbeing), 4 (Quality Education), and 5 (Gender Equality)
2.	Sustained, indigenous, and inclusive growth	8 (Decent work and Economic Growth), 10 (Reduced inequalities), 12 (Responsible Consumption and Production), 13 (Climate Action), 14 (Life Below Water), and 15 (Life On Land)
3.	Governance: Institutional reform and modernization of the public sector	16 (Peace, Justice and Strong Institutions)
4.	Energy, water, and food security	2 (Zero hunger), 6 (Water security), 7 (Affordable and Clean Energy), and SDG 11 (Sustainable Cities and Communities)
5.	Private Sector and entrepreneurship-led growth	9 (Industry, Innovation and Infrastructure)
6.	Knowledge Economy: Developing a competitive knowledge economy through value addition	9 (Industry, Innovation and Infrastructure), and 4 (Quality Education)
7.	Connectivity: Modernizing transport infrastructure and regional connectivity	9 (Industry, Innovation and Infrastructure), and 17 (Partnerships for the Goals)

IV. INSTITUTIONS

This section provides a list of Government Institutions, United Nations Family, Non-Governmental Organizations, Donor Agencies, Independent Institutions, and Academia that are involved in projects dealing with the issue of climate change. We have also provided the thematic areas of work and contact details of these institutions to enable ease of access.

A. GOVERNMENT INSTITUTIONS

MINISTRY OF CLIMATE CHANGE

Thematic Areas of Work:

- Disaster preparedness and management
- Climate Change Adaptation and Mitigation

Website: www.mocc.gov.pk

MINISTRY OF NATIONAL FOOD SECURITY AND RESEARCH

Thematic Areas of Work:

- Food grain and Agriculture

Website: <http://www.mnfsr.gov.pk/>

MINISTRY OF WATER AND POWER

Thematic Areas of Work:

- Development of water and energy resources

Website: <http://www.mowp.gov.pk/>

MINISTRY OF PLANNING, DEVELOPMENT AND REFORMS

Thematic Areas of Work:

- Strategic planning and implementation

Website: <http://pc.gov.pk/>

PAKISTAN ENVIRONMENTAL PROTECTION AGENCY

Thematic Areas of Work:

- Environmental Protection

Website: <http://environment.gov.pk/>

ENVIRONMENTAL AND ENERGY DEPARTMENT, GOVERNMENT OF SINDH (SINDH ENVIRONMENTAL PROTECTION AGENCY)

Thematic Areas of Work:

- Provincial Environmental Protection

Website: <http://www.sindh.gov.pk/dpt/Environment/>

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SINDH FOREST AND WILDLIFE DEPARTMENT

Thematic Areas of Work:

- Protection of flora and fauna, Afforestation and Reforestation

Website: <http://sindhforests.gov.pk/home>

PUNJAB FOREST, WILDLIFE AND FISHERIES DEPARTMENT

Thematic Areas of Work:

- Protection and conservation of provincial forest, wildlife and fisheries resources

Website: <http://fwf.punjab.gov.pk/>

B. UNITED NATIONS FAMILY

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

Thematic Areas of Work:

- Climate Change
- Disasters and Conflicts
- Ecosystem Management
- Environmental Governance
- Chemicals and Waste
- Resource Efficiency

Website: <http://www.unep.org/>

UNITED NATIONS DEVELOPMENT PROGRAMME IN PAKISTAN

Thematic Areas of Work:

- Democratic Governance
- Crisis Prevention and Recovery
- Environment and Climate Change
- Development Policy
- Sustainable Development Goals

Website: <http://www.pk.undp.org/>

UNITED NATIONS-HABITAT

Thematic Areas of Work:

- Urban legislation, planning and design
- Risk reduction and rehabilitation
- Climate change vulnerability assessments

Website: <http://www.unhabitat.org.pk/home/>

C. NON-GOVERNMENTAL ORGANIZATIONS

FRIEDRICH NAUMANN FOUNDATION FOR FREEDOM (FNF) PAKISTAN

Thematic areas of Work:

- Climate Compatible and Sustainable Development

Website: <http://southasia.fnst.org/>

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PAKISTAN FISHERFOLK FORUM

Thematic areas of Work:

- Climate Change Impact Mitigation

Website: <http://pff.org.pk/>

INTERNATIONAL UNION FOR CONSERVATION OF NATURE PAKISTAN

Thematic Areas of Work:

- Business and Biodiversity
- Climate Change
- Ecosystem Management
- Environmental Law
- Forests
- Gender
- Protected Areas
- Species
- Water
- World Heritage

Website: <https://www.iucn.org/asia/pakistan/countries/pakistan>

HEINRICH BÖLLSTIFTUNG PAKISTAN

Thematic Areas of Work:

- Capacity building and awareness raising on Climate Change

Website: <https://pk.boell.org/>

WORLD WILDLIFE FUND PAKISTAN

Thematic areas of Work:

- Forests
- Freshwater
- Sustainable Agriculture
- Climate Change
- Alternate Energy
- Coastal/Marine

Website: www.wwfpak.org

LEADERSHIP FOR ENVIRONMENT AND DEVELOPMENT (LEAD) PAKISTAN

Thematic Areas of Work:

- Environmentally responsible and Climate Compatible Development

Website: www.lead.org.pk

SHEHRI-CITIZENS FOR A BETTER ENVIRONMENT (SCBE)

Thematic Areas of Work:

- Research and promotion of environmental initiatives
- Citizen rights
- Climate Change
- Sustainable Development

Website: <http://www.shehri.org/>

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SHIRKAT GAH

Thematic Areas of Work:

- Bodily Rights
- Environmental Context (Physical and Political)
- Organizational Evolution

Website: <http://shirkatgah.org/>

SOCIETY FOR CONSERVATION AND PROTECTION OF ENVIRONMENT (SCOPE)

Thematic Areas of Work:

- Environmental conservation and protection

Website: <http://www.scope.org.pk/index.htm>

SUSTAINABLE DEVELOPMENT POLICY INSTITUTE

Thematic Areas of Work:

- Sustainable development policy research, capacity building and advocacy

Website: <http://sdpi.org/>

D. DONOR AGENCIES

WORLD BANK

Website: www.worldbank.org/en/country/pakistan

US AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

Website: <https://www.usaid.gov/pakistan>

GIZ PAKISTAN

Website: <https://www.giz.de/en/worldwide/362.html>

AUSAID

Website: <http://dfat.gov.au/geo/pakistan/developmentassistance/Pages/development-assistance-in-pakistan.aspx>

ASIAN DEVELOPMENT BANK (ADB)

Website: <https://www.adb.org/countries/pakistan/main>

KFW PAKISTAN

Website: <https://www.kfw-entwicklungsbank.de/International-financing/KfW-Development-Bank/Local-presence/Asia/Pakistan/>

DFID

Website: <https://www.gov.uk/government/world/organisations/dfid-pakistan>

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Website: <https://www.jica.go.jp/pakistan/english/>

E. INDEPENDENT INSTITUTIONS

SPACE AND UPPER ATMOSPHERE RESEARCH COMMISSION (SUPARCO)

Thematic Areas of Work:

- Research and Development in space science

Website: <http://suparco.gov.pk/>

NATIONAL INSTITUTE OF OCEANOGRAPHY (NIO)

Thematic Areas of Work:

- Oceanography and atmospheric research

Website: <http://www.niopk.gov.pk/>

PAKISTAN METEOROLOGICAL DEPARTMENT (PMD)

Thematic Areas of Work:

- Weather forecast and scientific studies

Website: www.pmd.gov.pk/

F. ACADEMIA

LAHORE UNIVERSITY OF MANAGEMENT SCIENCES (LUMS)

Website: <https://lums.edu.pk/>

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY (NUST)

Website: www.nust.edu.pk/

SHAHEED ZULFIQAR ALI BHUTTO INSTITUTE OF SCIENCE AND TECHNOLOGY (SZABIST)

Website: www.szabist.edu.pk/

V. PROJECTS

There are various institutions in Pakistan which are implementing small and large-scale projects on climate change. These projects are either directly managing and adapting to climate risks or indirectly addressing the issue.

The following list gives an institution-wise account of all the ongoing projects; we have also tried to provide brief details wherever possible, highlighting some key projects:

FRIEDRICH NAUMANN FOUNDATION FOR FREEDOM AND CLIMATE CHANGE

Friedrich Naumann Foundation for Freedom (FNF) Pakistan is working for a peaceful and progressive Pakistan since 1986. The German foundation is committed to liberal democracy, human and civil rights, peaceful conflict resolution, free market economy and good governance. As part of the rising importance of climate change, FNF Pakistan is currently focusing on a climate change awareness campaign. The campaign is addressing different groups (youth, children, academicians, media, etc.) to have a wide-ranging impact on the society.

Pakistan currently acquires most of the electricity from fossil fuels (oil and gas). In view of soaring prices, limitations and climate change; many countries are going through or planning to transit their focus from fossil fuel and nuclear energy to renewables. Pakistan has a variety of alternative and renewable sources of energy to draw from as it has abundant wind and sun and can also go for the option of bio-gas production.

Friedrich Naumann Foundation for Freedom Pakistan is encouraging energy efficiency through renewables to mitigate the impact of excessive reliance on fossil fuels. The foundation also promotes measures to conserve the existing natural environment and facilitates various awareness sessions and publications for the purpose. Together, with the government and citizens, FNF looks forward to reduce the carbon footprint of Pakistan and the negative impacts of climate change.



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SHEHRI-CITIZENS FOR A BETTER ENVIRONMENT AND CLIMATE CHANGE

Shehri-CBE has been working on environmental protection and climate risk mitigation since its inception in 1990. Our focus has been to harmonize the built environment with the natural environment of Pakistan and to reduce any negative impacts caused by human intervention.

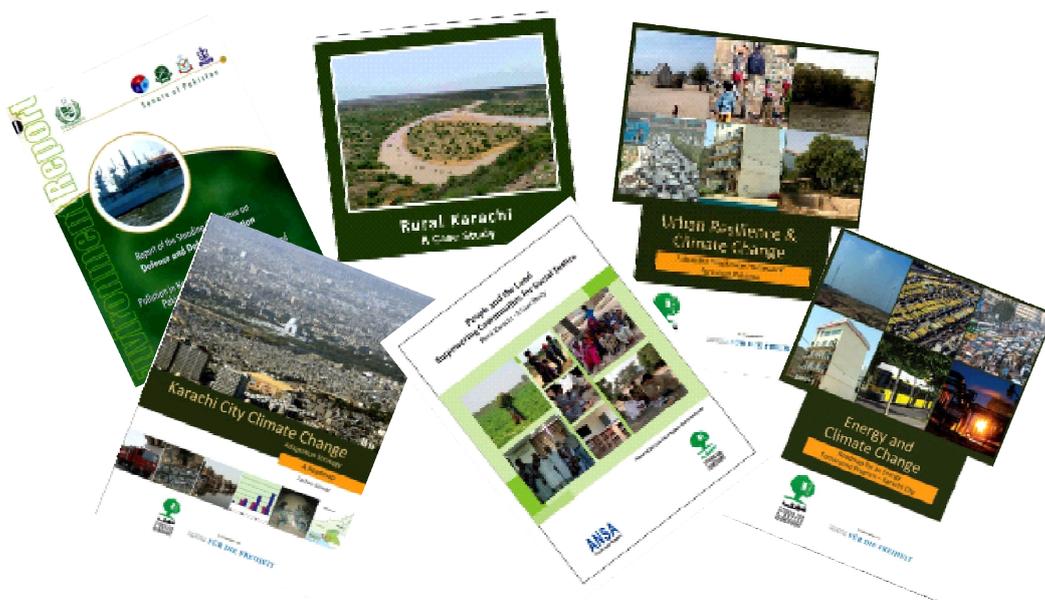
Shehri-CBE has also developed a comprehensive collection of studies related to climate change with support from various governmental and nongovernmental organizations such as the Senate of Pakistan, Ministry of Environment, World Wide Fund for Nature, International Union for Conservation of Nature, and Friedrich Naumann Foundation among many others.

Moreover Shehri-CBE is a notified member of National Coordinating Body (NCB) for Mangroves for Future (MFF) Programme- International Union for Conservation of Nature (IUCN) by the Ministry of Environment, Government of Pakistan.

“No. 2(4)/2007-DIGF-II, A “NATIONAL COORDINATION BODY” (NCB) WITH THE FOLLOWING COMPOSITION IS HEREBY CONSTITUTED UNDER THE “MANAGROVES FOR FUTURE” (MFF) PROGRAMME:

xxiii- SHEHRI CITIZENS FOR A BETTER ENVIRONMENT.”

Climate Change cannot be dealt alone without cooperation, therefore Shehri-CBE promotes active volunteerism for the cause. We need to maximize our efforts to prevent any natural disaster from paralyzing us.



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MINISTRY OF CLIMATE CHANGE

1. Establishment of Geomatic Centre for Climate Change and Sustainable Development
2. Green Pakistan Programme
3. Sustainable Land Management Programme to Combat Desertification in Pakistan

LEAD PAKISTAN

1. Developing Climate Change Policy and Action Plans for the following provincial governments:
 - Khyber Pakhtunkhwa
 - Sindh
 - Punjab
2. Methods Toolbox for Assessing Loss and Damage at Local Level
 - Partners: LEAD Pakistan, United Nations University (UNU), All India Disaster Mitigation Institute (AIDMI) and Integrated Development Society (IDS).
 - Duration: 2014-2016
 - Donor: APN
3. Developing a Climate Change Portal for Pakistan:
 - To make available all climate change related information regarding Pakistan at one place.
 - It is a joint initiative of LEAD Pakistan and Oxfam.
 - The portal can be reached at: <http://ccportal.org.pk/>
4. Climate and Development Knowledge Network (CDKN)
 - CDKN aims to link 60 developing countries with leading climate and development experts, allowing them to commission and share knowledge on how to best tackle the effects of climate change.
 - Duration: 2010-2017 Donor: DFID
5. Design and implement 4 Local Adaptation Plans of Action (LAPAs) in numerous districts of Sindh and Punjab.
6. Understanding Water-Climate Change Challenge and Policy Options on the
7. Afghan-Pak Transboundary Kabul River
 - Partners: Kabul University, Afghanistan, Pakistan Meteorological Department, Global Change Impact Studies Centre (GCISC), National University of Sciences and Technology.
 - Duration: 2016-2018
 - Donor USAID

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WWF-PAKISTAN

1. Enhancing the Value of Hydrological Resources for Livelihoods, Youth Employability and Resilience, a Research and Development Pilot project in Gilgt-Baltistan, Pakistan
2. Rural Livelihoods and Climate Change Adaptation in the Himalayas (Himalica)
3. Study on Carbon Emission for the selected Bus Rapid Transit Line and Potential for Clean Development Mechanism
4. Construction of Bio-gas Plants in Thatta District, Sindh.
5. Agricultural Water, Energy and Hazard Management in the Upper Indus Basin for Improved Livelihood

INTERNATIONAL UNION FOR CONSERVATION OF NATURE (IUCN)

1. Integrated Approach for Education, Capacity Building and Livelihood Development of Coastal Communities in Sindh and in Baluchistan Provinces
 - Location: Karachi and Thatta districts (Sindh province) and Gawadar district (Baluchistan province), Pakistan
 - Duration: 2016 - 2017
2. Natural resource-based conservation management and community livelihood: Possible role of mangroves in curbing sea intrusion in the Indus Delta
 - Location: Indus Delta (Sub Division Ketibunder and Karochann, Thatta District)
 - Duration: 2012 - 2019
 - Donor: Government of Sindh through Sindh Forest Department
3. PAKSTRAN- Promoting Sustainable Transport in Pakistan
 - Partners: United Nations Development Programme (UNDP) and Global Environment Facility (GEF)
 - Duration: 2013 -2017
4. Preparation of National Vulture Conservation Strategy
 - Location: Nagarparkar, Tharparkar, Sindh province of Pakistan
 - Duration: 2015 - 2016
 - Donor: United States Agency for International Development (USAID) Small Grants and Ambassador's Fund Program
5. Establishment of two Pakistan Centers for Advanced Studies in Energy (PCASE)
 - Location: National University of Science and Technology (NUST) Islamabad and

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University of Engineering and Technology (UET) Peshawar (Khyber Pakhtunkhwa)

- Duration: 2014 - 2019
- Donor: Arizona State University

6. Water governance project in Federally Administered Tribal Areas (FATAs): Environment Cell

Aims to develop and enhance technical capacities of the FATA Secretariat and relevant departments at the agency level to institutionalize proper planning and monitoring of development investments, and contribute to ecologically sustainable changes with focus on water governance issues.

- Partners: Planning and Development Department (P&D); Federally Administered Tribal Areas (FATA); and Ministry of Climate
- Location: FATA Agencies and Frontier Regions (FR) of Pakistan
- Duration: 2015 - 2017
- Donor: Swiss Agency for Development and Cooperation (SDC)

UNITED NATIONS DEVELOPMENT PROGRAMME IN PAKISTAN

1. Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods

The project seeks to develop human and technical capacity of public institutions and local communities to understand and address glacial lake outburst flood risks in Gilgit and Chitral Districts.

- Partners: Ministry of Climate Change and Pakistan Metrological department.
- Donor: Adaptation Fund and Government of Pakistan

2. Sustainable Land Management to Combat Desertification

This project aims to combat land degradation and desertification in Pakistan. It protects and restores degraded ecosystems and essential ecosystem services to reduce poverty. Phase-I has been designed to implement United Nations Convention to Combat Desertification (UNCCD) through the involvement of key stakeholders.

- Duration: 2009-2017
- Location: Khyber Pakhtunkhwa - Peshawar, D.I. Khan, Lakki Marwat; Punjab - D.G. Khan, Bhakkar, Layyah; Baluchistan - Quetta, Pishin; Sindh - Tharparkar
- Partner: Ministry of Climate Change
- Donor: Multi-lateral Fund, Montreal Protocol Unit

3. Mountains and Markets

This project uses voluntary certification of non-timber forest products to promote biodiversity conservation and strengthen existing conservation efforts through innovative market-based mechanisms. It develops community and institutional capacity for certified

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production of biodiversity-friendly non-timber forest products in Northern Pakistan and stimulates market demand for these products thus creating new economic incentives for conservation.

- Duration: 2012 - 2017
- Location: Khyber Pakhtunkhwa, Gilgit-Baltistan
- Partners: Ministry of Climate Change, Provincial Forest and Wildlife Departments of Khyber Pakhtunkhwa and Gilgit-Baltistan
- Donor: Global Environment Facility

4. Promoting Sustainable Transport (PAKSTRAN)

This project aims to provide technical assistance to reduce energy consumption and related greenhouse gas emissions in the transport sector of Pakistan, while simultaneously improving urban environmental conditions and trade competitiveness.

- Location: Lahore (Punjab province) and Karachi (Sindh province)
- Partners: National Energy Conservation Center, Ministry of Water and Power Donor: Global Environment Facility
- Duration: 2013 - 2017

MANGROVES FOR THE FUTURE (MFF)

Mangroves for the Future (MFF) is a regional partner-led initiative "to promote investment in coastal ecosystem conservation for sustainable development". Mangroves are the flagship of the initiative, but it includes conservation of all types of coastal ecosystem, such as coral reefs, estuaries, lagoons, sandy beaches, seagrasses and wetlands.

CO-CHAIRER BY IUCN AND UNDP

The devastation caused by the Indian Ocean tsunami of December 2004 exposed the indispensable link between coastal ecosystems and human livelihoods. Improving natural infrastructure, rebuilding and strengthening resilience against future natural disasters in tsunami-hit areas was the vision of former United States President Bill Clinton. To fulfil this vision, International Union for Conservation of Nature and the United Nations Development Programme developed Mangroves for the Future in 2006. Initially, it focused on the countries that were affected by tsunami but later on it grew to include more countries and eight institutional partners.

Vision: "Healthy coastal ecosystems for a more prosperous and secure future for coastal communities."

Mission statement: "To promote healthy coastal ecosystems through a partnership-based, people-focused and policy-relevant approach that builds and applies knowledge, empowers communities and other stakeholders, enhances governance, secures livelihoods, and increases resilience to natural hazards and climate change."

Member Countries: Bangladesh, Cambodia, India, Indonesia, Maldives, Myanmar, Pakistan, Seychelles, Sri Lanka, Thailand, and Viet Nam

What it does:

MFF provides a platform for collaboration among the many different agencies, sectors, and countries to address challenges to coastal ecosystems and livelihood issues. Its goal is to promote an integrated coastal management approach and to build the resilience of ecosystem-dependent coastal communities in its member countries.

MFF sets priorities for long-term sustainable coastal ecosystem management which include: climate change adaptation and mitigation, disaster risk reduction, promotion of ecosystem health, development of sustainable livelihoods, and active engagement of the private sector.

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How it works:

MFF has demonstrated that the regional priorities are shared by MFF's member countries concerning coastal rehabilitation, livelihood support, resilience-building, and empowerment with climate change as a key cross-cutting issue. MFF is governed by three levels of governance: Regional, Secretariat and National governance which are described below:

Regional governance

The implementation of MFF's action plan and monitoring of its overall progress is supervised by the Regional Steering Committee (RSC). It is a multi-stakeholder body co-chaired by IUCN and UNDP, which meets once a year. It includes representatives from MFF's member country governments: Bangladesh, Cambodia, India, Indonesia, Maldives, Myanmar, Pakistan, Seychelles, Sri Lanka, Thailand and Viet Nam; as well as MFF's institutional partners: United Nations Food and Agriculture Organization (FAO), United Nations Environment Programme (UNEP), and Wetlands International. The donor community, Danida, Sida, and Norad, also sit at the RSC.

Secretariat

The MFF Secretariat is based in Bangkok, Thailand and works closely with the Regional Steering Committee, the National Coordinating Body (NCB) in each country, and the country offices of IUCN and UNDP. The main functions of the Secretariat include providing administrative and managerial support and technical backstopping to the NCBs and projects. Furthermore, the Secretariat facilitates a knowledge platform for generating, managing and sharing information to ensure that learning, best practices and innovations are documented and disseminated effectively.

National governance

Each country manages its own MFF programme through a National Coordinating Body which includes representatives from government, NGOs and the private sector. The mandate for coordinating and overseeing MFF's national activities lies with its NCB, which acts in coordination with existing national mechanisms for managing coastal areas.

In Pakistan, the NCB is a multi-stakeholder body led by the Secretary Ministry of Climate Change since 2009. Presently, it constitutes 24 members representing various governments.

CLIMATE AND DEVELOPMENT KNOWLEDGE NETWORK (CDKN)

The Climate and Development Knowledge Network (CDKN) is a mega initiative designed to support developing countries in tackling the challenges posed by climate change. UK Department for International Development [DFID] launched CDKN on March 11, 2010 for a 5-year period later extended for two more years owing to the impact it generated.

Mission

The Climate and Development Knowledge Network supports decision-makers in designing and delivering climate compatible development in developing countries. It is done by combining research, advisory services and knowledge management to support policy processes which are locally owned and managed. CDKN works in partnership with decision-makers from the public, private, and non-governmental sectors nationally, regionally and globally.

The project is managed by an alliance of organizations such as PricewaterhouseCoopers, Overseas Development Institute, Fundación Futuro Latinoamericano, SouthSouthNorth and INTRAC. LEAD Pakistan acts as CDKN's Asia secretariat.

The CDKN team brings together a wide range of expertise and experience across the fields of Climate Change and development, research, policy development, knowledge management, networking and capacity-building, as well as management of global initiatives.

What it does:

CDKN strives to deliver the highest quality technical advice for climate compatible development and forge effective partnerships. It provides support and procures the best services through its alliance of organizations in the world.

It works across four strategic themes:

1. Climate compatible development strategies and plans
2. Improving developing countries' access to climate finance
3. Strengthening resilience through climate-related disaster risk management
4. Supporting climate negotiators from the least developed and most vulnerable countries.

CDKN's work has four components:

1. Research:
2. Technical Assistance and Advisory Program
3. Knowledge Management:
4. Partnerships:

BUILDING CAPACITY ON CLIMATE CHANGE ADAPTATION IN COASTAL AREAS OF PAKISTAN (CCAP)

Sea-level rise in Pakistan is an immediate threat to some of the poorest communities residing along the coast. 1050kms long coastal belts of Sindh and Balochistan are home to around 1.25 million people, while the Indus river delta region supports an additional 2.2 million people. A study by WWF-Pakistan shows that sea water intrusion in the past 30 years has engulfed 1km land and it threatens the lives and livelihoods of coastal communities. The CCAP project aims to mitigate the climate change risks faced by these communities through interventions related to adaptation and capacity building. The project also aims to promote integrated water resource management and river basin management in addition to focusing on supporting the government to become more robust in addressing climate impacts.

Project Objectives:

"By 2025, coastal areas in Pakistan and neighboring regions [will] have climate resilient ecosystems to support the livelihoods / lives of coastal communities."

"By 2015, government and community climate adaptation capacity is increased and water governance strengthened, to improve climate resilience of Indus Delta ecosystem processes on which coastal communities depend, supported by regional and transboundary cooperation on adaptation in river deltas."

What it did:

To address the urgent need of coastal communities in Sindh and Balochistan to adapt to rising sea levels, delta wide vulnerability assessments were undertaken to provide a contextual and policy analysis of the threats faced by the region, including proposed mechanisms of addressing these existing threats and emerging vulnerabilities. Using the data collected, two local adaptation plans were developed to enhance the capacity of local and district authorities in the target areas to address climate change, and to develop adaptation plans in a collaborative and consultative manner, leading to the implementation of pilot adaptation projects focusing on ecosystem based solutions to climate change. An effort was made to integrate adaptation into sectoral policies and development plans, while addressing the issues of water allocation and sustainable flow requirements.

Target Areas:

Target districts in Sindh are Thatta and Badin, and the coastal villages targeted in these districts are Keti Bunder and Kharo chan. In Balochistan, Gwadar is the targeted district with Jiwani being the target coastal village. In addition, the following deltas were targeted- the Indus Delta, Sundarbans Delta (India, Bangladesh) and Gawadar Bay delta (Pakistan, Iran).

SCALING UP OF GLACIAL LAKE OUTBURST FLOOD (GLOF) RISK REDUCTION IN NORTHERN PAKISTAN

The United Nations Development Programme (UNDP) in Pakistan, in partnership with the Ministry of Climate Change (MoCC) and Pakistan Meteorological Department, Government of Pakistan, worked on "Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods (GLOFs) Project" during 2011-2015 in Gilgit-Baltistan. A glacial lake outburst flood occurs when the dam containing a glacial lake fails. After the success of this project, UNDP and MoCC submitted a proposal to the Green Climate Fund (GCF) to scale up this project. The Green Climate Fund (GCF) approved US\$36 Million to fund the Climate Change Adaptation project responding to Glacial Outburst in Northern Pakistan on October 14, 2016. It is the first project in Pakistan to be approved for funding by the GCF.

It is estimated that 33 glacial lakes created due to the rising temperature in Northern Pakistan, are hazardous and likely to result in glacial lake outburst floods (GLOFs). Currently over 7 million people remain at risk. This project will help twelve districts in Gilgit-Baltistan and Khyber-Pakhtunkhwa to strengthen technical capacity to avoid human and material losses from these potential GLOFs sites.

Project objectives:

It aims to address Glacial Lake Outbursts Floods (GLOF) risks due to climate change. It is based on a holistic approach to prevent loss of lives and infrastructure in all seven districts of Gilgit-Baltistan and five districts in Khyber-Pakhtunkhwa, thereby, contributing to a climate-resilient and sustainable long-term development. The project hopes to benefit about 15 per cent of the total population of Pakistan, estimated at 185 million [World Bank, 2014].

What it will do:

The project will build 250 engineering structures including dams, ponds, spill ways, tree plantation and drainage to reduce disaster risks. At the same time, it will develop disaster management policies and introduce weather monitoring stations, flood gauges, hydrological modelling and early warning systems to increase the response capacity to flood scenarios.

The project outcome will strengthen adaptive capacity and reduce exposure to climate risks posed by climate change and GLOF events by increasing technical capacity of provincial and line departments, integrating climate change and GLOF risks into development plans, tools and budgets and by expanding the Pakistan Meteorological Department's Early Warning System (EWS) based on hydrological modeling and flood scenarios.

PAKISTAN SUSTAINABLE TRANSPORT PROJECT (PAKSTRAN)

Pakistan Sustainable Transport Project (PAKSTRAN) is being implemented by Government of Pakistan to address transport-related problems in urban areas. The growth of urban centers has posed several challenges for the sustainable development in Pakistan. Rapid population growth and urbanization has resulted in an increase in the number of vehicles and the network of roads in Pakistan is growing to accommodate these. However, no planned interventions to effectively reduce traffic congestion, energy consumption and greenhouse gas emissions exist.

This project aims to provide technical assistance to the federal and provincial governments to reduce the growth of energy consumption and related greenhouse gas (GHG) emissions in Pakistan's Transport Sector, while simultaneously improving urban environment and trade competitiveness. The project helps improve urban living conditions including air quality, mobility and city aesthetics as well as enhances the country's energy security.

Project Objective:

1. Reduce the growth of energy consumption and related greenhouse gas emissions from Pakistan's transport sector
2. Improve the urban environmental conditions and increase Pakistan's competitiveness

Expected outputs:

1. Demonstrate international best practices in planning and implementation of integrated urban transport systems
2. Strengthen the institutional and policy framework for urban transportation
3. Demonstrate international best practices for modernizing the trucking fleet; creating an investment environment with widespread stakeholder acceptance
4. Raise public awareness and knowledge of issues in sustainable urban transport and fuel-efficient transport in Pakistan

Donors:

Global Environment Facility and UNDP

Project duration:

2013-2017

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VI. SUSTAINABLE DEVELOPMENT GOALS (SDG)

The Millennium Development Goals adopted in 2002 concluded at the end of 2015 and gave way to Sustainable Development Goals in 2015.

The world leaders adopted the 2030 Agenda for Sustainable Development at the UN Headquarter in New York last September. This agenda includes 17 Sustainable Development Goals or SDGs accompanied by 169 targets, set of indicators and a monitoring framework.

These set ambitious targets across all (social, economic, and environmental) dimensions of sustainable development must be achieved within the next 15 years. These targets and goals set out qualitative and quantitative objectives which are global in nature and can be universally applied all the while respecting national priorities.

Climate change may hinder the achievement of many goals therefore the SDGs have been designed to overcome challenges posed by it. The Sustainable Development Goals mark a historic global effort to improve the wellbeing of world citizens and builds on the success of Millennium Development Goals. These goals have been packaged in to easy-to-understand, measurable and time-bound objectives, promoting equality, global awareness, political accountability, and civic participation.

- Goal 1:** End poverty in all its forms everywhere
- Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3:** Ensure healthy lives and promote well-being for all at all ages
- Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5:** Achieve gender equality and empower all women and girls
- Goal 6:** Ensure availability and sustainable management of water and sanitation for all
- Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

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- Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10:** Reduce inequality within and among countries
- Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12:** Ensure sustainable consumption and production patterns
- Goal 13:** Take urgent action to combat climate change and its impacts
- Goal 14:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17:** Strengthen the means of implementation and revitalize the global partnership for sustainable development



VII. ABBREVIATIONS

UNFCCC-	United Nations Framework Convention on Climate Change
IPCC-	Intergovernmental Panel on Climate Change
COP21-	21st Conference of Parties
INDC-	Intended Nationally Determined Contribution
GHG-	Greenhouse Gases
GLOF-	Glacier Lake Outburst Flood
LULUCF-	Land-Use, Land-Use Change and Forestry
NEEDS-	National Economic, Environment and Development Study
NAP-	National Adaptation Plan
NAMA-	National Appropriate Mitigation Action
CDM-	Clean Development Mechanism
DNA-	Designated National Authority
SDG-	Sustainable Development Goal
PA-	Priority Action
SA-	Short-term Action
MA-	Medium-term Action
LA-	Long-term Action
CER-	Certified Emission Reduction

VIII. IMPORTANT WEB-LINKS:

GLOBAL CLIMATE RISK INDEX BY GERMANWATCH:

<https://germanwatch.org/fr/download/13503.pdf>

GETTING STARTED WITH THE SUSTAINABLE DEVELOPMENT GOALS:

<http://unsdsn.org/wp-content/uploads/2015/12/151211-getting-started-guide-FINAL-PDF-.pdf>

NATIONAL ECONOMIC, ENVIRONMENTAL AND DEVELOPMENT STUDY (NEEDS):

<https://unfccc.int/files/adaptation/application/pdf/pakistanneeds.pdf>

PAKISTAN'S INDC, 2015:

<http://newsroom.unfccc.int/unfccc-newsroom/pakistan-submits-its-climate-action-plan-ahead-of-2015-paris-agreement/>



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