

Workshop 1

Farming practices for climate change mitigation and adaptation

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The objective of the workshop was to discuss, based on the inputs from the morning and the participants' background, the topic of farming practices in relation to climate change mitigation and adaptation. Jointly, the participants developed a list of challenges and discussed their importance. Due to diverse backgrounds and experience, the discussion revolved around a relatively vast range of topics, touching on concrete, short-term as well as strategic and long-term questions. Overall the participants agreed with the speaker from FAO that improving farming techniques must serve multiple objectives of climate change mitigation and adaptation, food security and rural livelihood.

Potential of carbon sequestration in soils: Building up of organic matter in agricultural soils is an opportunity and a win-win solution. As a result of this, many agricultural soils, even degraded soils, can be improved and the production and resilience of the agricultural system can be increased. Many agricultural practices (agro-forestry, integrating crop-livestock systems etc.) have been successfully developed by land users world-wide and are documented (see for instance: www.wocat.net). One discussant, however, pointed out that soils are not necessarily a permanent sink and storage capacity is limited. They remain temporary solutions and cannot mitigate fossil fuel emissions in the long term.

Mitigating water scarcity due to climate change: Increased water scarcity is a major challenge for climate change adaptation in many regions. A number of techniques can alleviate this problem (water harvesting, water conservation techniques, dry-land rice production in paddy fields, etc.). However, better forecasts are needed to identify adaptation needs. Given the relative high uncertainty of models on regional impacts of climate change, increasing resilience to water stress is a prime strategy.

Access to knowledge: In general, adaptation will increase the need for enhanced access to knowledge and technologies. Hence there is need to improve extension and innovation systems.

Plant breeding: More plant breeding capacity will be necessary to help adapt agriculture to climate change. Research capacities should not only be enforced in the North and within the private sector, but should be enhanced in all regions, including public institutions. Farmers' knowledge and experience in adapting local breeds need to be valorized at the same time.

Definition of *Climate Friendly Agriculture*: the discussion showed that there is no consensus about what this really means. No single solution for all types of agriculture and situations is available, and all systems (capital-intensive as well as small-scale, family based agriculture) need to be further improved. Life-Cycle Analysis will be able to contribute to better understanding of the problem. However, it will be important for the analysis to include the whole impact of the food chain (including inputs, transport to market, etc) and for the analysis to be done in a systemic and holistic way. For instance, the resilience of food systems to shocks (climate, weather, energy prices, pests and diseases) as well as social and environmental impacts needs to be looked at simultaneously.

Future potential for production increases: Participants stated that small-scale agriculture represents a high potential for production increases. They agreed with the conclusion of the

IAASTD report, despite the fact that many of these systems do not have the best productive soils at their disposal. Therefore the focus of future public support for agriculture should be in areas where production increases are needed, i.e. in the South. This is even more important from the point of view of income generation and poverty reduction, in relation to which agriculture will continue to play a major role in the future.

Dependence of fossil fuels: In the long-term, dependence on fossil fuels is a major factor limiting the development of resource-intensive agriculture. It is important to keep this in mind when developing strategies for agricultural development in the North and in the South. Nevertheless, it has been agreed that the South has a right to use fossil fuel inputs. However, there is a need to foster development of techniques and farming methods that aim to avoid a development path that replicates non-sustainable energy consumption levels.

Additional sources:

- CDE 2009. Climate Change as a challenge to soil and land management. Report on the Forum Sustainable Land Management SLM, 27 August 2009.
http://www.cde.unibe.ch/Research/FSLM_Re.asp
- International Assessment of Agricultural Knowledge, Science and Technology for Development (<http://www.agassessment.org/>)
- WOCAT, 2007: Where the land is greener - case studies and analysis of soil and water conservation initiatives worldwide. Co-published by CTA, UNEP, FAO and CDE.
- WOCAT - World Overview of Conservation Approaches and Technologies.
www.wocat.net