Upper Indus Basin Network
Technical Working
Group-6

Adaptation strategies at local level-water use and management and socio-economic factors

Group Members

Dr. Bashir Ahmed, PARC
Dr. Bahadar Nawab Khattak, CIIT
Mr. Luca Listo, Ev-K2-CNR (Group lead)
Mr. Muhammad Zafar Khan, KIU (Group lead)
The Passu Workshop

Tasks:
• Assessment in terms of: land uses (land cover maps), vulnerability, capacity (at local and intuitional levels), and analysis of socio-economic conditions (included an assessment of local livelihoods) at village/valley level; identification of best practices and local adaptation practices.

Key outputs:
1. Development of an adaptation plan
2. Institutional networking;
3. Local indigenous practices scaled up of and/or best practices based on new technologies demonstrated.

Success indicators:
1. Awareness raised;
2. Institutional arrangements;
3. Adoption of Adaptation plan by Provincial and local Government;

Working arrangements:
Using both a top down and bottom up approach in order to involve local communities and provincial administration of Gilgit Baltistan for the elaboration, acceptance and implementation of the Adaptation plan.
Addressing Poverty-Environment Nexus for building resilience of local communities -examples from SEED Project for CKNP-

Muhammad Zafar Khan, KIU and Luca Listo, Ev-K2-CNR
Central Karakoram National Park
Major livelihoods in CKNP Region

- Agro-pastoral livelihoods
- World-class tourism and mountaineering opportunities
- Mining and minerals
Encroachment into natural habitats

Deforestation

Depletion of rangelands

Erosion of vulnerable catchments (flood plains, slopes)

Poor state of built environment

Over harvesting of natural resources

Dependence on natural Environment/Climate vulnerabilities

Lack of alternative sources

Enviro Degradation, Hazards, Poverty
Some examples of addressing Poverty-Environment Nexus in CKNP

Under

Social, Economic & Environmental Development Project for CKNP
Community-based conservation planning
Participatory Conservation and Development Plans for more than 20 valleys in CKNP
Afforestation to protect forests and vulnerable catchments

Plantation of 500,000 plants on communal lands over more than 400 ha in 20 valleys and demonstration of FES in one valley
Livestock and Pastures Management

- Livestock breed improvement campaigns
- Livestock vaccination
- Training of herders in improved animal husbandry
- Grazing management
- Cultivation of fodder crop
- Livestock insurance schemes
- Improvement of corrals/cattleshed
Improved agricultural practices

- Value chain development
- Farmers trainings
Documentation of customary laws and traditional resource use patterns and practices

Conducted in four valleys (more than 20 villages)

- Demography
- Water use and management
- Pastures and pastoralism
- Livestock rearing
- Agriculture
- Forests and forestry
- Mining
- Tourism
Way forward

- Empirical and action research engaging KIU and other stakeholders
- Integration of climate adaptation work in Valley Conservation and Sustainable Development Plans, following a valley level vulnerability and capacity assessment
- Strengthening the networks of CBOs and DCCs
- Demonstration of small scale adaptation initiatives
- Enabling policies at procedures
- Dissemination (publications, conferences)
GOP Initiative under
CHINA - PAKISTAN ECONOMIC CORRIDOR
(CPEC)
AGRO-BUSINESS CENTRES DEVELOPMENT OPPORTUNITIES ON CHINA - PAKISTAN ECONOMIC CORRIDOR (CPEC)

Pakistan Agricultural Research Council
Ministry of National Food Security & Research
<table>
<thead>
<tr>
<th>No.</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Livestock, Dairy products</td>
</tr>
<tr>
<td>2</td>
<td>Fish Farming/Feed</td>
</tr>
<tr>
<td>3</td>
<td>Cereals &amp; Products</td>
</tr>
<tr>
<td>4</td>
<td>Vegetables, Fresh &amp; Processed</td>
</tr>
<tr>
<td>5</td>
<td>Poultry/Feed</td>
</tr>
<tr>
<td>6</td>
<td>Fruits Fresh, Dried &amp; Processed</td>
</tr>
<tr>
<td>7</td>
<td>Sugar, Gur &amp; Molasses</td>
</tr>
<tr>
<td>8</td>
<td>Cut Flower Production</td>
</tr>
<tr>
<td>9</td>
<td>Spices</td>
</tr>
<tr>
<td>10</td>
<td>Animal Feed &amp; Fodder</td>
</tr>
<tr>
<td>11</td>
<td>Tobacco Industry</td>
</tr>
<tr>
<td>12</td>
<td>Animal Skin Processing</td>
</tr>
<tr>
<td>13</td>
<td>Seeds Production</td>
</tr>
<tr>
<td>14</td>
<td>Pulses</td>
</tr>
<tr>
<td>15</td>
<td>Cotton Processing</td>
</tr>
<tr>
<td>16</td>
<td>Wool Cleaning &amp; Processing</td>
</tr>
<tr>
<td>17</td>
<td>Plants, Nurseries, &amp; Products</td>
</tr>
<tr>
<td>18</td>
<td>Veg.oil, Essential oils etc</td>
</tr>
<tr>
<td>19</td>
<td>Olive Production/Processing</td>
</tr>
<tr>
<td>20</td>
<td>Honey</td>
</tr>
</tbody>
</table>

Agricultural Commodities in Different Agro-Ecologies

- **WMC** (Wet Mountain Corridor)
- **HMC** (High Mountain Corridor)
- **NIC** (Northern Irrigated Corridor)
- **DMC** (Dry Mountain Corridor)
- **SBC** (Sulaiman Belt Corridor)
- **CBC** (Coastal Belt Corridor)
- **TC** (Thal Corridor)

Proposed Pak-China Trade Corridor
(High Mountain Corridor)
Potential Commodities and enterprises
Key Initiatives (Investment/ Enabling Environment)

☐ Subsidizing, training and demonstration of efficient irrigation technologies, water harvesting & watershed improvement measures (WWM)
☐ Establishment of clean fruit & vegetable nurseries for hybrids and certified seed production
☐ Fruit harvesting, grading and sorting technology and training
☐ Training of service providers for new recommended technological packages
☐ Improve efficient storage facilities and product storage
☐ Primary processing and value addition with product diversification at household and small scale processing for fruits and vegetables
☐ Soft-loans for modern horticultural business enterprises
Fruit Sector Value Chain & Enterprises

- Nurseries
- Production
  - Harvesting & Processing
    - Value Addition & Prod. Develop
      - Juices
      - Jams
      - Jellies
      - Candies
      - Cosmetics
      - Essential Oils
      - Dry Fruits
    - Marketing
      - Certification & Branding
      - International & National
- Investment opportunity
## Investment Strategies for G-B

<table>
<thead>
<tr>
<th>Public Investment</th>
<th>Rate (Rs. million/acre)</th>
<th>Area/size (Acres)</th>
<th>Total Rs. Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving and promotion of efficient existing irrigation system</td>
<td>0.1</td>
<td>30000</td>
<td>3000</td>
</tr>
<tr>
<td>Development of efficient irrigation system for new areas</td>
<td>0.1</td>
<td>12000</td>
<td>1200</td>
</tr>
<tr>
<td>Water harvesting &amp; watershed improvement measures (WWM)</td>
<td>0.03</td>
<td>30000</td>
<td>900</td>
</tr>
<tr>
<td>Training of service providers for new recommended technological packages</td>
<td>0.2</td>
<td>21</td>
<td>4.2</td>
</tr>
<tr>
<td>Establishment of fruit nurseries</td>
<td>0.5</td>
<td>21</td>
<td>10.5</td>
</tr>
<tr>
<td>Fruit harvesting an post harvest technologies training</td>
<td>0.2</td>
<td>21</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Sub–Total</strong></td>
<td></td>
<td></td>
<td><strong>5118</strong></td>
</tr>
<tr>
<td>Soft-loans for modern horticultural business enterprises</td>
<td>2</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td><strong>Private Investment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Scale Processing Units</td>
<td>3</td>
<td>21</td>
<td>63</td>
</tr>
<tr>
<td>Efficient facilities for storage of products</td>
<td>5</td>
<td>21</td>
<td>105</td>
</tr>
<tr>
<td>Packaging</td>
<td>2</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td><strong>Sub–Total</strong></td>
<td></td>
<td></td>
<td><strong>210</strong></td>
</tr>
<tr>
<td><strong>Grand–Total</strong></td>
<td></td>
<td></td>
<td><strong>5370</strong></td>
</tr>
</tbody>
</table>
## Economical Potential:
### Potential Income Increase via Enabling Environment in GB

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Production (Tons) (2)</th>
<th>Harvest Losses (Tons) (3)</th>
<th>Income (4)</th>
<th>Saving in Losses (5%)* (6)</th>
<th>Vertical Potential Increase** (col 4 x 30%) (5)</th>
<th>Horizontal Potential Increase (50%)** (col4+col5+col6)x50%</th>
<th>Total Potential increase in income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apricot</td>
<td>60305</td>
<td>16804</td>
<td>6838</td>
<td>342</td>
<td>2051</td>
<td>3419</td>
<td>5812</td>
</tr>
<tr>
<td>Apple</td>
<td>24442</td>
<td>4213</td>
<td>2661</td>
<td>133</td>
<td>798</td>
<td>1331</td>
<td>2262</td>
</tr>
<tr>
<td>Mulberry</td>
<td>18225</td>
<td>6585</td>
<td>2480</td>
<td>124</td>
<td>744</td>
<td>1240</td>
<td>2108</td>
</tr>
<tr>
<td>Walnut</td>
<td>6552</td>
<td>135</td>
<td>2080</td>
<td>104</td>
<td>624</td>
<td>1040</td>
<td>1768</td>
</tr>
<tr>
<td>Cherry</td>
<td>1862</td>
<td>257</td>
<td>845</td>
<td>42</td>
<td>254</td>
<td>423</td>
<td>718</td>
</tr>
<tr>
<td>Almond</td>
<td>883</td>
<td>3</td>
<td>721</td>
<td>36</td>
<td>216</td>
<td>361</td>
<td>613</td>
</tr>
<tr>
<td>Total</td>
<td><strong>112269</strong></td>
<td><strong>27997</strong></td>
<td><strong>15625</strong></td>
<td><strong>781</strong></td>
<td><strong>4687</strong></td>
<td><strong>7814</strong></td>
<td><strong>13281</strong></td>
</tr>
</tbody>
</table>

* Average losses are 10%

** Enabling environment

*** Expansion in area under fruits via Enabling policies (subsidies, soft loans, zero tax)

Fruits Data: 2004-05
Way Forward

• A detailed feasibility is required for each sub zone through a team of multidisciplinary professionals to ascertain tradable potentials

• The capacity of existing agro-base industry needs to be strengthened besides establishing new ones along the CPEC

• The capacity of local human resource and agricultural service providers needs to be strengthened and enhanced keeping in view the new trends in technological advancement.

• Local manpower should be given preference in undertaking future agri-business activities.

• The infrastructure of main markets along the corridor needs to be upgraded according to the future requirements of agri-business in the country
THANK YOU
For your attention