Mainstreaming disaster risk management and community based adaptation

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Structure of presentation

Background
Key features of CBA
Case sample
Lessons
Two global challenges for agriculture
Food Security and Climate Change

- Agriculture provides jobs for 1.3 billion small farmers and landless workers and is main source of livelihood of 86% of rural people in developing countries
- Over 925 million people currently undernourished
- By 2050 we need to feed an additional 3 billion people
- 70% growth in agriculture supply is needed by 2050 at world level, 100% in developing countries
- Climate change adds another layer to this challenge

---> Adaptation (and Mitigation) are Key
2.2 billion people rely on agriculture in Asia.

East Asia and Pacific: yields in 2050 may decline from 2000 levels by up to 20% (rice), 13% (soybean), 16% (wheat) and 4% (maize) because of climate change; threatening food security of 1.6 billion people.

Cambodia, Lao PDR, Myanmar, Nepal, Philippines, Vietnam and Pacific SIDS countries are among the most vulnerable to climate change;

Asia is the most disaster-affected region worldwide, accounting for about 89 percent of all people affected by disasters.
Climate Change Adaptation & Disaster Risk Reduction: Merging agendas

Linkages between climate change and disaster risks:

- Climate change will increase the frequency and intensity of disasters; and
- Disaster risk reduction is a natural entry point for climate change adaptation
- DRR institutional structures exist in most countries to build on.
Mainstreaming Adaptation to Climate Change into Development

Local Adaptation Processes
- Enhancing Resilience
  - Structural
  - Non-Structural
  - Behavioural

Enhanced Government Policies & Services for CCA
- Creating Incentives for Adaptation at Farm-Level
- Capacity Development Climate Resilient Infrastructures Technology Transfer & Dissemination

Reinforcing adaptive capacity
- "Autonomous adaptation"

Catalyzing innovative adaptive capacity
- "Planned adaptation"
Institutional Capacity Development

Linking bottom up & top down perspectives

- Integrating needs and services from national to local levels and vice versa
- Embedding responsibilities within existing technical agencies
  - Strengthening and Linking research institutions, extension & farmers
  - Linking institutional set up for CCA and DRR
- Institutional mechanism for
  - monitoring and validation of good practice options
  - needs-based information generation & dissemination

→ Promoting Local action
Catalyzing Local Action for CCA/DRR

**Approach**

- Assess current vulnerability, risks and local livelihoods
- Assess future climate risks compared to current
- Social mobilization and capacity development
- Identify, validate & test good practice options
- Design location-specific adaptation plans
- Up-scaling and mainstreaming in (sectoral) development plans

**Guiding principles**

- Building on what already exists
- Focus on small holders & poor
- Iterative action research & planning
- Cross-sectoral livelihood perspective

Adaptation: The context of Vulnerability

PATH A

Reduce Vulnerability to Climate Change

Vulnerability to Climate Change

Vulnerability to other factors

Vulnerability to CC

Vulnerability to other factors

Integrating CC Adaptation into Sustainable Development

Vulnerability to Climate Change

Vulnerability to other factors

CC related vulnerabilities are part of overall vulnerability

PATH B

Reduce Vulnerability to Non-Climate Change Factors
Formalizing local action planning

- Based on risk and vulnerability analysis
- Cross-sectoral & multi-hazard
- Livelihood enhancement + climate resilience
- Blending local & external know how
- Participatory and transparent processes
- Include structural and non structural measures
- Baseline and simple M &E indicators
- Clear responsibilities, accountability and follow up mechanisms
Promoting hazard, location and target group specific adaptation options in AG

Blending local & scientific knowledge

- Water management/use efficiency
- Cropping patterns and schedules
- Hazard tolerant varieties
- Land & Soil management
- Livestock and grazing management
- Pest/disease management
- Seeds systems and storage
- Energy use
- Post harvest practices

Develop option menus for now and the future
Extension and awareness raising

Building on existing tools and methods

- Orientation meetings
- Farmer field schools
- Folk songs & dramas
- Demonstration rally
- Demonstrations
- Exchange visits
Monitoring & evaluation and documentation of good practices

1. Agro-economic suitability
   +

2. Economic and social benefits
   +

3. Increase in CC resilience
   *Subset: Environmental benefits*
   +

4. Mitigation potential

Livelhood enhancement

Increasing Climate resilience

Basis for learning “upwards” and replication
Need for complementary measures

Avoid creating project “fed” small islands of CBA

- CBA: an element of a larger institutional construction
- Support services
- Climate proof/resilient infrastructures
- Livelihood diversification
- Financial mechanisms for risk transfer

Sectoral Action Plans for DRR/CCA

==> Integrate in development planning
Key requirements to upscale and mainstream CBA

- Political will and appropriate policy frameworks to promote local action
- More awareness
- Effective institutions (at all levels)
- Mechanisms for multi-disciplinary & cross-sectoral coordination (national DRR platforms ??)
- Improved technical & managerial capacities
- Iterative, and flexible planning cycles
- Simple but efficient M &E systems to identify location specific good practices for climate resilient interventions
Sample: Community Based Climate Risk Management in Juye County (China)

- Farmer's cooperatives (FC) capacitated as partners in DRR/CCA
- Early Warning System and information dissemination mechanism
- Drainage and irrigation infrastructures improved
- Dissemination of newly released wheat and cotton varieties/cultivation techniques (drought, water logging and pest tolerance)
- Formulated fertilization for soil improvement
- Gender Mainstreaming
- Climate Risk Management Plans (Villages & County) included into overall county development planning

Disaster Risk Reduction-Promoting Stress Tolerant Wheat Varieties: “Jimai 21 and 22”

Field Demonstration (above)

Increasing tolerance to drought and cold

New Wheat Varieties: Jimai 21 and 22

Wheat-Cotton Double Cropping and Ridge Planting

Technical Training (below)

Comparison between stress-tolerant wheat varieties tested under drought conditions (2009) with long-term average productivity of previously used variety (Lumai 14)

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Yield (kg/ mu)</th>
<th>Gross income (RMB/ mu)</th>
<th>Net income (RMB/ mu)</th>
<th>Profit Comparison (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jimai 21</td>
<td>536.7</td>
<td>1073.4</td>
<td>623.4</td>
<td>+ 9.4</td>
</tr>
<tr>
<td>(n=148)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jimai 22</td>
<td>543.6</td>
<td>1087.2</td>
<td>637.2</td>
<td>+ 10.8</td>
</tr>
<tr>
<td>(n=157)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>490.5</td>
<td>981</td>
<td>572</td>
<td>-</td>
</tr>
</tbody>
</table>

n: number of households participating in the field trials

Locally adapted drought and disease tolerant wheat varieties contributed to enhanced hazard resilience and increased farmers’ income.
Enhanced Water Management: An Essential Aspect of Disaster Risk Management

Improvement of drainage and irrigation infrastructure and regular drainage canal cleaning reduce the impacts of seasonal floods and droughts!

The culvert construction and cleaning of connected drainage canals prevented local flooding in 2008 and 2009, in spite of heavy summer rainfalls. Even lower rainfall in previous years had regularly caused flooding in adjacent villages.

Water management project benefits

<table>
<thead>
<tr>
<th>Projects</th>
<th>Benefited Area (mu)</th>
<th>Benefited Population (people)</th>
<th>Engineering Costs (1,000 $)</th>
<th>Annual Economic Benefits (1,000 $/Y)</th>
<th>Time of Benefit (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Culvert</td>
<td>6000</td>
<td>5000</td>
<td>70.3</td>
<td>259.6-389.3</td>
<td>15-25</td>
</tr>
<tr>
<td>Canal Cleaning</td>
<td>1460</td>
<td>4200</td>
<td>14.1</td>
<td>92.8</td>
<td>3-5</td>
</tr>
</tbody>
</table>
Investment planning for CBA

• Promote investments for CBA as part of overall national strategies for CCA

• Investment: capacity development, institutional strengthening/coordination and infrastructures

• Promote integrated local action plans: combining nonstructural & structural measures/investments
  – Small scale infrastructure (elevated roads & houses, water saving technologies, irrigation, drainage, shelters)
  – Capacity development
  – Transparent participatory inclusive planning processes
  – M & E and upwards learning processes
Lessons: The way forward

• Climate variability is a most suitable entry point to initiate climate change adaptation processes at local levels
• From an AG perspective: address DRR & CCA together, and as integrated part of development;
• CBA is suitable to promote mainstreaming of adaptation in AG sectors in particular with focus on the vulnerable
• Ensure upwards linkages and services to mainstream CBA
• CBA: Platform for action research / learning and iterative planning along the agricultural clock (not in long term dimensions of CC);
Lessons: The way forward

- There are no “one fits all” local practices; plan context specific
- Poor farmers adopt only what benefits them;
- Do not underestimate the flexibility of farmers;
- Documentation is key; learning upwards: framework conditions may/will change
- Single most needed measure: more reliable / communicated seasonal weather forecasting translated into specific seasonal advice on crop selection and water management