Climate Change Policy for Punjab

Environment Protection Department,
Punjab

July 2016
National and Provincial Climate Change Policies

- Tailored to sectoral requirements
- Additional Chapters specific to provincial needs
- Structure of National Climate Change Policy
- Consultative Process

Provincial Climate Change Policy of Punjab
Developing Climate Change Policy and action plans for Punjab

Objective:

- To draft the **provincial climate change policy** document with specific sectoral policy recommendations and mitigation and adaptation measures to cope with abnormal **climate changes** in Punjab.
Steering Committee

- Approve work plan for policy development process
- Oversee that policy measures tackle climate change impacts
- Periodic review of progress report of WG
- Identification of focal points within departments for liaison
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Working Group

- Draft Climate Change policy with relevant line departments
- Coordination with all concerned Government departments for support and information
- Follow guidelines given by SC
- LEAD will provide technical expertise
- Support SC
- Prepare briefing papers
- Prepare progress report for SC
Policy Development Process
Process for Climate Change Policy formation

1. Project Inception Meeting with EPA and P&D
2. Research Studies
3. One-on-one Interviews
4. Draft of the Climate Change Policy
5. Internal Review and Feedback from Project Advisory Committee
6. Submission of the draft of Climate Change Policy to Working Group
7. Presentation of the draft to the Steering Committee for critical feedback
8. Finalization of Policy
9. Dissemination
Policy Development Process

- Policy development process
- Primary data collection –
  - One on one meetings
- Secondary data collection –
  - Situation analysis
  - Stakeholder mapping
  - Literature Review
- Research studies
  - Energy, SDGs, Gender, Urban resilience, DRR, Food security, water, and low carbon development
- Stakeholders
- Focal points for Climate Change
- Capacity Building
- Utilizing LEAD expertise
- Analysis of other National Climate Change Policies
One on One Interviews

Departments

- Planning and Development Department
- Energy Department
- Environment Protection Department
- Transport Department
- Irrigation Department
- Forestry, Wildlife and Fisheries Department
- Provincial Disaster Management Authority, Punjab
- Agriculture Department
- Livestock and Dairy Department
- Industries Department

Interview Structure

- Roles and responsibilities of each department
- Impacts of Climate Change on the sector
- Contribution of sector to Climate Change
- Taking Climate Action
- Supporting Implementation
- Integrated Effort on MEAs
Research Studies

- Energy
- Sustainable Development Goals
- Urban Resilience
- Water
- Food Security
- DRR and Vulnerability Issues
- Gender
- Low Carbon Development

Policy relevant

Province specific
Capacity Building Event

- Urban Resilience
- Food Security and Agriculture
- Energy and Low Carbon Development
- Contemporary Water Issues of Pakistan: A Regional Perspective
- Climate Change and Development
- Global Financing opportunities for Climate Change Interventions
- Strengthening inter-sectoral linkages
- Climate Change Policy framework of Pakistan
- SDGs to Climate Change
Structure of the Climate Change Policy

1. **Introducing Climate Change Impacts**
   - Pakistan
   - Punjab

2. **Adaptation**

3. **Mitigation**

4. **Supporting policy practice**
   - Awareness
   - Technology transfer
   - Education
   - Finance
   - Capacity building
Sectoral Span of the Climate Change Policy

Agriculture

Energy

Disaster Preparedness

Socioeconomic Measures, poverty, and Gender

Health

Biodiversity, Wildlife, Fisheries and Forest

Transport

Urban Planning

Industries

Waste

Water Resources and Irrigation
Climate Change Adaptation and Mitigation

Recommended Policy Measures

- Research
- General Management
- Technology Transfer
- Capacity Building and Training
- Risk Management
- Awareness Raising
- Monitoring and Evaluation
- Reforms in Governance
## Climate Change Policy Implementation

<table>
<thead>
<tr>
<th>Climate Change Centre</th>
<th>Green Fund</th>
<th>Climate Action</th>
<th>Linking ADPs to SDGs</th>
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NAMA Renewable Energy Solutions for Sialkot’s Industrial Sector

Feasibility Assessment Stage

July 2016
Sialkot’s industry will benefit from readily available, affordable and nimble renewable energy solutions

**Drivers**
- Sialkot is an important industrial hub
- The energy crisis is imposing heavy costs
- GHG emissions will increase if not addressed now

**Barriers**
- Sialkot’s location has poor wind energy resources
- Hydroelectricity is accessible, though insufficient
- Solar potential is good, however grid-scale costs are large

**Enabling Conditions**
- PV panels on the roof are a feasible option
- PV enjoys government and stakeholder support
- Pakistan’s legislation provides a solid legal framework for this renewable energy solution
Sialkot is one of the most industrious and progressive cities in Pakistan

- Sialkot 11,000 factories export USD 800 million in manufactured goods
- In 2007 Sialkot self-funded and built an international airport
- Sialkot also built the roads and solar powered street lighting
Black outs result in 10% loss of revenues for the city, which relies on diesel for 20% of electricity

- Sialkot factories face up to 6 hours of black outs per day
- Diesel generators are used when the grid is not providing enough electricity
- Diesel is disruptive and prices are 45% higher than grid prices
- Diesel costs are passed on to the customer, often resulting in lost business
Diesel is up to 40% of the city’s industrial sector greenhouse gas emissions.

Sialkot’s yearly Industrial GHG Emissions from electricity consumption:

- GHGs from Diesel: 38%
- GHGs from Grid Electricity: 55%

Emission Factors (tCO2/MWh):
- Grid Electricity: 0.57 tCO2/MWh
- Diesel: 0.88 tCO2/MWh

Total yearly Industrial GHG Emissions: 136,000 tCO2-eq
Evaluating technical conditions first, Sialkot is located in an area with poor conditions for wind power. Barriers include poor wind power density at 50m (W/m²) ranging from 0 to 200, wind speed at 50 m (m/s) from 0.0 to 5.4, distance, transmission costs, and the time required for a large-scale project.

Source: National Renewable Energy Laboratory, 2009
Sialkot’s rivers are not large enough to provide industry with the required electricity.

**Barriers**
- Insufficient power
- Transmission costs
- Large-scale project’s time

**Sialkot’s Hydro Resources**

- **Marala Hydropower Project**
  - 7.64 MW

- **Chianwali Hydropower Project**
  - 5.38 MW

**Total: 13 MW**

Capacity needed to provide 216 GWh/yr for industry = 92 MW
Sialkot has good conditions for solar energy, costs for a grid-scale solar power plant are prohibitive

Multi-year average sum (2000-2012) of Global Horizontal Irradiance (GHI) for Pakistan in kWh/m² (not validated preliminary result!)

- Solar installed capacity needed to provide 216 GWh/yr for industry = 500 MW
- Price per MW of solar: USD 1.3 million
- Total project costs: USD 650 million
- Large capital costs
- Transmission costs
- Large-scale project’s time

PV roof top panels is the most feasible renewable energy technology for Sialkot’s

PV panels are scalable and affordable

Suppliers of PV panels have grown exponentially in the last 5 years

<table>
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<tr>
<th>Surface (m²)</th>
<th>PV Gen (kWh/yr)</th>
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<tbody>
<tr>
<td>100</td>
<td>22,000</td>
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<tr>
<td>350</td>
<td>53,000</td>
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<tr>
<td>1,000</td>
<td>153,000</td>
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</table>

Average Savings USD/yr: 14,500
Average Payback years: 3.7

Source: Meeting with REAP

Members of the Renewable and Alternative Energy Association of Pakistan

2010 - 2015
The NAMA enjoys backing from a broad range of stakeholders

Key government agencies

- Government of Pakistan
  Ministry of Climate Change

- Government of Punjab
  Punjab Power Development Board

Industry stakeholders in Sialkot

- Pakistan Chamber of Commerce & Industry

- Small & Medium Enterprise Development Authority

- Pakistan Leather Garments Manufacturers & Exporters Association

Policy & Governance Regime

Existing enabling policies
- National Climate Change Policy + implementation framework
- Alternate & Renewable Energy Policy
- Strategic Trade Framework

Why industry has still not picked it up?
- Net-metering
- (Perception about) equipment performance
- Large payback
- After-sale service & secondary market
- Access to Finance