

MITIGATION OF CLIMATE CHANGE IN AGRICULTURE (MICCA)

REPORT OF WORKSHOP on the DESIGN OF THE MICCA PILOT PROJECTS

22 April 2010

I. Background

The Mitigation of Climate Change in Agriculture (MICCA) project aims to help realise the substantial mitigation potential of agriculture, especially that of smallholders in developing countries. The MICCA project is a 5 year multi-donor trust fund, 2010-2014, 10 million USD with an initial 3.9 million USD for two years provided by Finland. The project will continue to pursue additional funding with other donors. The project brings together all of the technical departments in the FAO.

It is based on the premise that if changes are implemented in production systems, emissions can be reduced and sinks created in biomass and soils while increasing resilience and productivity. The project is intended to contribute to ongoing research and implementation work on changes to production systems through the generation of better data on greenhouse gas (GHG) emissions and mitigation potential. The effort will also carry out country pilot projects (3-5) which will test agricultural practices and their climate change mitigation contribution.

Specific activities planned for the first phase include:

- Development of a GHG emissions database and life cycle analysis (LCA) of agricultural commodities
- Development of a database on mitigation potentials and costs in the agricultural sector
- Global economic analysis of climate policy options
- Assessment of synergies and trade-offs between agricultural mitigation and adaptation, agricultural development and food security
- Supporting UNFCCC negotiation process with relevant technical information
- Development and implementation of five pilot projects on smallholder agricultural mitigation activities

Additional information can be found at: <http://www.fao.org/climatechange/micca/en/>

Workshop Objective

The focus of the workshop was to gain insights from projects and projects in FAO and other institutions regarding the pilot project design, specifically to define concrete outputs, the working approach and selection criteria.

II. Overview

Marja-Liisa Tapio-Biström (MICCA) welcomed the participants and gave an overview of the project background and set the stage for the day's activities.

III. Mitigation Projects Assessment

Christina Seeberg-Elverfeldt (MICCA) presented the initial findings of an inventory of agricultural mitigation projects that is being carried out within the MICCA project. The inventory has benefited from some 46 thorough responses to the in-depth survey provided. Of the 46 entries, 33 were agricultural activities while the remainder were relevant to forestry, agroforestry and fisheries. A total of 19 responses represented intentional carbon projects out of which 13 are prepared for the Voluntary Carbon Market. The regional distribution was Africa (20), Asia and Pacific (13), Latin America (12) and Eastern Europe (1). The size of the projects ranged from 5500-150,000 hectares.

Among other aspects, the inventory provides information on benefits, financing, type of practices, and markets. The inventory continues to be analyzed and participants were invited to nominate additional projects that should be fed into the database (See Annex 2). The final report will be available beginning of June.

IV. Working Approach

The remainder of the workshop was devoted to the working approach in identifying agricultural systems, best value outputs, socioeconomic and biophysical dimensions and criteria setting for the MICCA pilots.

A. Which Agricultural Systems?

The participants reviewed the question from two vantage points – a) which agricultural systems are net emitters and b) which agricultural systems are likely to be carbon neutral or net sinks, even if demonstrable data is not yet available? This table is not to be taken in absolute terms, as it depends on a case-to-case basis which agricultural system is a net emitter or still provides sink opportunities. It rather has to be taken as a rough classification of GHG emitting and sink providing systems which were mentioned during the brainstorming process in the workshop.

Agricultural systems considered net emitters	Agricultural Systems where further data could demonstrate net sinks/carbon neutral activities
<ul style="list-style-type: none"> • Slash-and-burn agriculture • Livestock based systems: confined livestock feeding operations, smallholder integrated farms, manure management • Degraded grasslands • Intensive farming systems, high inputs including fertilizer, irrigation, horticulture monocultures, zero-rotation, no organic amendments, residue burning • Irrigated, intensive rice systems and diverse irrigation systems • Drainage agriculture - peat land, wetlands 	<ul style="list-style-type: none"> • Pastoralist, agro-pastoralist and silvo-pastoralist systems, extensive and nomadic livestock systems, improved pasture • Agroforestry systems, also for diverse annual cropping systems (tree based production including fruit trees) • Conservation agriculture • Management practices (soil, water, weed/vegetation/cover, chemical use) • Integrated food energy systems • Mixed/integrated crop livestock systems, rotational farming, Smallholder integrated practices • Irrigation • Wetlands/peatlands • Aquaculture

Note: during this exercise, some cross cutting considerations were raised including: the contribution of agrobiodiversity to mitigation; carbon retention over time; policy effect on local agricultural practices & other consequences; synergies & trade-offs (economic, social, production impacts); production versus land cover use, and seed/plant selection.

B. Proposed Outputs of the MICCA Pilots

The participants were asked to provide ideas on which outputs from the pilots might add the most value to current knowledge. The categories include: ensuring smallholder benefit, data to establish co-benefits, inputs to monitoring, financing and evidence for decision making. Additionally participants provided further elements to be taken into consideration regarding the situational context.

- 1. Benefits to smallholders:** A desired output of the project is to benefit smallholders. The participants identified the following:
 - Demonstrate that different mitigation practices can be integrated into small holder farming systems in a manner that improves the viability (financially, for people and for the ecosystem) and livelihoods (livelihood indicators for mitigation projects)
 - Show that practices reduces emissions with substantial mitigation over time
 - Demonstrate that changes in practices can be taken to scale
 - Provide insights into how to manage co-benefits within the value chain
 - Works within the context of dynamic agricultural landscapes;
 - Capitalize on the associated co-benefits of watershed management, biodiversity preservation, soil protection, water harvesting and bio-nutrient cycles.

- 2. Data to establish co-benefits.** Provide evidence of co-benefits (development and food security and livelihood linkages), identify trade-offs and synergies, provide evidence of carbon benefits, livelihoods impacts, and provide information on the connection between CO₂ sequestration and productivity enhancement

- 3. Inputs to Monitoring.** Promote a GHG protocol for smallholders, consider a code or check list related to monitoring, reporting and verification (MRV).

- 4. Inputs to Financing (for mitigation).** The participants noted that there is a complex funding architecture in place. The project may consider not follow the classical funding approach, it may consider work that reduces transaction costs, considers temporary credits, engages private sector and public sector funding, provides simple financing related to MRV systems, builds on brand-marking, facilitates bundling of agricultural productivity with ecosystem service provision, and ensures a pro-poor strategy.

- 5. Evidence for Decision Making.** The project may impact policy change through direct and indirect routes, review practice-related reductions, provide input to the IPCC and the Nationally Appropriate Mitigation Actions (NAMAs) at national level.

- 6. Context.** Colleagues raised some additional issues that may need to be taken into account including, the role of land tenure (worker versus owner), gender equities within the value chain, governance institutions, where and how to capture synergies versus trade-offs and clarifying the argument of smallholder vs. large holder (greatest benefit regarding mitigation).

C. Socio-Economic and Biophysical Dimensions for Consideration

- 1. Socio-Economic Dimensions.** The participants were asked to discuss the socio-economic dimension in terms of entry points, needed information, and constraints, and financial mechanisms that should be taken into consideration.

Agricultural production and mitigation. The discussion centred upon an understanding of the relationships between investments in emissions reductions (enlarging sinks and reducing sources) and agricultural productivity. From a monitoring standpoint, it was noted that “business as usual” should be used as a baseline (e.g. the cost of inaction) and mitigation potentials could be measured according to what the agricultural systems would look like 20 years hence.

Costing and trade-offs, incentives and remuneration. The group discussed the importance of a long-term and sustainable view. The costing of technologies, trade-offs among different practice choices, the value addition of the project itself, and additionality were raised. In terms of remuneration, the group discussed practical incentives that were locally specific which included both financial and non-financial (e.g. land titles, increases in productivity). Equitability was considered a key area of interest – who should benefit, how should benefits be distributed, power structures, and equitable engagement in terms of gender.

Information needs. Information needs highlighted included: risks for farmers to change practices, institutional set ups available and the potential for collective action, potential impact of climate change, map of carbon stocks vis-a-vis socio-economic factors, farmer characteristics and cultural aspects.

Scale-size-inclusiveness. The group emphasized that the effort should include farmers as well as other stakeholders. Scalability was considered a key attribute and that the project needs to identify a reasonable size of project (e.g. 50,000 farmers) and consider working at the landscape scale or provincial level with a diversity of farmers and presence of local institutions (e.g. landscape management groups, churches, schools). Key for scaling up would be to build on successful existing projects (e.g. farmer field schools, etc.) for which data is available prior to initiating the project.

Constraints/context. The project should take a pro-poor strategy. An understanding of the role of land-tenure/titles and statutory and customary rights is needed.

Possible projects/entry points. Brainstorming on potential pilots, the participants added the following: develop pilots in multiple ecosystems; consider agroecosystem “foodsystems”; work with diverse systems; take advantage of landscape mosaic, consider a “control” where no changes are made, consider systems such as food-fuel-feed, food-versus-fuel, agroforestry, forest encroachment areas, rangelands, rice systems. The effort should build on best case scenarios and compare institutions/benefits based on a theoretical framework.

- 2. Biophysical Dimensions.** The working group undertook to describe which nitrogen/carbon/methane source/sinks will be critical to understand, what requires measurement and what can be estimated, what measurement methods are available (particularly soil carbon) and what other information is needed in the context of pilot projects.

Sources and sinks. It will be important to understand the CO₂, N₂O and CH₄ dynamics (emissions, and reduction potential, C sequestration) related to ruminants, manure, rice, residue burning, fossil fuel input, irrigated rice, and post-farm gate products.

Much of this information can be estimated although direct measurements for soil carbon and biomass accumulation will be useful.

Methods, measurement, and estimations. Measurements are expensive and there is a question of accuracy. Critical will be establishing a base line and measuring changes associated with land use and practices. It will be useful to understand the measurement costs and accuracy and to estimate avoided emissions.

The Carbon Benefits Project was viewed as a methodological project that could be build upon. Measurements will be needed to compare with and without practices. Traditional soil carbon methods can be used and there are a number of smallholder techniques to draw upon. Biomass carbon data and land use change (CO₂ emissions) can be garnered from the IPCC. The IPCC numbers are considered the default and are to be trusted as best for now and through the output of the pilot projects, as well as other project components MICCA could contribute to the improvement of those numbers. The group also noted that per product carbon budgets should be accompanied by per land area carbon budgets to give a better reflection of carbon dynamics in integrated and extensive systems.

Other questions. The group identified that information on land use and practice history as well as current agronomic practices will be needed. Clarity on household GHGs due to wood fuel, energy labour vs. agricultural labour, gender issues, household ecological/carbon foot print, impacts on biodiversity, connection to water and soil quality and trade-offs associated around residue use would be important information for the pilots. Further cost data to make changes happen will be important.

D. Criteria for Pilot Selection.

In the last discussion, the group revisited what had been discussed and identified the key criteria that should be used in selecting the pilots. These included:

1. *Build on what is in place.* Focus on successful projects, synergies with other projects, institutional presence, presence of research institutions and universities, business and market connections, and the availability of control for "cross-fence" comparison for proxy baseline for research
2. *Work at meaningful scale.* Consider nested systems and a regional approach (also where comparisons may be available).
3. *Capitalize on Representational diversity.* Ensure diverse projects as well as taking advantage of different institutional models for different sites and geographic representation. Ensure that mechanisms are in place to go to scale.
4. *Connect mitigation and adaptation.* Look at economic potential for practices vs. the mitigation potential. Make links with adaptation.
5. *Be policy and strategy relevant.* Consider work that will inform policy and can build on the readiness of those nationally appropriate mitigation and adaptation actions (NAMAs, NAPAs) and food security strategies that will be taken forward.
6. *Simple.* Try to keep the pilots as simple as possible

The group then revisited the list of projects that they were familiar with and identified some specific possibilities.

V. Next Steps

The report of this workshop serves as the first step in developing a technical framework for further consideration of pilot efforts. The framework document is anticipated to be prepared by mid June and by the beginning of July, pilots will be chosen. It is likely an inception workshop will be held to initiate the pilot activities. It was suggested that a community of practice be formed to continue networking and knowledge exchange. The database will also serve actors and institutions working on similar projects.

Annex 1. Workshop Programme and Participants

Workshop Programme

9.00-9.30 **Introduction** to workshop (MICCA, background, pilot projects, objective of pilot projects)

9.30-10.00 **Presentation** of analysis of existing agricultural mitigation projects

10.00-10.15 Coffee break

Discussions

10.15-11.30 **Output of pilot projects**

11.30 – 12.30 Working approach (Carbon measurement methodologies; Socio-economic data (impact/uptake/adoption of technologies; remuneration (financial and co-benefits))

12.30 – 13.30 Lunch

13.30 – 15.15 **Working approach** ctd.

15.15 – 15.30 Coffee

15.30 – 16.30 **Criteria** for selection of pilot projects

16.30 – 17.00 **Round up** and next steps

Participants

Constance Neely (Moderator)
Marja-Liisa Tapio-Biström (MICCA)
Christina Seeberg-Elverfeldt (MICCA)
Wendy Mann (NRD)
Jean Gault (NRL)
Caterina Batello/Suzanne Redfern (AGP)
Nanete Neves (ESA)
Louis Bockel (TCI)
Marianne Tinlot (TCI)
Jesper Tranberg (FOMC)
Alexandre Meybeck (AGD)
Reuben Sessa (NRC)
Olivier Dubois/ Anne Bogdanski (NRC)
Paul Mathieu (NRL)
Sibyl Nelson (ESW)
Henry Neufeldt (ICRAF)/Carbon Benefits Project
Sara Scherr (EcoAgriculture Partners)
Rich Conant (Colorado State University)
Silvia Donato (IFAD)
Ilaria Firmian (IFAD)
Paul Bordoni (Bioversity)

Annex 2. Nominations of additional agricultural mitigation projects

Other projects which can be added to the database as suggested by participants included:

- Revise project lists of VCS, CCX, BioCF, CDM, AJI, Australia, and regional markets
- Danone-FAO Project in China Qinghai Tibetan Plateau, restoration of degraded grassland, development of VCS methodology
- RUPES (ICRAF/IFAD) Rewarding upland poor for the environmental services they provide in SE Asia <http://rupes.worldagroforestry.org/>
- Value chains carbon appraisal (EX-ACT tool): cashew nut production in Burkina Faso and Rice production (Madagascar), GTZ support
- EX-ACT projects to compute carbon balance (Eritrea etc)
- UNDP/GEF/Forest Trends/Ecoagriculture Institutionalizing Agricultural PES
- CBPiMMM
- “Trees for Global Benefits” Ecotrust Uganda (under ICRAF/PRESA grant/ umbrella) <http://presa.worldagroforestry.org/where-we-work/uganda-albertine-rift/>
- REALU (ICRAF) – involving all land uses, in East Asia
- REDD-ALERT (ICRAF) supported by Norway
- Farmer Field Schools
- FAO projects related to sustainable grassland management and rehabilitation
- EcoAgriculture Partners (EAP): projects in Zambia, Kenya, Ghana, African Agriculture Carbon Facility (forest Trends)
- (EAP):TerrAfrica projects: SLM and Carbon
- (EAP): Sustainable Food Lab+ Oxfam in Guatemala
- (EAP): CARE/WWF – Conservation Agriculture+ Agroforestry for adaptation/mitigation (evaluation)
- (EAP): Agricultural Landscape Carbon (with Cornell University)
- (EAP): Conservation International network of conservation & carbon
- IFAD Biogas China: rural development & mitigation: West Guangxi Poverty Alleviation Project
<http://operations.ifad.org/web/guest/country/voice/tags/china/biogas>
- IFAD/WB Biocarbon Fund GEF: Kyrgyzstan Forestry and Carbon Trading project
<http://operations.ifad.org/web/ifad/operations/country/project/tags/china/1153/project%20overview>
- IFAD/WB Biocarbon Fund GEF: Kyrgyzstan Forestry and Carbon Trading project
<http://operations.ifad.org/web/ifad/operations/country/project/tags/kyrgyzstan/1461/project%20overview>
- Heifer: 50 countries project on Farmer adaptation associated the Clinton Global Initiative
- L/S Biogas Brazil