



**GDPRD, W. G. 1 - How do we ensure poverty, food security
and climate change are better linked?**
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Enabling poor rural people
to overcome poverty

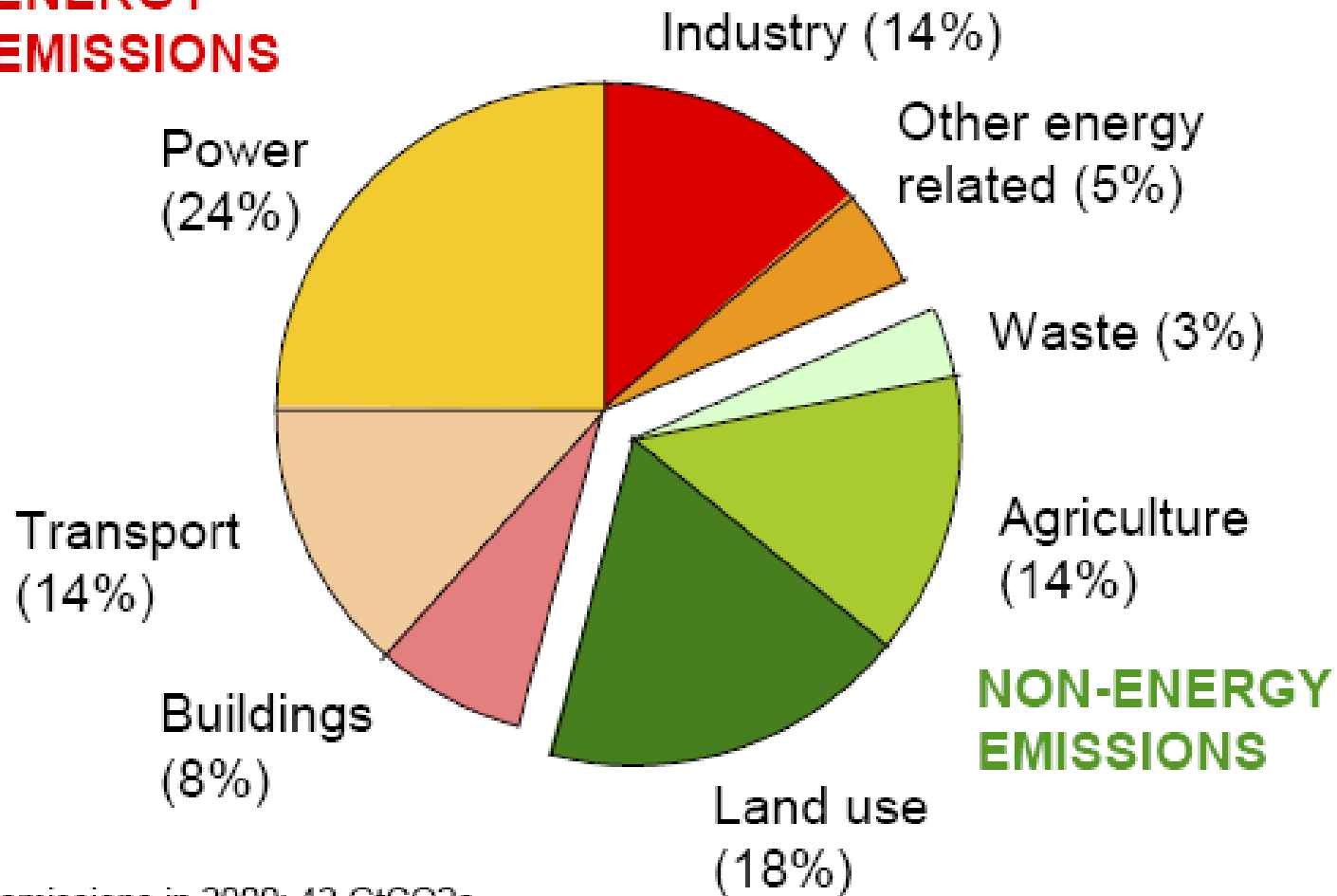
Enabling poor rural people to overcome poverty



Linkages between agriculture and climate change

- Agriculture is considered one of the most vulnerable sectors to climate change:
 - ❑ Threats to food security
 - ❑ Increased stress on fragile farming system
 - ❑ Loss of biodiversity
 - ❑ Decrease in water availability
 - ❑ Reduction of crop resilience to climate variability
 - ❑ Negative impact on animal health, livestock production and fisheries
- At the same time it is also one of the main contributor to GHGs emissions:
 - ❑ CO₂ emissions mainly from land use change;
 - ❑ methane emissions from the livestock sector and from rice production;
 - ❑ nitrous oxides from the use of fertilizers

ENERGY EMISSIONS



Total emissions in 2000: 42 GtCO₂e.

Energy emissions are mostly CO₂ (some non-CO₂ in industry and other energy related).
Non-energy emissions are CO₂ (land use) and non-CO₂ (agriculture and waste).

THE COPENHAGEN ACCORD

- Recognition of need for a 2 degree Celsius limit
- January 31, 2010 deadline for emissions targets by both developed AND developing countries
 - Quantified economy-wide emissions targets for 2020 for developed countries
 - Nationally appropriate mitigation actions of developing countries
- Promises of extra finance were more made but are still vague:
- A commitment to set up a forestry financing mechanism. Further, a new “Copenhagen Green Climate Fund”
 - \$30 billion for 2010 – 2012
 - \$100 billion per year by 2020 (public and private)

JOINT STATEMENT ON DECEMBER 14

- Forestry and agriculture are where poverty reduction, food security and climate change come together and must be addressed in an integrated fashion. The communities
 - Agree it is critical that food security be integrated in the shared vision of the Long Term Cooperative Action text, in order to open the door to adaptation and mitigation support;
 - Urge climate negotiators to agree on the early establishment of an agricultural work program under the SBSTA;
 - Look for agreement that REDD include agriculture, forestry and other land uses;
 - Believe that the LULUCF accounting system needs to be favorable to agriculture.

THE GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

- Initially proposed by New Zealand
 - Focus on agricultural mitigation
- Embraced by US and others
 - Vilsack announces \$90 million climate change mitigation budget
 - Members include Australia, Canada, Colombia, Chile, Denmark, France, Germany, Ghana, India, Ireland, Japan, Malaysia, Netherlands, New Zealand, Spain, Sweden, Switzerland, United Kingdom, United States, Uruguay, and Vietnam.
- Initial meeting in March/April

Solution: Countries to better incorporate adaptation to climate change and environmental concerns in investments and policies

■ Adaptation

- Drought resistant cultivars
- Crop diversification
- Alternative tillage and erosion control
- Payment for environmental services
- Weather insurance
- Drought contingency and early warning systems
- Water management, including flood response

■ Mitigation of climate change through agriculture

- Reduce subsidies for high greenhouse gas-emitting agriculture practices
 - Reduce expansion of new irrigation schemes, farm machinery, chemical fertilizer, land and forest clearing, livestock development, fuel use
- Subsidize low greenhouse gas emission processes
 - water management, conservation agriculture, reforestation

Possible interventions in the agricultural sector

■ Adaptation

- Wide range of options:
 - Adopting new cultivars or changing crops and planting date, crops rotation, alternative tillage systems, IWRM and erosion control techniques;
 - Modifying herd composition: different species/breeds; adapting grazing management practices to increase soil carbon;
 - Promoting non-destructive fishing techniques to maintain resilience of marine eco-systems; aquaculture in area inundated by rising sea-levels;
 - Improving risk management and preparedness (early warning system, drought contingency plans, response to flooding, raising awareness, weather indexed insurance etc).

Possible interventions in the agricultural sector

■ Costs of Adaptation

- ❑ The UNFCCC has come with a price tag of US\$ 49 billion-\$171 billion per year globally for adaptation by 2030, based on investment and financial flows in five sectors: agriculture, forestry and fisheries, water supply, human health, coastal zones, and infrastructure;
- ❑ IPCC by 2020 75-250 million people in SSA will be exposed to increasing water stress;
- ❑ Number of people affected by extreme weather has doubled in the last 30 years to 243 million; projected to reach 375 million by 2015 and costs will rise to \$25 billion (Oxfam, April 2009).


Possible interventions in the agricultural sector

■ Mitigation

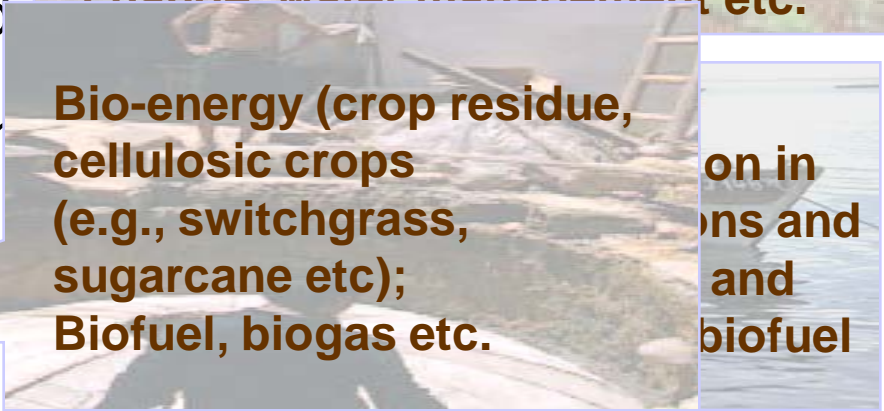
- ❑ Switching to "no-tillage" or "low-tillage" techniques to preserve carbon stored in soil;
- ❑ Reducing methane's emissions from rice production through better tillage practices, water management, integration with aquaculture, and crop rotation;
- ❑ Reducing GHG emissions from livestock by improving animal nutrition, breed selection and manure management;
- ❑ Using nitrogen fertilizer more efficiently to reduce nitrous oxide;
- ❑ Improving land use and management practices: e.g. better management of grazing systems;
- ❑ Forestry: sustainable agro-sylvo-pastoral systems;
- ❑ Coastal management and fisheries: e.g. carbon sequestration in mangrove plantations and culture of seaweed and algae for food and biofuel.

Agriculture and land use mitigation in agriculture: What Physical Potential?

- Crop management
- Rangelands and pasture management
- Livestock management
- Restoration of degraded lands
- Coastal management and fisheries
- Bio-energy



Conservation Agriculture - Switching to "no-tillage" or "low-tillage" techniques to preserve carbon stored in soil;
Nutrient management, Tillage and residue management, rice management, peaty soils, agroforestry, set-aside, land cover change, water management etc.



Bio-energy (crop residue, cellulosic crops (e.g., switchgrass, sugarcane etc); Biofuel, biogas etc.

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biofuel**

Possible interventions in the agricultural sector

■ Mitigation: Energy

- ❑ An estimated 2 billion people lack access to modern energy services. They rely on traditional biomass sources such as wood, agricultural residues, and animal dung.
- ❑ Encourage local energy development to meet local energy needs which will reduce deforestation, provide cleaner burning fuel and provide the basis for intensifying agricultural production;
- ❑ Reduce the GHG emissions by promoting cleaner burning biofuels through smallholders farming following CA practices.