

# 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

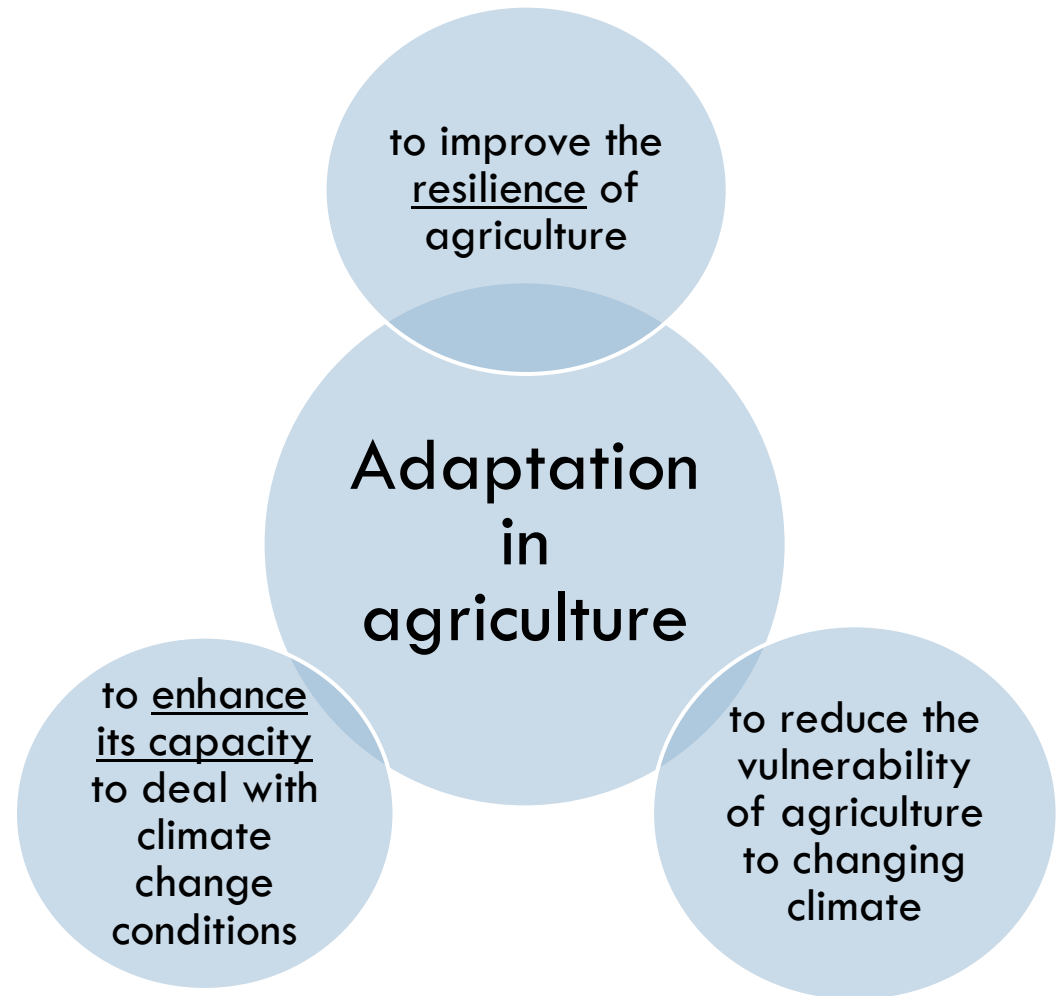
**To help policy makers to take advantage of the potential for climate change mitigation within the sector**

# INTRODUCTION AND CONCEPTS OF ADAPTATION, RESILIENCE AND MITIGATION



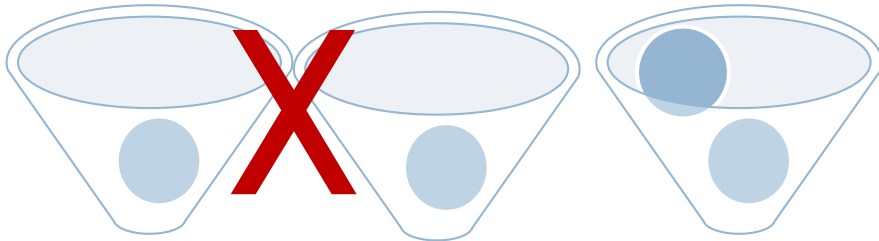
# Adaptation Concept

- **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



# Mainstreaming and Resilience

- **Mainstreaming :**  
it refers to the incorporation of climate change considerations into established or on-going development programs, policies or management strategies, rather than developing adaptation and mitigation initiatives separately.

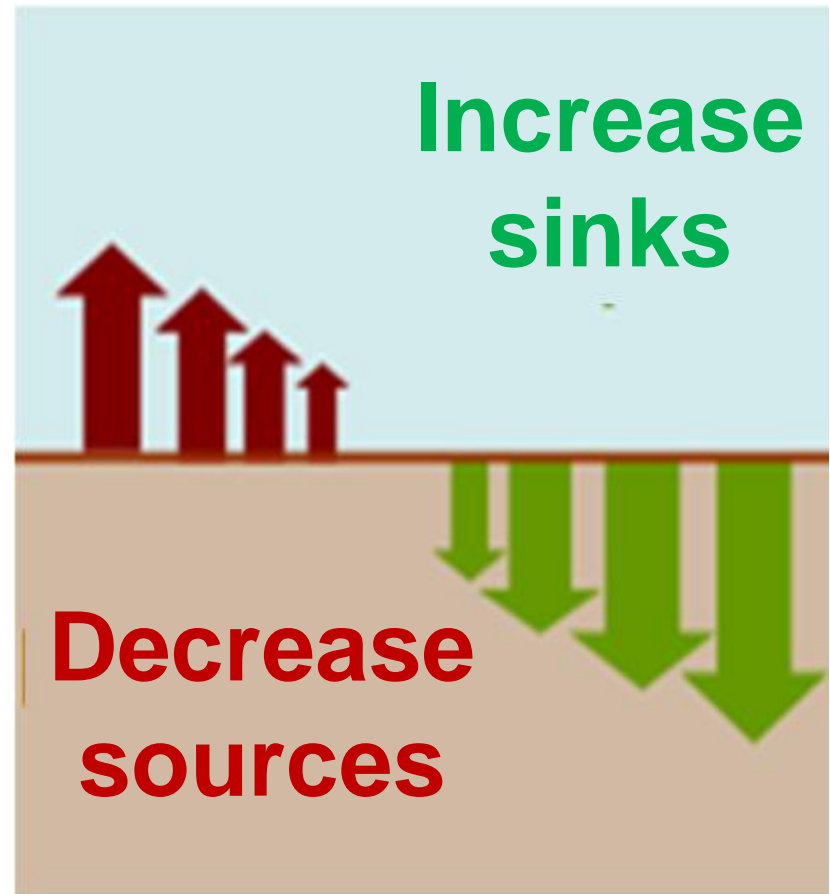


- **Resilience :**  
capacity of a complex system to absorb shocks while still maintaining function, and to reorganize following a disturbance (from dynamic of ecological systems).



# Climate Change Mitigation

= actions to reduce and avoid GHG emissions and to increase the sequestration of atmospheric Carbon through absorption by carbon sinks



# Climate Change Mitigation

- **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  
CO<sub>2</sub>



- improved animal production,
- improved management of livestock waste,
- more efficient management of irrigation water on rice paddies

Reducing  
emissions of  
CH<sub>4</sub> and N<sub>2</sub>O



- conservation farming practices,
- improved forest management practices,
- afforestation and reforestation,
- agroforestry,
- restoration of degraded land

Sequestering  
carbon





# Synergy between climate adaptation and mitigation in agriculture

## Adaptation targets

cropping systems resilient to drought and water stress

reduce flood recurrence and improve resilience to natural disasters

diversify rural income and strengthen HH economic resilience

Increase protection against disaster

## Double-target actions

new cropping technics

Adequate irrigation

Land –use management  
Labour-intensive public works

Self help groups (savings, stores)

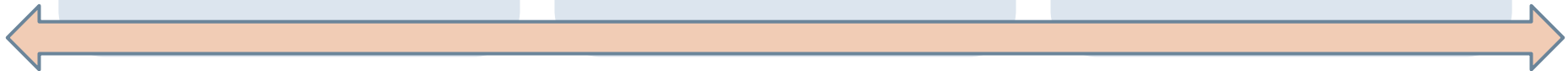
## Mitigation targets

enriched carbon soils  
reduced CH4 emissions

rehabilitated land in watersheds

Reduced deforestation and slash and burn pract

Reforested areas  
improved pasture management



# AGRICULTURE CLIMATE MITIGATION POTENTIAL



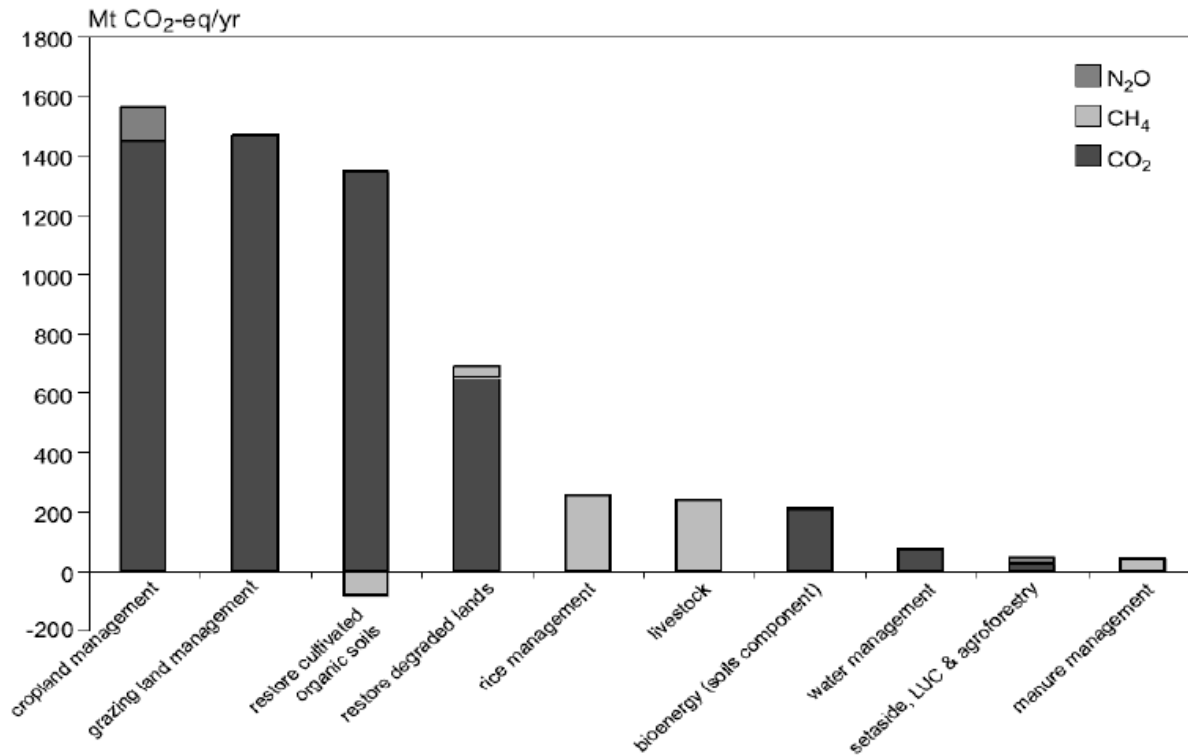
# LULUCF sector as a driver

LULUCF  
22% of CO<sub>2</sub>  
55% of CH<sub>4</sub>  
80% of N<sub>2</sub>O

**Responsible  
for ~ 1/3 of  
total GHG  
emissions**



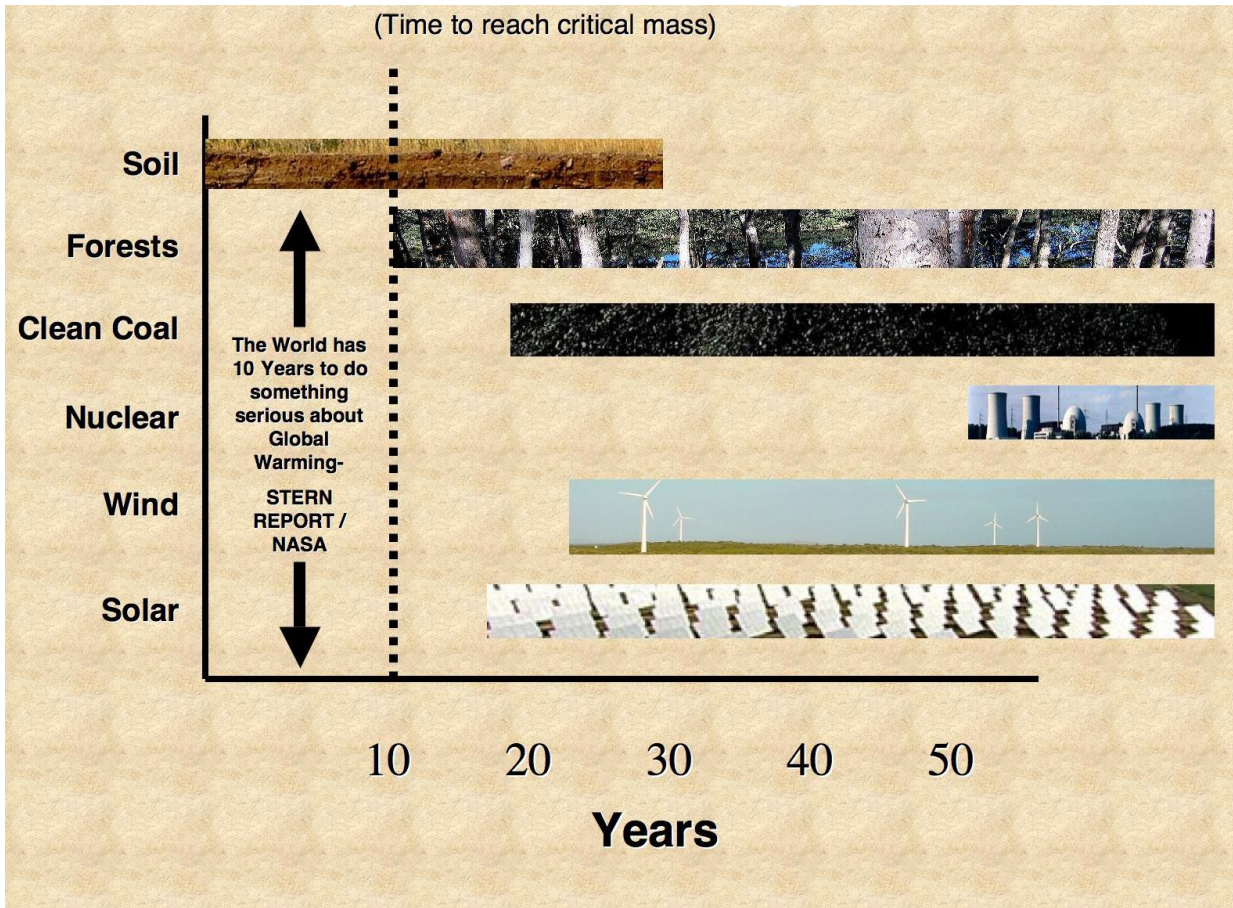
# LULUCF sector as a driver



...But with  
an important  
mitigation  
potential

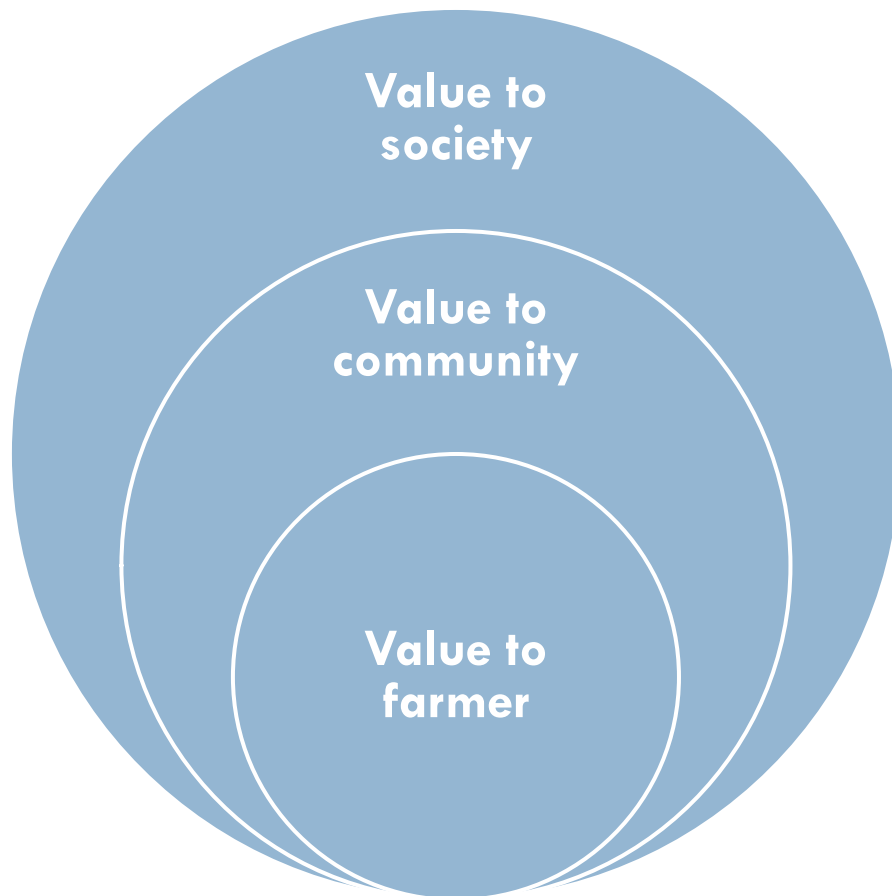
89 % can be  
achieved by soil  
C sequestration

# 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)

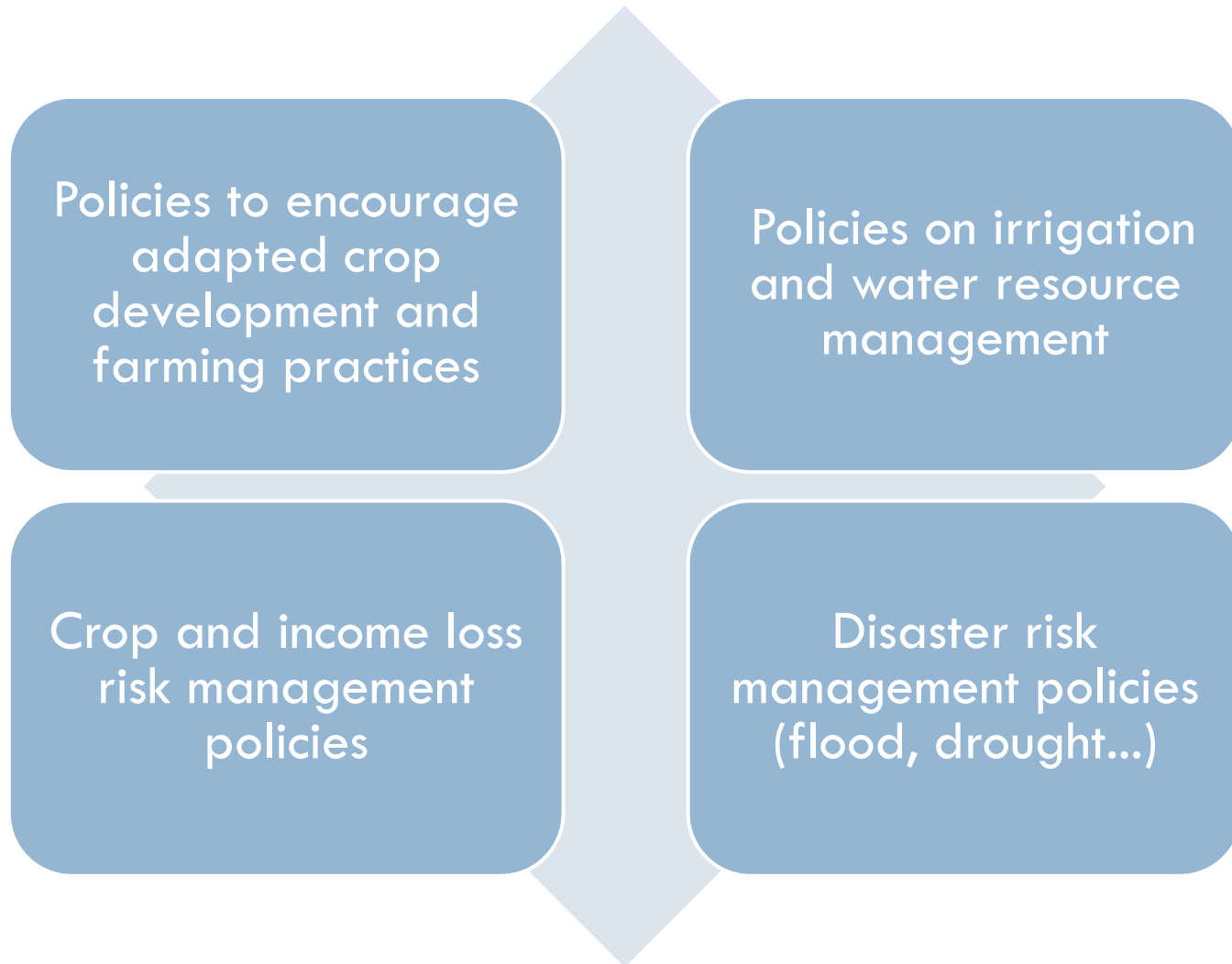
## □ Time 15 mn



**PRESENTATION OF  
CLIMATE  
ADAPTATION AND  
MITIGATION  
POLICY OPTIONS**



# Four adaptation policy panels





# Encourage adapted crop development and farming practises

## Diversify

- crop types and varieties, including crop substitution,

## Develop

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

## Promote

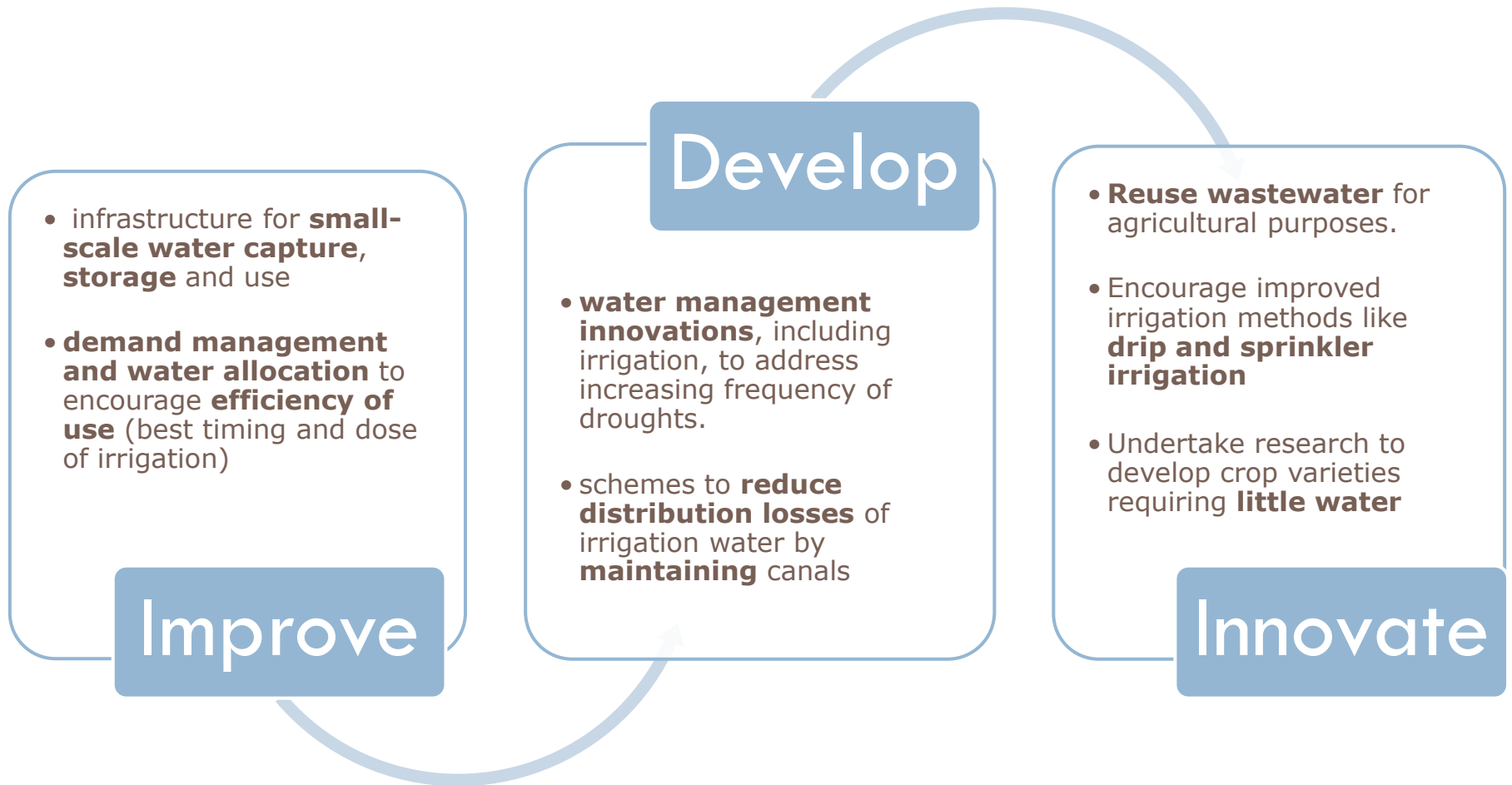
- **seed banks** so as to help farmers diversify crops and crop varieties

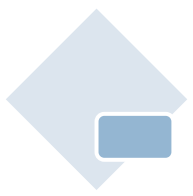
## Increase incentives

- To increase diversification through subsidies, taxes



# Irrigation and water resource management





# 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

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- **Diversify** source of household income



- Strengthen self help groups



- Establish weather/meteo-ological stations



- Participate in income stabilization programs

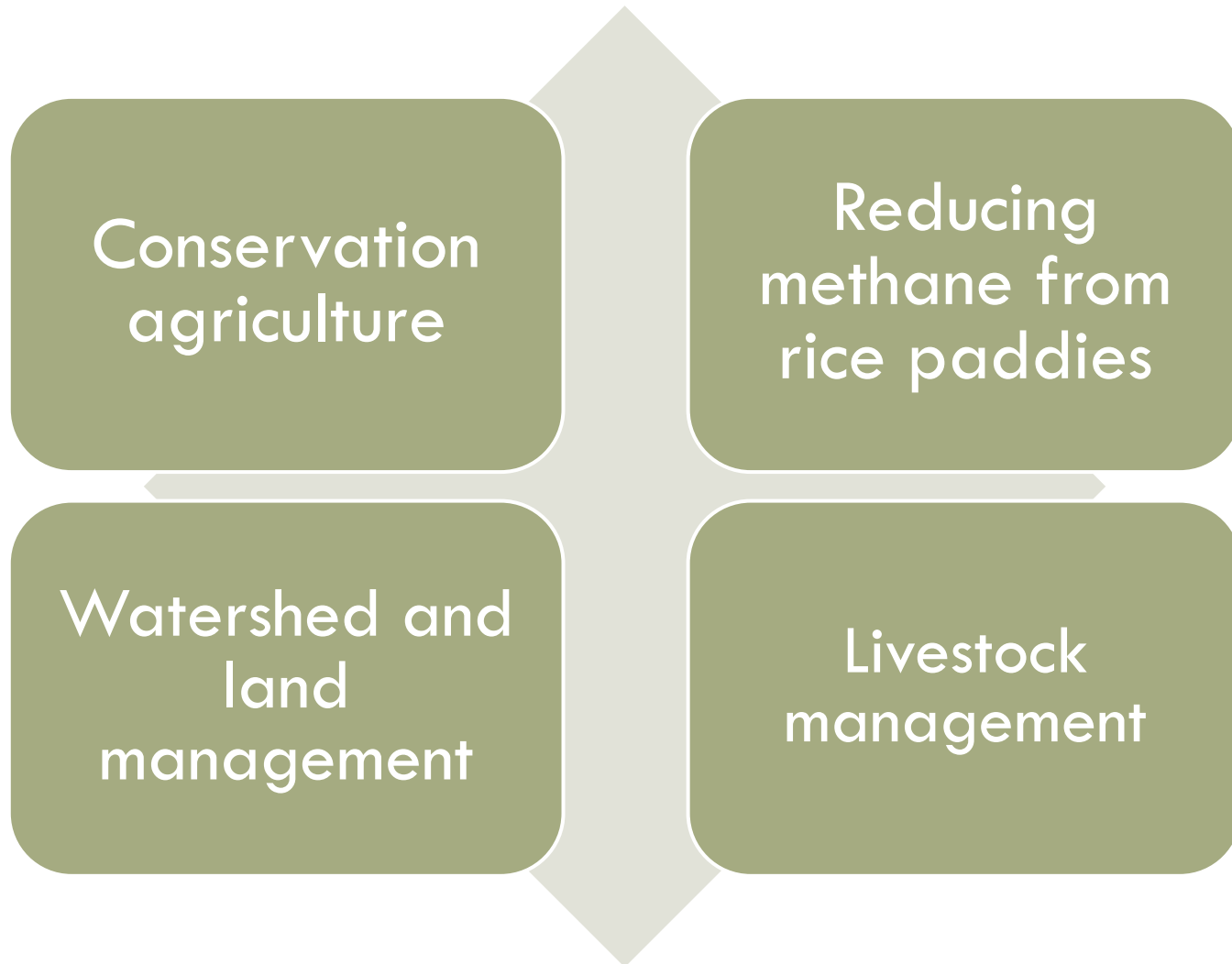


- Promote community based risk management **tools to face crop failures and soaring food prices** (grain banks, tontines, self help groups)

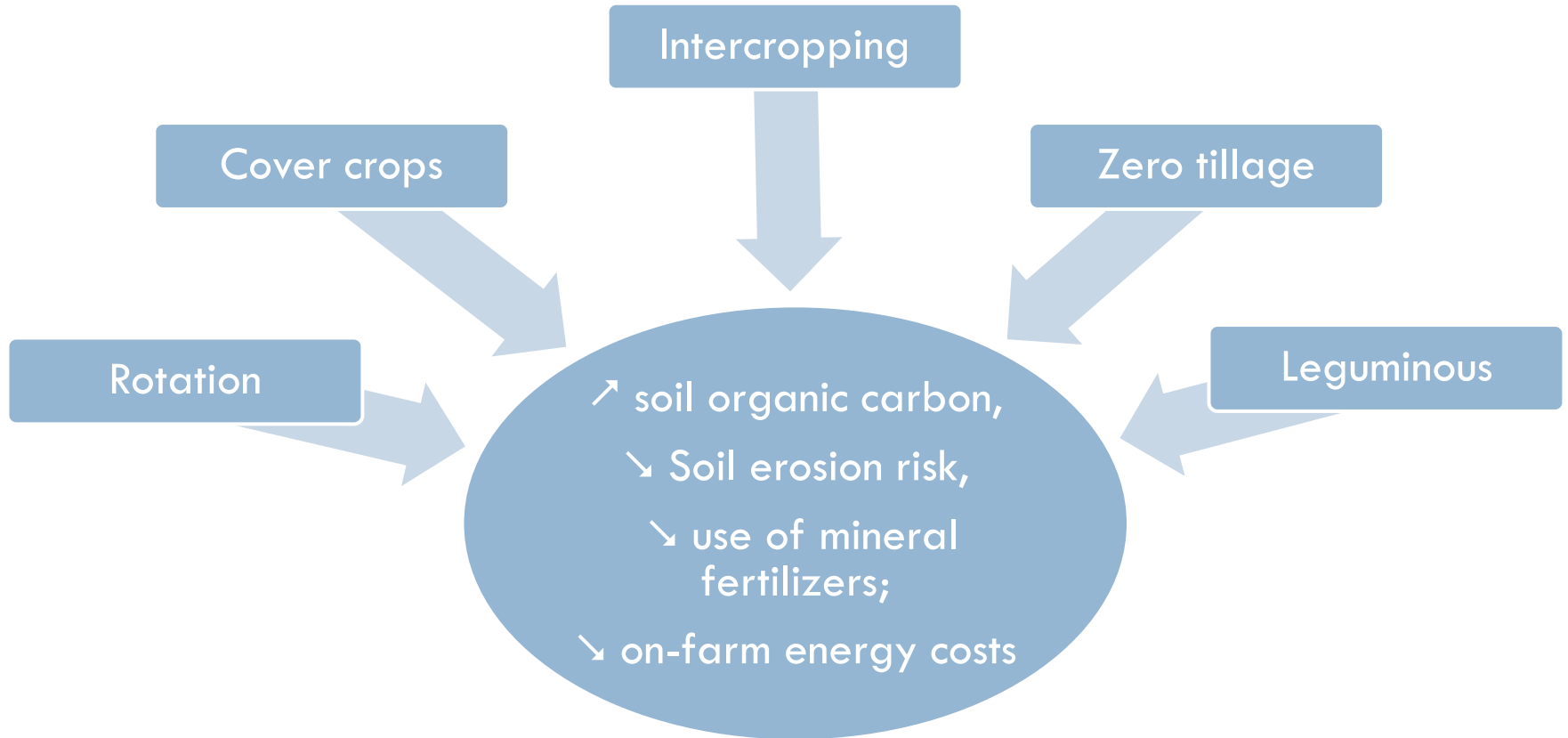


- Develop innovative risk financing instruments and **insurance** schemes to reduce climate-related risks

# Four mitigation policy panels



# Conservation agriculture



**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

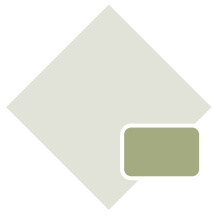
The most heavily consumed staple food on earth.

90% of the world's rice is produced and consumed in Asia, 90 % of rice land is flooded (IFPRI 2009).

Emitting between 50 and 100 million tonnes of  $\searrow$  CH<sub>4</sub> a year

- 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 ( $\searrow$ CH<sub>4</sub>, = yields)

**$\searrow$  CH<sub>4</sub> should be eligible for offsets and other mitigation funding opportunities**



# Livestock management



Livestock

Grasslands

Schemes to include **additives** that reduce methane formation

Research and development to improve productivity through **breeding and heifer management**

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**

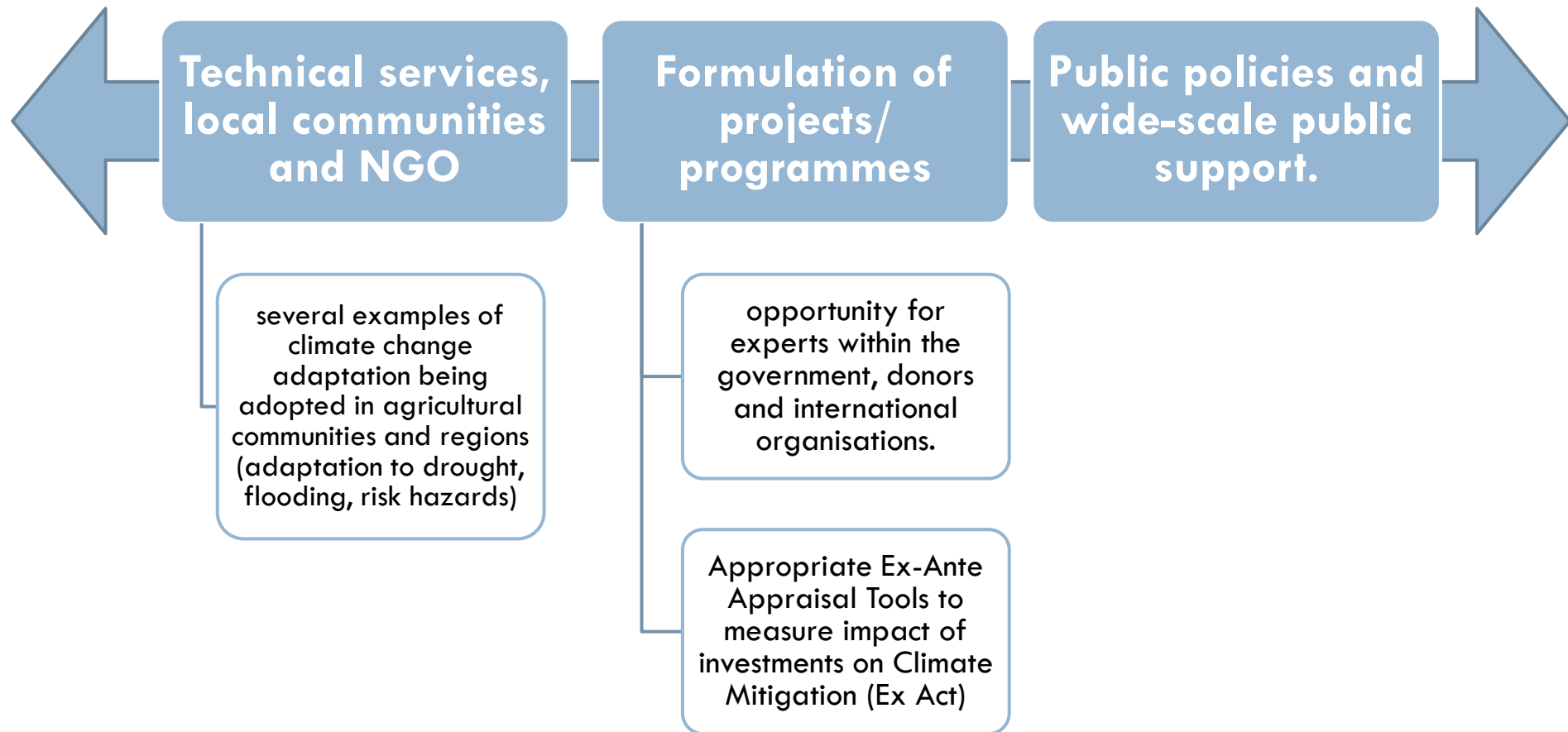
Mobilize municipality-driven semi permanent **labour intensive public works** (socio-environment safety nets)

Monitor carbon-fixing impact generated to **allow Carbon funding** to support such actions

**FROM  
MAINSTREAMING  
TO FIELD  
IMPLEMENTATION**



# Implementation through...



# Role of donors and fundings

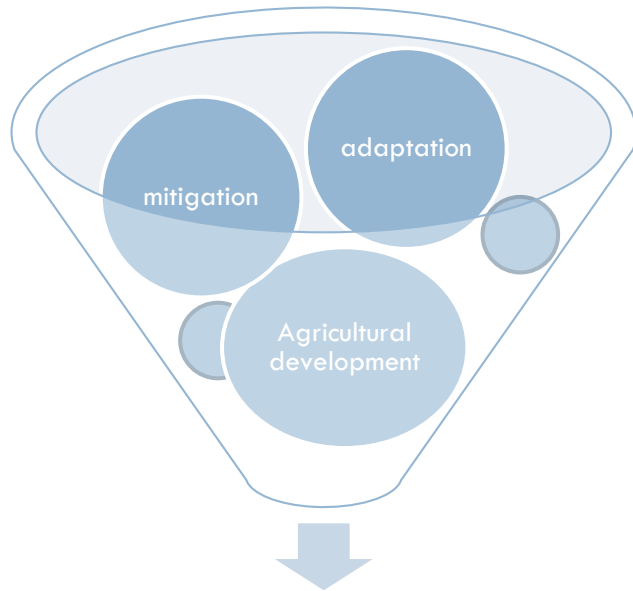
... Because National governments in developing countries have wide-ranging demands and constraints on agricultural policy development and implementation ► mainstreaming climate change rarely becomes a priority.

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

Development priorities



Integrated process

... to be profiled with the choices of the Government and the partner mobilization

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,**
- **Bernoux M, Bockel L, Branca G, 2009, The EX-ante Appraisal Carbon-balance Tool (EX-ACT), FAO, brief presentation**
- **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**
- **Bockel L, Rao K, 2009, Risk Management as a Pillar in Agriculture and Food Security Policies - India Case Study. Policy Brief**