



**The Farmers' Voice at the World Level**  
**La Voz de Los Agricultores al Nivel Mundial**  
**La Voix des Agriculteurs au Niveau Mondial**



## **Demonstrating Agricultural Mitigation Farmers' perspective**



**Farmers' Solutions to Climate Change Mitigation**

**Dr. Sarala Gopalan, IFAP**

# About IFAP

IFAP represents 112 national farmers' organizations in 87 countries, representing 600 million family farmers.

IFAP is the representative and democratic forum of farmers, building strong, genuinely representative and autonomous farmers' organizations.

Over half of IFAP's members are in developing countries, and the vast majority represents smallholder producers.



# Climate change, agriculture and farmers

## Farmers are confronted to complex challenges:

- Climate change
- Food security
- Poverty
- Energy supply and production

**THE MAJORITY OF THE WORLD FARMERS LIVE IN DEVELOPING COUNTRIES AND ARE HIT BY SEVERE POVERTY**



# Climate change, agriculture and farmers

## Links between climate change, agriculture and farmers

Agriculture is partly responsible for climate change

- As agriculture covers 1/3 of the world's land surface, farmers are the largest ecosystem managers
- Agriculture accounts for 13.5% of global anthropogenic greenhouse gases (GHG) (According to the 4th IPCC report) or eq 6.8 Gt of CO<sub>2</sub> eq per year

Agriculture's vulnerability and solutions to climate change

- Agriculture is most vulnerable to adverse effects of climate change
- Agriculture and farmers could play a key role in mitigation and adaptation
- Farmers need information and resources to meet the challenges of adaptation and mitigation

**CLIMATE CHANGE IS EVERYONE'S CONCERN: COSTS NEED TO BE BORNE BY ALL STAKEHOLDERS**



# Farmers are part of the Solution

**Farmers are directly affected by climate change but they are most importantly key partners in providing solutions**

## Farmers and the mitigation potential

- According to the IPCC, *“mitigation is the technological change and substitution that reduce resource inputs and emissions per unit of output”*
- **Soil carbon sequestration** (89% or 1 to 4 billion T CO<sub>2</sub>/ yr) :
  - Sustainable agricultural practices through restoration of organic soils cropland , reduced tillage, agro-forestry...
  - Grazing land management
  - Renewable energy production including bioenergy
  - Water management



# Farmers and the mitigation potential

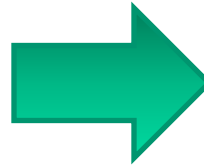
- **CH<sub>4</sub> reductions (9%):**
  - Improvements in rice management
  - Livestock manure management (often underestimated)
- **N<sub>2</sub>O reductions (2%) :** from soils (crop management mainly e.g fertilizer and nutrient use)

**70 % OF AGRICULTURAL MITIGATION POTENTIAL IS LOCATED  
IN DEVELOPING COUNTRIES**



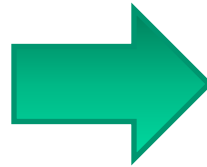
# Agriculture in a post-Copenhagen agreement

**Agriculture**



**Important role in  
Climate Change**

**Post  
Copenhagen**



**Opportunity to  
integrate solutions  
and Farmers' active  
contribution**





# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## Improved rice cultivation in Cambodia

### Adoption of an innovative practice: System of Rice Intensification (SRI)

Key principle:

Transplanting **young** seedlings **singly** and **widely spaced**



Good management practices:

1. Drainage of rice paddies

2. Garden-like nursery

3. Minimum irrigation

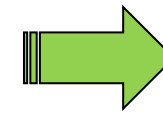
4. Early weeding

To oxygenate the soil and ensure a healthy microfauna and microflora

Seedlings to be watered by hand if no rain to keep the soil moist but not saturated

Once seedlings transplanted (not too deep for full root growth potential)

6 to 10 days after transplanting



Optimization of resources for higher yields



# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## Tree planting Campaign in Ghana

Training in the uses and relevance of agro-forestry trees

Workshop on seed treatment, nursery management, transplanting and maintenance of sustainable trees, agro-forestry technologies such as alley cropping, live fencing and windbreaks

Distribution of seedlings (fruit trees), seedling nursing and planting events



# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## Palestine's optimization of water system

### Optimization of the irrigation systems: Project's Benefits

The two-year water optimization project led to significant results: more importantly water savings, but also production increase and reduction of inputs.

30 % Water savings (m<sup>3</sup>)

25 % Inputs savings

15 % Yield increase (kg)

*(Data collected from farmers, Ein Es Sultan pilot-project, PFU 2007)*

- ✓ The reduction of inputs means an increase of **15 to 25% of farmers' income**
- ✓ Farmers, who are at the basis of food security chain, are **back in the decision process**
- ✓ Farmers can better manage water resources, **collaborate and negotiate** with other stakeholders

A proper operation and maintenance of the distribution facility is essential to achieve water savings.

To better manage an irrigation network, PFU considers essential that the final beneficiaries (farmers) are fully involved in the management. PFU is thus supporting the creation of a Water User Association (WUA) in Jericho.





# Ground water management strategy in Andhra Pradesh - India

**Farmers faced with dry wells and loss of crop learnt to measure input and output of water through scientific means-**

**Use of rain Guages to measure rainfall daily**

**Measure quantity of water in the ground water sources**

**Assess water requirement for crop**

**Programme cropping according to water availability in the season**

**Adopt water optimization technologies with sprinklers, mulching and diversification of crops**

**Consequently reduced loss, maximised incomes and avoided impact of CC**



# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## Greenhouse and fertigation system in the Seychelles

Tropical greenhouse technology

Integrated Pest Management

Low-volume irrigation



# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## Recycling agricultural waste to manufacture charcoal briquettes in Uganda

Fabrication of charring drums and kiln

Charring: heating the dry matter

Pyrolysis process

Briquetting



# Successful farmers' initiatives to mitigate climate change effects in developing countries:

## On farm production of Biogas for rural households in Vietnam

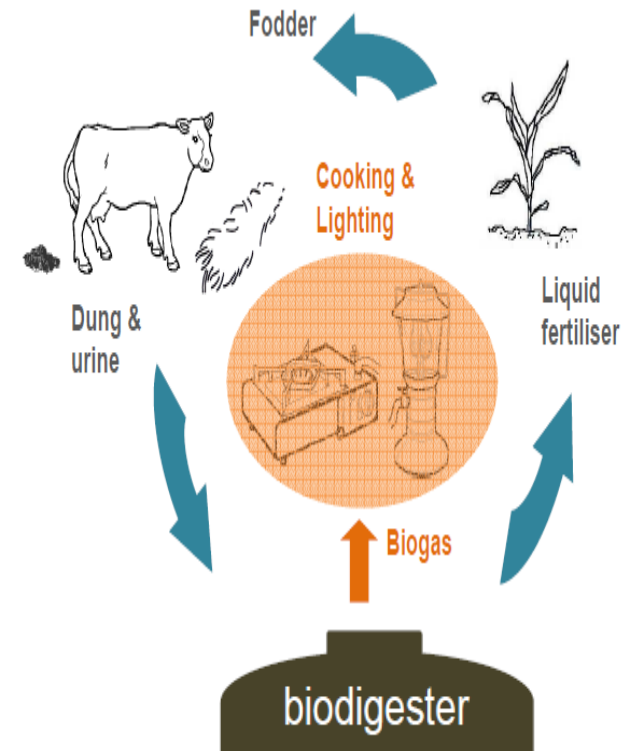
### The Results of the Biogas Program:

Besides the high amount of valuable energy provided, the program has enabled:

- the construction of over 56 000 biogas plants,
- the training of more than 500 provincial and district technicians,
- the promotion of biogas to rural population through informative workshops

Using biogas instead of on firewood means

- a reduction of costs for family farmers
- a relief for women and children to collect firewood
- a significant diminution of deforestation



# Farmers and the mitigation potential

## Co-benefits of mitigation include:

- Food and energy security
- Higher productivity
- Increased resilience
- Ecosystem services
- Sustainable development
- Improvement in environmental quality
- Poverty alleviation





# Agriculture in a post-Copenhagen agreement

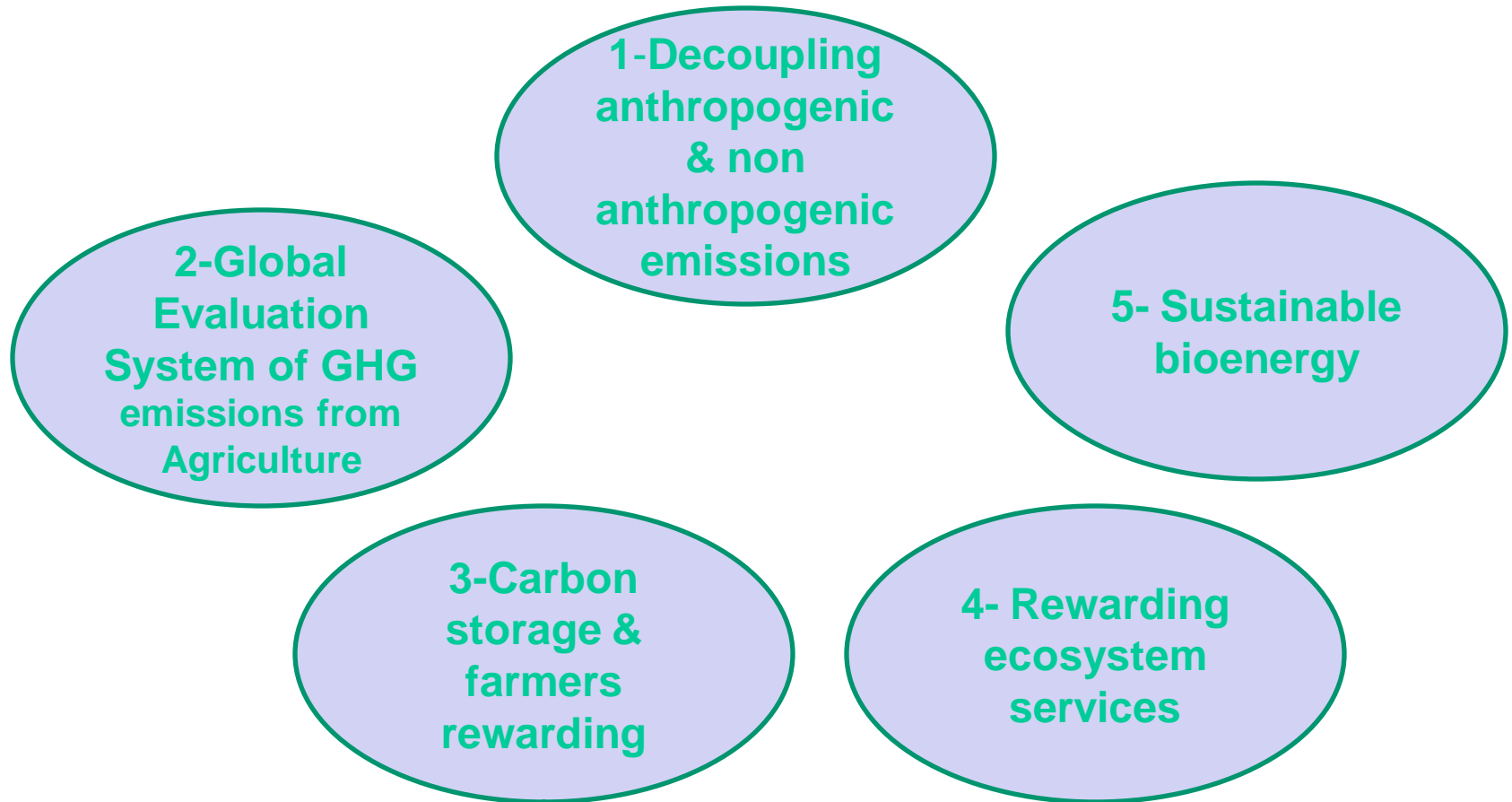
## Mitigation:

- Agriculture should not be penalised for emissions with unfair tax systems (biased accounting rules, no difference established between natural and anthropogenic emissions...)
- The contribution of agriculture to mitigation should be fully recognised (carbon sequestration, renewable energy, ecosystem services)

**EMISSION COST WOULD HAVE TO BE BORNE BY FARMERS  
AND AGRICULTURE TO THE BENEFIT OF OTHER INDUSTRIES**



# Integration of agriculture through Mitigation



# Financing

- Finance delivery mechanism for agriculture
- Fair international carbon market
- Farmers Accessing funds from Multilateral Environmental Agreements, development projects, adaptation fund



# Technology

- Technology transfer programs
- Capacity building
- Incentives to invest in research
- Farmers-Scientists partnerships
- Innovative regional programs



# Communication technology

- Revolution in communication technology has brought remote farmers closer to markets, research centers and capacity building opportunities
- The millions of cell phones in the hands of farmers in rural India has not only put India on the top of the list of cell phones' users but also changed the lives of farmers. They can now phone up and get solutions for pest management and resolving other crop problems programs



# Conclusion

- Farmers are key players in combating climate change effects
- They need a central role as partners, resources to back up long-term strategies for the development of sustainable agricultural practices, and good governance to keep things moving forward



# Thank you for your attention!

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