CLIMATE CHANGE AND AGRICULTURAL POLICIES

How to mainstream climate change adaptation and mitigation into agriculture policies?

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Climate change and agricultural policies

Part One
1. Introduction and concepts
2. Agriculture climate Mitigation potential
3. The International Policy Background (Kyoto Protocol, UNFCCC)

Work group

Part Two
1. Presentation of Climate adaptation and mitigation policy options
2. From mainstreaming to field implementation
Main objectives

to **support** national policymaking in agriculture, rural development and food security in light of climate change

to **illustrate** the scope of climate change in present and future agriculture policies and programmes

to **help** policy makers incorporating climate change adaptation in agricultural policies relating to production, livelihoods and the use of water, land and capital resources

To help policy makers to take advantage of the potential for climate change mitigation within the sector
INTRODUCTION AND CONCEPTS OF ADAPTATION, RESILIENCE AND MITIGATION
Climate Change Adaptation:

spontaneous or organised processes by which human beings and society adjust to changes in climate by making changes in production systems and social and economic organisation in order to reduce vulnerability to changing climatic conditions

Adaptation in agriculture:

- to improve the resilience of agriculture
- to enhance its capacity to deal with climate change conditions
- to reduce the vulnerability of agriculture to changing climate
Mainstreaming:
it refers to the incorporation of climate change considerations into established or ongoing development programs, policies or management strategies, rather than developing adaptation and mitigation initiatives separately.

Resilience:
capacity of a complex system to absorb shocks while still maintaining function, and to reorganize following a disturbance (from dynamic of ecological systems).
Climate Change Mitigation

- actions to **reduce** and avoid GHG emissions and to **increase** the sequestration of atmospheric Carbon through absorption by carbon sinks
Many of the technical options are readily available and could be deployed immediately:

- Reduction in the rate of deforestation
- Reduction in the rate of forest degradation,
- Adoption of improved cropland management practices

Reducing emissions of 
CO₂

- Improved animal production,
- Improved management of livestock waste,
- More efficient management of irrigation water on rice paddies

Reducing emissions of 
CH₄ and N₂O

- Conservation farming practices,
- Improved forest management practices,
- Afforestation and reforestation,
- Agroforestry,
- Restoration of degraded land

Sequestrating carbon
Synergy between climate adaptation and mitigation in agriculture

<table>
<thead>
<tr>
<th>Adaptation targets</th>
<th>Double-target actions</th>
<th>Mitigation targets</th>
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<tbody>
<tr>
<td>cropping systems resilient to drought and water stress</td>
<td>new cropping technics</td>
<td>enriched carbon soils</td>
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<tr>
<td>reduce flood recurrence and improve resilience to natural disasters</td>
<td>Adequate irrigation</td>
<td>reduced CH4 emissions</td>
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<td>diversify rural income and strengthen HH economic resilience</td>
<td>Land-use management</td>
<td>rehabilitated land in watersheds</td>
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<td>Increase protection against disaster</td>
<td>Labour-intensive public works</td>
<td>Reduced deforestation and slash and burn practice</td>
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<td>Self help groups (savings, stores)</td>
<td>Reforested areas improved pasture management</td>
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AGRICULTURE CLIMATE MITIGATION POTENTIAL
LULUCF sector as a driver

LULUCF
22% of CO₂
55% of CH₄
80% of N₂O₁

Responsible for ~ 1/3 of total GHG emissions
LULUCF sector as a driver

...But with an important mitigation potential

89% can be achieved by soil C sequestration
Why carbon farming?

Soil Carbon fixing as a quick winner with immediate impact.
Triple win for carbon sequestration

- arises large mitigation potential of agriculture (local and global carbon value)
- increases cropping systems and watershed climate shocks resilience (adaptation)
- improves agriculture performances (yield increase, input saving, water saving) and incomes
WORK IN GROUP
Work in group

- **Questions**
  - Identify a set of appropriate policy options that would address adaptation and mitigation to climate change as well as other related issues

- **Method**
  - Participants brainstorm in groups of 4-5 and prepare answers on table (10 mn)
  - Review of results (5 mn)

- **Time 15 mn**
PRESENTATION OF CLIMATE ADAPTATION AND MITIGATION POLICY OPTIONS
Four adaptation policy panels

1. Policies to encourage adapted crop development and farming practices
2. Policies on irrigation and water resource management
3. Crop and income loss risk management policies
4. Disaster risk management policies (flood, drought...)
Encourage adapted crop development and farming practices

- **Diversify**
  - crop types and varieties, including crop substitution,

- **Develop**
  - new crop varieties, including hybrids, to increase the tolerance, resistance and suitability (research)

- **Promote**
  - seed banks so as to help farmers diversify crops and crop varieties

- **Increase incentives**
  - To increase diversification through subsidies, taxes
Irrigation and water resource management

**Improve**
- infrastructure for small-scale water capture, storage and use
- demand management and water allocation to encourage efficiency of use (best timing and dose of irrigation)

**Develop**
- water management innovations, including irrigation, to address increasing frequency of droughts.
- schemes to reduce distribution losses of irrigation water by maintaining canals

**Innovate**
- Reuse wastewater for agricultural purposes.
- Encourage improved irrigation methods like drip and sprinkler irrigation
- Undertake research to develop crop varieties requiring little water
Disaster risk management (flood, drought...)

**Develop**
- early warning systems

**Invest**
- in infrastructure to protect against asset loss

**Protect**
- equipped areas from flood damage and maintain drainage outlets

**Support**
- the meteorological department,

**Strengthen**
- community and municipality capacities in disaster management

**Plant**
- more water-efficient and/or drought tolerant crop varieties,
Crop and income loss risk management

- **Diversify** source of household income
- Strengthen self help groups
- Establish weather/meteorological stations
- Participate in income stabilization programs
- Promote community based risk management tools to face crop failures and soaring food prices (grain banks, tontines, self help groups)
- Develop innovative risk financing instruments and insurance schemes to reduce climate-related risks
Four mitigation policy panels

- Conservation agriculture
- Reducing methane from rice paddies
- Watershed and land management
- Livestock management
Policy option for adaptation as well as for mitigation, reduces vulnerability to both excessive rainfall and drought.
Reducing methane from rice paddies

- > 140 million hectares worldwide
- The most heavily consumed staple food on earth.
- Emitting between 50 and 100 million tonnes of $\text{CH}_4$ a year
- 90% of the world’s rice is produced and consumed in Asia, 90% of rice land is flooded (IFPRI 2009).

- Periodic draining of fields
- Off-season application of rice crop waste
- Discourage straw burning
- Implement a water-saving technology as alternate wetting and drying (AWD),
- Modify water-management strategies coupled with efficient application of fertilizer
- Some rice varieties can be grown under much drier conditions ($\backslash \text{CH}_4$, = yields)

$\backslash \text{CH}_4$ should be eligible for offsets and other mitigation funding opportunities
Livestock management

**Livestock**

- Schemes to include *additives* that reduce methane formation
- Research and development to improve productivity through breeding and heifer management

**Grasslands**

- Encourage adjustments in intensity and *timing of grazing* to increase carbon sequestration in pasture lands
- Schemes to *improve pasture* quality
- Programs to *prevent degradation* of pastures
Watershed and land management

- Promote reforesting of hillside degraded areas
- Develop local watershed / land use planning through municipality and community participatory planning
- Develop schemes to improve watershed resilience building at community level
- Mobilize municipality-driven semi permanent labour intensive public works (socio-environment safety nets)
- Monitor carbon-fixing impact generated to allow Carbon funding to support such actions
FROM MAINSTREAMING TO FIELD IMPLEMENTATION
Implementation through...

Technical services, local communities and NGO

several examples of climate change adaptation being adopted in agricultural communities and regions (adaptation to drought, flooding, risk hazards)

Formulation of projects/programmes

opportunity for experts within the government, donors and international organisations.

Public policies and wide-scale public support.

Appropriate Ex-Ante Appraisal Tools to measure impact of investments on Climate Mitigation (Ex Act)
Role of donors and fundings

... Because National governments in developing countries have wide-ranging demands and constraints on agricultural policy development and implementation, mainstreaming climate change rarely becomes a priority.

Agencies or organizations from outside the country can help “climate proofing” a policy requiring stimulus, resources and expertise.

Stimulus and support for adaptation and mitigation can also come from the UN system and from international development institutions.
Conclusion

- Begin with policymaking as a driver
- Promote local entry points to test and multiply pilot experiences which will help design adequate policies
- Encourage or facilitate donor initiatives to propose innovative projects
- Simultaneously promote mainstreaming at all levels with synergic effects of self-led dynamic of local initiatives vis-à-vis public policies

... to be up-scaled up in newly formulated and on-going projects, promoting technical adaptation and mitigation options and tools to beneficiaries level.
Further readings...

- Bockel L, Smit B, 2009, Climate Change and Agriculture Policies, FAO, Easypol draft of policy guidelines
- Bockel L Thoreux M, Sayagh S, 2009, Resilience of Rural Communities to Climatic Accidents: A Need to Scale Up Socio-Environmental Safety Nets (Madagascar, Haiti). Easypol Policy Brief