United Nations Framework Convention on Climate Change

Group 2: Agriculture

Marrakech, Morocco 11-12 April 2015





SDM Programme, UNFCCC

Agriculture and Mitigation

- Agriculture accounted for 60 per cent of nitrous oxide emissions and 50 per cent of methane emissions.
- 60 per cent increase in food production to feed 9 billion by 2050 is projected



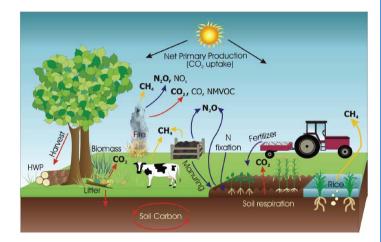






Introduction

- Over 75% of population in country X are dependent on agriculture.
 - Productivity (e.g. milk production) and resource utilisation efficiency (e.g. water and electricity) is low
- Policy makers embark on an ambitious program to improve productivity in agriculture
 - For sustainable development; and
 - GHG emissions reduction
- They need to tackle:
- a) Multiple emission sources (e.g. manure, fertilizers, irrigation and other energy use, enteric fermentation, biomass burning); and
- b) Large numbers of land holders spread across large geographical areas





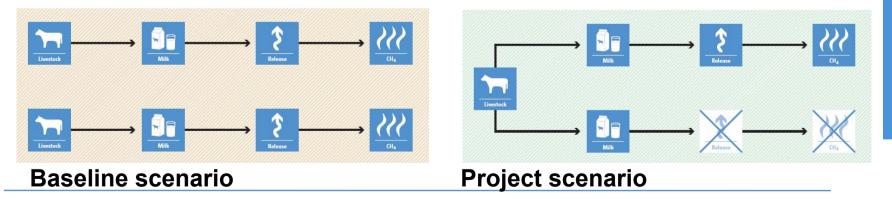
CDM Methodologies for the Agriculture Sector

Туре	Sub-type	Methodologies
GHG avoidance/ destruction	Rice cultivation	AMS-III.AU (reduced CH4 by adjusted water management practice in rice cultivation)
	Livestock	AMS-III.BK (reduced CH ₄ by strategic feed supplementation for large ruminants)
	Waste management	AMS-III.D, AMS-III.R, ACM0010, AM0073 (destruction of CH4 from animal manure) AMS-III.F and ACM0022 (Avoidance of CH4 through composting)etc
	Fertilizer	AMS-III.BF (reduced N ₂ O by use of Nitrogen Use Efficient seeds that require less fertilizer application)
		AMS-III.A (reduced CO ₂ by use of inoculant on legumes that displaces synthetic nitrogen fertilizers)
	Mulching	AMS-III.BE (reduced N ₂ O and CH ₄ by mulching)
Energy efficiency		AMS-II.P (energy efficient pumping) AMS-II.F (energy efficiency and fuel switching)



Component 1: Reducing CH4 emissions through daily feed improvement

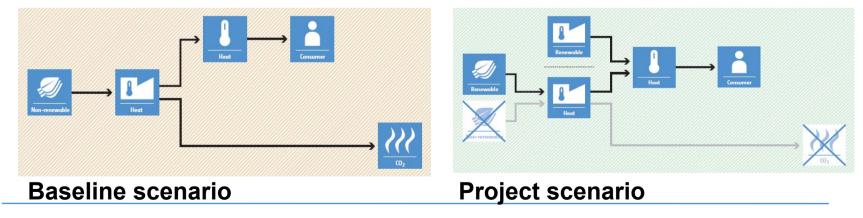
- Background: In country X, livestock production is primarily in the hands of small-scale producers. As the country's population continues to expand, and the demand for milk increases, methane emissions from livestock will also greatly increase.
- **Project Activity:** A strategic supplementation project activity is designed to manufacture and sell a specifically formulated livestock feed supplement throughout the country X. Through strategic supplementation, ruminant livestock present opportunities for significant methane reductions by increasing the efficiency and productivity of animal herds.
- Mitigation potential: 4.1 [tCO2/year/head] to be calculated following AMS-III.BK "Strategic feed supplementation in smallholder dairy sector to increase productivity".





Component 2: Reducing CO2 emissions through biogas production from treatment of animal manure

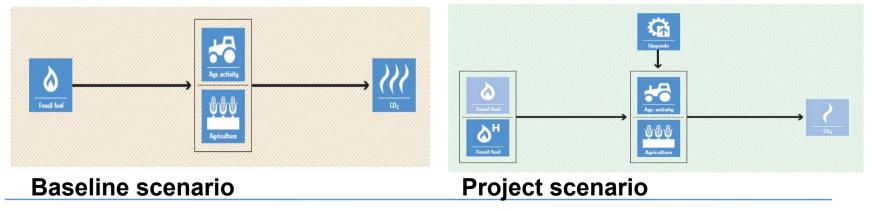
- **Background:** The large parts of the rural/urban population in country X are dependent on fuel wood for energy use especially for cooking purpose. Fuel wood make up approximately 60% of the country's energy supply. Fuel wood sources are declining fast.
- **Project Activity:** Installation of biogas digesters in the households for treatment of the animal manure and generation of biogas to displace use of fuel wood. Biogas generated used to meet energy requirement for cooking purposes of the household.
- **Mitigation potential:** 5.2 [tCO2/household/year] to be calculated following AMS-I.E "Switch from non-renewable biomass for thermal applications by the user".





Component 3: Reducing CO2 emissions through efficient irrigation

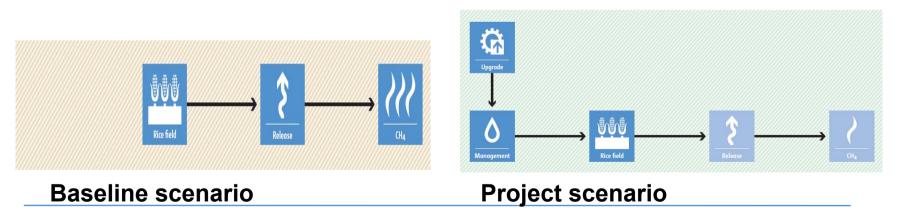
- **Background:** In country X, the predominant practice is conventional flood method of irrigation (e.g. surface irrigation method). It is estimated that between 60 to 65 percent of water is lost due to run-off, evaporation, deep percolation and conveyance. For surface irrigation methods, high amount of electricity is required.
- **Project Activity:**. Energy efficiency through installation of efficient irrigation system such as drip and sprinkler irrigation replacing the conventional flood method of irrigation. It will minimize usage of electricity which will lead to reduction of GHG emission.
- Mitigation potential: 2.0 [tCO2/ha/year] to be calculated following AMS-II.F "Energy efficiency and fuel switching measures for agricultural facilities and activities"





Component 4: Reducing CH4 emissions in rice cultivation

- Background: In country X, rice cultivation is an important agricultural operation, not only in terms of food security but also in terms of livelihood.
 Paddy fields are significant sources of methane to the atmosphere. Anaerobic decomposition of organic material in flooded rice fields produces methane.
- **Project Activity:** The project activity involves the implementation of adjusted water management system to mitigate methane emission from paddy fields in the country X. The project activity will lead to the considerable reduction of methane emission in the paddy fields.
- **Mitigation potential:** 0.60 to 1.80 [kgCH4/ha/day] to be calculated following AMS-III.AU "Methane emission reduction by adjusted water management practice in rice cultivation"





Further improvements to CDM for Agriculture: What is needed

Potential areas for feedback:

- Gaps in available methodologies or methodological approaches
 - a) Baseline
 - b) Monitoring
 - c) Additionality
- Project cycle improvements specific to agriculture
- Modular methodologies (with limited applicability) vs Broadly applicable modular methodologies
- Opportunities for standardization including digitization

