The Opportunities and Challenges for Climate Mitigation Actions (NDCs and NAMAs)- The Case of Pakistan

Presented by:

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• National Context- Country overview, Climate change impacts, GHG emissions
• Pakistan Perspective on NDCs
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Country Overview

• Pakistan extends over an area of 796,095 km\(^2\)
• Climate varies from arid to semiarid
• The northern region includes some of the world’s
  ➢ highest mountain peaks, such as K-2 (8,611 meters [m] high), and
  ➢ the largest glaciers including Siachen (70 kilometers [km] long) and Biafo (63 km) that feed the Indus River and some of its tributaries
• The western and southern segments of the country represent the Indus River basin plain and Balochistan Plateau
• Pakistan is the fifth most populous country in the world with a population size of 220.89 million (2020)
Climate Change Impacts

• About 495,000 people have lost their life to climate change between 1999-2018, with losses of US$ 3.54 trillion observed directly as a result of extreme climate events.

• According to Global Climate Risk Index 2020 report, Pakistan is ranked fifth when it comes to being affected by the risks of climate change.

• In the last 50 years, the annual mean temperature in Pakistan has increased by roughly 0.5°C.

• By the end of this century, the annual mean temperature in Pakistan is expected to rise by 3°C to 5°C for a central global emissions scenario.

• Average annual rainfall is not expected to have a significant long-term trend, but is expected to exhibit large inter-annual variability.

• Sea level is expected to rise by a further 60 centimeters by the end of the century and will most likely affect the low-lying coastal areas south of Karachi toward Keti Bander and the Indus River delta.

Heatwave 2015, ‘an unending queue of corpses’
# Pakistan Climate Expenditure

**Pakistan climate-relevant expenditure (CPEIR 2011/12 to 2015/16)**

<table>
<thead>
<tr>
<th></th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>6.5%</td>
<td>5.8%</td>
<td>6.2%</td>
<td>8.1%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Khyber Pakhtunkhwa</td>
<td>7.2%</td>
<td>5.3%</td>
<td>7.1%</td>
<td>9.7%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Balochistan</td>
<td>7.3%</td>
<td>10.4%</td>
<td>11.1%</td>
<td>11.3%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Punjab</td>
<td>6.2%</td>
<td>7.1%</td>
<td>8.2%</td>
<td>9.3%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Sindh</td>
<td>5.7%</td>
<td>4.2%</td>
<td>4.3%</td>
<td>6.9%</td>
<td>7.2%</td>
</tr>
<tr>
<td>FATA</td>
<td>13.1%</td>
<td>12.5%</td>
<td>11.6%</td>
<td>11.9%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Gilgit-Baltistan</td>
<td>16%</td>
<td>19%</td>
<td>20%</td>
<td>28%</td>
<td>25.6%</td>
</tr>
<tr>
<td>Azad Jammu &amp; Kashmir</td>
<td>9.2%</td>
<td>14.0%</td>
<td>12.5%</td>
<td>16.9%</td>
<td>14.3%</td>
</tr>
<tr>
<td>National</td>
<td>6.7%</td>
<td>6.1%</td>
<td>6.7%</td>
<td>8.5%</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

*Source: Climate Public Expenditures and Institutional Review (CPEIR) 2017*
Major Emitter of GHG in Pakistan
Projection of GHG Emissions by 2030

Emissions Trend by 1994-2030

- Energy
- Industrial Process
- Agriculture
- Land use Change and Forestry (LUCF)
- Wastes
Final Energy Consumption by Sector 2017-18

Energy Consumption by Sector 2017-18

- Domestic: 37.46%
- Commercial: 21.20%
- Industrial: 33.89%
- Agriculture: 3.65%
- Transport: 1.53%
- Other Govt.: 2.26%

Source: Pakistan Energy Year Book 2018
Energy Saving Potential
Residential Sector and Domestic Sector

Electricity savings potential for selected appliances in the domestic sector

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Energy Savings Potential</th>
<th>Negawatt-hour Potential (GWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>60%</td>
<td>8456</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>23%</td>
<td>667</td>
</tr>
<tr>
<td>Fans</td>
<td>50%</td>
<td>6839</td>
</tr>
<tr>
<td>Air Conditioners</td>
<td>40%</td>
<td>829</td>
</tr>
</tbody>
</table>

Gas savings potential in the residential sector

<table>
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<tr>
<th>Appliance</th>
<th>Gas Savings Potential</th>
</tr>
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<tbody>
<tr>
<td>Domestic Geysers</td>
<td>30%</td>
</tr>
<tr>
<td>Space Heaters</td>
<td>36%</td>
</tr>
<tr>
<td>Cooking Stoves</td>
<td>43%</td>
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</table>
Pakistan Perspective on NDCs

Pakistan intends to reduce up to 20% of its 2030 projected GHG emissions subject to availability of international grants to meet the total abatement cost for the indicated 20 percent reduction amounting to about US$ 40 billion at current prices.

Pakistan’s adaptation needs range between US$ 7 to US$ 14 billion/annum during this period.

- Ministry of Climate Change
- Pakistan’s Vision 2025
- National Climate Change Policy 2012
- National Disaster Risk Management Policy 2013
  - National Adaptation Plan (NAP)
  - Nationally Appropriate Mitigation Actions (NAMAs)
- Public Sector Development Programmes (PSDP)
- Climate Change Act 2017
Pak-INDC presents the overall GHG emissions profile and future emission projections, by considering both the present and future socio-economic parameters, changes in the demographic dynamics and emerging energy needs.

While the NDC identifies a goal of 20 percent below 2030 projections, it is unclear which actions are conditional upon receiving foreign funds.

The country did not include a single measurable target to reduce its greenhouse gas emissions.

Mitigation potential and mitigation options in two key emission-generating sectors of the economy – Energy and Agriculture.
## Identified NAMAs

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<td>Renewable energy</td>
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<td>Residential and Commercial buildings</td>
<td>Energy efficiency</td>
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<tr>
<td>Development and Installation of Carbon Dioxide Sequestration Technologies in Pakistan</td>
<td>Minerals and Mines</td>
<td>Refining and energy production</td>
</tr>
<tr>
<td>Supporting Mechanisms for Promoting Distributed Generation (Net Metering, Wheeling, Banking etc.) in Pakistan to put 3 GW Alternative and Renewable Energy (ARE) Projects in next 7 years.</td>
<td>Energy supply</td>
<td>Renewable energy</td>
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<td>Bio-energy generation and greenhouse-gases mitigation though organic-waste utilization</td>
<td>Agriculture, Waste management</td>
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<tr>
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<td>Residential and Commercial buildings</td>
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Climate Change Mitigation - Energy Efficiency

Energy Efficiency Improvement – BAU Projected Scenarios
Source: NEECA's Estimates based on Energy Year Book 2019
Mitigation Targets in Energy Efficiency Sector

- Launching of Mandatory Appliance Labeling Schemes
- Carrying out Building Energy Audits
- Developing Vehicles Examination System and Regulations
- Regulating Vehicle Tune-up Centers
- Implementation of Building Bodes
- Developing of Building Energy Management Systems
- Implementation of Electric Vehicle Policy-2019
- Introducing Fuel Economy Standards
- Developing Thermal Utilities Optimization Program
- Improving EE in Electrical Systems
- Introducing new EE Technologies in Agri-food systems
- Water, Energy and Food Security Nexus
- Transformer and LT Capacitor Program
- Heat Rate Assessments
- Installation of Smart Meters
- Implementing Power Factor Improvement Programs

Sectoral Distribution of Energy Saving 3 MTOE by 2025
New Dimensions of Mitigation Actions in Energy Sector

• National Energy Efficiency and Conservation Act- 2016
• NTDC Expansion Plan
• Renewable Energy targets until 2030
• Electric Vehicle Policy- 2019
• Transport Policy- 2018
• Pakistan Green Buildings Energy Codes- 2020 (Revised)
• Zig-Zig Technology for Brick Kiln
• Building Energy Audits
• Approval of Carbon Pricing Mechanism
Climate Action Plans - Challenges

- Understanding and assessment necessary for selecting and planning NAMAs is largely still missing in Pakistan
- NAMAs submitted to UNFCCC NAMA Registry, out of 8 submitted, 6 are still seeking support
- Delays in the Preparation of Biennial Update Report (BUR)
- Some lesson from NAMAs
  - Data availability
  - Industry awareness
  - Government engagement
- Financial grants, technical assistance, technology development and transfer and capacity building
- Financial and technical constraints do not permit realization of the full mitigation potential
Climate Action Plans- Challenges

- Climate change-related expenses already take up a significant portion of the Government’s budget
- Matching economic growth with population increase has historically remained a challenge for successive governments
- The voluntary nature of NDCs and not being fully legally binding posses threat to achievement of targets as transfer of funds are not ensured
- Knowledge gaps on the effects of INDC targets on socio-economic development
- Private Sector hesitant to participate in mitigation activities
- Inter-provincial coordination
Climate Action Plans - Opportunities

• NAMA as a driver to implement NDCs - as a Driver for Sustainable Development
• Catalysing internationally transferred mitigation outcomes
• Public Private Partnership - enhancing carbon sinks and involving in carbon credits
• Institutional arrangements
• Ensure all stakeholders have ownership in the debate
• Research financial schemes and actively involve local financial institutions
• Trained professionals
• Smart allocation of resources for successful implementation of mitigation and adaptation measures
• Consider the role of national funds and private investment
Way Forward

• Mainstreaming climate-related actions into national budgets and developing funding strategies as part of NDC implementation plans is of great importance

• Addressing adaptation measures as priority-disaster preparedness

• The government would need to approach foreign governments and multilateral funds

• Need for harmonizing national and sub-national policies and synergizing the action agenda so that considerations of climate change can be incorporated into over-arching development planning in a coherent manner

• Monitoring & Transparency of NDC Progress
Thank You!