

Mainstreaming Agriculture in Climate Change Negotiations: journey so far

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This note has been compiled from an extensive literature survey. Only major sources of information have been cited. The purpose of the note is to inform and update persons interested in the climate change negotiations.

Introduction

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992. It is of the three conventions to emerge from the Earth Summit in Rio de Janeiro in 1992. It is the first multi-lateral agreement on climate change to set a goal of reducing greenhouse gas emissions. The objective of the UNFCCC is to “prevent dangerous anthropogenic interference with the climate system”, but the framework convention does not lay out how countries will work together to achieve this goal. The Kyoto Protocol details how Annex 1 countries will reduce their greenhouse gas emissions. The Kyoto Protocol to the UNFCCC was adopted in 1997, and set binding commitments to reduce emissions. Negotiations now underway take place both under the UNFCCC and the Kyoto Protocol.

Annex I includes developed countries and countries undergoing the process of transition to a market economy. The Kyoto Protocol lists these countries under Annex B.

In response to calls for a global treaty to address climate change, the UNFCCC was adopted in 1992, the principles on which climate efforts and actions are to be based. Its Article 2 not only stipulates the ultimate objective of the Convention, to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, but also specifies that this objective should be achieved in a manner that allows sustainable development to proceed.

The Convention recognizes the importance of food production, stressing that stabilization of the atmospheric concentration of greenhouse gases should be “achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development in a sustainable manner” (Art.2).

The UNFCCC emphasizes that “economic development is essential for adopting measures to climate change”(Art.3.4), and calls for “common but differentiated responsibilities “to be reflected in the actions of developed and developing countries, and cautions that “measures to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade” (Art.3.1; 3.5).

The UNFCCC committed all Parties to develop, periodically update and make available national inventories of anthropogenic emissions by sources and removals of sinks, and to formulate, implement, publish and regularly update national or regional programs containing measures to mitigate climate

change by addressing anthropogenic emissions by sources and removals by sinks and measures to facilitate adequate adaption to climate change (Art.4.1 (a) and (b)). However, developing country Parties that are not included in Annex I of the Convention should do so only if the necessary funding is provided by Annex I countries: “The extent to which developing countries will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments...related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties” (Art.4.7). It also calls for the promotion, application and diffusion of technologies and practices, and requires processes to reduce or limit emissions in economic sectors, which include agriculture and forestry (Art.4.1(c)), and calls upon parties to cooperate in preparing for adaptation to the impacts of climate change, referring in particular to water resources and agriculture (Art.4.1(e)).

Annex I countries were given more specific commitments: they were asked to adopt national policies and measures on the mitigation of climate change by limiting anthropogenic emissions of greenhouse gasses and protecting and enhancing greenhouse gas sinks and reservoirs. They also were given the goal of returning by 2000 to their 1990 emissions levels (Art.4.2 (a and b)). Towards this end, they were asked to submit annual reports on the policies and measures they adopt and to communicate the resulting projected emissions by sources and removals by sinks.

(Source: International Climate Change Negotiations and Agriculture. 2009. ICTSD-IPC Platform on Climate Change, Agriculture and Trade)

Focus on Agriculture

Agriculture has a unique place in human development. It will be seriously affected by climate change. Adapting agriculture is critical to food security and the nutrition of the world's population. Agriculture will be greatly impacted by climate change and will require substantial adaptation efforts. At the same time the agricultural sector is responsible for a significant amount of greenhouse gas emissions, and has an important role in climate change mitigation.

BOX 1 – AGRICULTURE, CLIMATE CHANGE AND POVERTY

The world will need to feed 9.1 billion people by 2050 whilst reducing poverty through agricultural growth. The Food and Agriculture Organisation estimates that agricultural production needs to double by 2050 to meet demand. This is an exceptional challenge in itself and is made harder by climate change and the requirement to reduce greenhouse gas emissions from agriculture, and adapt agriculture to higher temperatures, more frequent droughts and floods, and increased pests and diseases. The International Food Policy Research Institute estimates that climate change could reduce irrigated wheat and rice yields by 30 and 15 percent respectively, with 25 million more malnourished children by 2050.^{2]} The World Food Programme estimates that the number of people at risk of hunger in 2050 will be 10-20 percent greater than that expected without climate change.^{3]}

Agriculture is the mainstay of 75 percent of the developing world's poor and any solution to build resilience to climate change must involve agriculture. Agriculture is also fundamental to wider development initiatives. The Global Hunger Index 2009 links hunger directly to war and conflict, and more widely to other development issues including literacy rates and access to education for women.

As agriculture is a major emitter of greenhouse gases (about 14 percent of global emissions) it is part of the cause of climate change but it is also part of the solution since it has significant potential to mitigate emissions and sequester carbon. The WDR on Development and Climate Change and the IAASTD encourage the promotion of agricultural practices that enhance food security and livelihoods for the poor, improve resilience to climate change, and reduce greenhouse gas emissions and other impacts on the environment.^{4]} Safety nets and social protection solutions are important complementary tools in protecting and promoting sustainable agricultural livelihoods.

Agriculture is important for safeguarding the environment. Many farmers often use several agricultural practices including varieties and crops in the same field to reduce risk and ensure food security. There is scope to go much further. The UN Commission for Sustainable Development has stressed that farming can provide environmental services: meeting the need for clean water through watershed management, biodiversity conservation, and mitigating and adapting to climate change.

(Source: Global Donor Platform for Rural Development, Platform Issue Paper 9. 2010)

Status of agriculture in the negotiations

Though references to agriculture can be seen throughout the UNFCCC process and in the UNFCCC framework, there has been no dedicated track for agriculture (there has been no track for other sectors as well) and there has been no sectoral considerations for adaptation (arguably a more critical role for agriculture than mitigation). In the negotiation texts agriculture figures in both tracks viz., LCA and KP. Under the KP agriculture is dealt with relation to its mitigation potential, but it is not stated to be a mandatory step for nations. Under LCA agriculture is discussed both in reference to mitigation and adaptation with the emphasis being clearly on mitigation and adaptation being relegated to a potential co-benefit. Although the negotiating text in Chapter 1 of the LCA track doesn't specifically mention LULUCF, agriculture or specific components such as cropland management and grazing land management under developing country NAMAs, they already exist in practice. A number of NAMAs were submitted by developing countries to the UNFCCC in response to the Copenhagen Accord many of which included agriculture related actions.

In the last few years, discussions related to agriculture and land use have increased within the UNFCCC. The discussions in the side events and emphasis of submissions have been on mainstreaming agriculture in UNFCCC negotiations with reference to both adaptation needs as well as mitigation potential. From a condition of agriculture barely being recognized in the UNFCCC and Kyoto Protocol texts, the Bonn 2009 meetings saw agriculture getting into the climate change agreements. The first UNFCCC workshop on Agriculture was held in Bonn in April 2009, and agricultural mitigation received a separate LCA chapter in June 2009 during the lead-up to Copenhagen. The result was that many references related to agriculture and rural development were included in the texts:

AWG-LCA: discussing shared vision, mitigation, adaptation, technology and finance:

- Crop production and food security were mentioned as adversely affected by climate change
- Resilience building activities mentioned sustainable agriculture
- Agriculture was mentioned as a sector that might be included in the NAPAs (Nationally Appropriate Mitigation Actions)
- Emphasis was given to the need for more research and development around mitigation technologies in agriculture especially soil carbon sequestration
- In discussing intellectual property rights, there was a call for disallowing patenting of species for adaptation in agriculture by corporations and exempting LDCs and vulnerable countries from patent protection of technologies for climate change adaptation and mitigation
- Insurance was mentioned to address extreme weather events and risks to crop production, food security and livelihoods
- Option for including land use in REDD was mentioned

AWG-KP texts:

- Land use was mentioned in the context of calculation of emissions

In spite of this progress, there have been concerns that the **wider issues of rural development** are not being incorporated in the negotiations.

An analysis of the revised texts before COP15 (Platform Issue Paper 5) showed that agriculture related terms are included 72 times, the terms being agriculture and AFOLU, crop, energy (related to agriculture), food security, land use, fisheries, REDD (related to agriculture), poverty and development. **There was no mention of 'rural development', 'livestock' and 'smallholder'.**

However, the progress on mainstreaming agriculture was as follows:

- Agriculture related terms mentioned 72 times in the text
- Three key areas include: recognition of the importance of food security and sustainable agriculture within a changing climate; how agriculture might be brought into REDD-plus, and calls for inclusion of more research on agricultural mitigation technologies.
- There was no reference to smallholder agriculture, rural development or livestock; where mentioned 'agriculture' used generically with no qualification of vulnerable sectors or groups
- Adaptation was increasingly associated with risk reduction with insurance as a major tool
- With reference to mitigation, a key reference to agriculture was found under sectoral approaches
- Recognition of the need to address GHG emissions from agriculture; and therefore the need for agriculture to receive attention in the LFA document.
- The links between adaptation and mitigation mentioned several times in the document
- Agriculture continues to be linked to food security, poverty reduction and increasing resilience
- Insurance continued to receive attention for reducing risks to crop production, food security, water availability, disease increase and protection of local livelihoods (associated with extreme climate events)
- Concern expressed that the process should not create agricultural performance standards as this may create barriers to world trade
- Biochar mentioned as mitigation option
- Agricultural efficiency should be a focus of mitigation actions
- Agriculture not mentioned in list of activities under REDD,
- LULUCF mentioned as sector for gradual uptake of emission reduction targets, even by developing countries
- Global and National inventories of LULUCF proposed
- Need for a legal framework for land tenure, land rights and land use planning mentioned.

Important issues mentioned (but in brackets) were:

- Cooperative sectoral approaches in the agricultural sector should be encouraged but should lead to discriminatory trade practices

Technological information transfer agreement/ multiple agreements to facilitate the spread of environment friendly products and a healthy and reliable agricultural production system should be

established. (Source: Analysis in Global Donor Platform for Rural Development, Platform Issue Paper 9. 2010)

Progress in COP15

A dedicated drafting group was established to negotiate text on “Cooperative sectoral approaches and sector-specific actions in agriculture”, under a broader chapter on mitigation. This text still contained a considerable number of brackets when the work of the AWG-LCA finished on 15 December. A group of negotiators continued informally to meet and negotiate on the text during the high level segment of the Conference. Brackets were nearly eliminated and consensus on the establishment of a SBSTA work program on agriculture was achieved. In Copenhagen a consensus was reached with the entire text in one bracket, meaning that it was waiting for a COP decision to agree the text. There were some areas of contention, notably on the issue of trade and agriculture where some parties wanted to avoid any specific action that could constitute a barrier to trade. No formal action was taken on this text in Copenhagen and the official text on the table remained the earlier text, annexed to the report of the AWG-LCA on its eighth session (document FCCC/AWGLCA/2009/17).

Adaptation in the agriculture sector is not addressed directly because the adaptation negotiations have not yet been broken down into sectoral components.

The Copenhagen Accord and Agriculture

The Copenhagen was a political statement and it was only noted and not binding. But many countries have associated themselves with the CA. Two thirds of developing countries that stated sectoral mitigation actions in their submissions included agriculture. This shows that agriculture is likely to become an important component of NAPAs. Considering this enabling conditions for such agricultural mitigation action would need to be built into any eventual international instrument. Though the Accord does not explicitly mention agriculture, it offers opportunities for agriculture appropriate text including financing, technology development/transfer, mitigation and adaptation with the announcement of the fast track funding of 30 billion \$. This is an opportunity for donors and developing countries to allocate funds to agriculture adaptation and mitigation.

Achievements outside the negotiations

The discussions in the Side Events and the ARD programs greatly shape the negotiations. The ARD (Agriculture and Rural Development Days) have a decidedly smallholder and adaptation focus and many presentations were made on adaptation and related monitoring reporting and evaluation methodologies. Agriculture and livestock received focus in some of the side events:

1. Food Security and Climate Change: Unifying Commitment and Action in Land-based sectors (FAO)
2. Synergies between agricultural mitigation and adaptation (IFPRI)

3. Beyond Copenhagen: Agriculture and Forestry are Part of the Solution (IFAP)
4. Biochar: Climate Mitigation and Adaptation with Food Security and Energy Security Benefits (international Biochar Initiative)
5. People's voices policy choices (Academy for Mountain Environments)
6. Livestock Sector Evolution: Tradeoffs with Food, Feed and Biofuels and Solutions to Deforestation (ILRI)
7. Agricultural Mitigation and Food Security in Africa: exploring requirements for action
8. Adaptations in Agriculture (IFAP)
9. Caribou. People and Resilience in Arctic North America (Arctic Athabaskan Council)
10. Bio-sequestration vs. Geo-sequestration: Organic Solutions to Climate Change and Food Security (IFOAM and World Future Council)
11. Climate Hearings (Oxfam International)
12. Bringing Agriculture in Climate Change Negotiations (CECOEDCON)

In addition numerous side events focusing on gender, poverty, development, climate justice, and small islands also touched upon the subject of climate change impacts on agriculture. This year also witnessed events on human rights and mother earth's rights.

Agriculture and Rural Development Day 2009

Agriculture and Rural Development Day (ARDD) was held on 12 December 2009 at the Faculty of Life Sciences, University of Copenhagen, Denmark. The key objectives of the event were to build consensus on ways to fully incorporate agriculture into the post-Copenhagen climate agenda and to discuss strategies and actions needed to address climate change adaptation and mitigation in the agriculture sector. The participants discussed the outcomes from recent events focused on the challenges for agriculture and food security as a result of climate change, and the need to shape the global agenda for forests and agriculture in a warming world. The event brought together policy makers and negotiators, rural development practitioners, producers, civil society and the agricultural and climate change scientific community to highlight the importance of agriculture in climate change and to identify the 'no-regret' priorities for agriculture and food security. The participants issued a Joint Statement:

Joint Statement ARDD 2009

Key Message: Forestry and agriculture are where poverty reduction, food security and climate change come together and must be addressed in an integrated fashion

Reducing greenhouse gas emissions and sequestering carbon from agriculture and forests must be an essential component of any strategy to keep global warming below the 2 degree Celsius threshold. Climate adaptation and mitigation measures must have multiple sustainable development benefits, including conservation of biodiversity and ecosystem services.

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 includes agriculture, forestry and other land uses;
- Believe that the LULUCF accounting system needs to be favorable to agriculture.

Progress in COP16

The Hague Conference on Agriculture, Food Security and Climate Change preceded the COP16. The objectives of the conference were to identify concrete actions linking agriculture-related investments, policies, and measures with the transition to climate smart growth. Participants from governments, international and regional organizations and institutions, the private sector, non-governmental organizations, philanthropic foundations, civil society, farmers and the scientific community, met at the Global Conference on Agriculture, Food Security and Climate Change in The Hague, Netherlands from 31 October to 5 November 2010 to develop a roadmap for action. The event was to develop the agenda on agriculture, food security and climate change in the run-up to COP 16.

The deliberations acknowledged that growth in the agriculture sector remains fundamental for poverty alleviation, economic growth and environmental sustainability. Seventy five percent of the world's poor are living in rural areas and most, for a large part women, are involved in farming. Investments in the agricultural sector are still inadequate to meet the societal objectives to feed the increasing populations. Over the last decades agriculture has too often been neglected in both national and international arenas contributing to conflict and instability. Focus on production of food for local demand is important in this context. Farmers feed the world, yet far too many are living in hunger and hardship. This injustice must cease.

Agriculture must undergo a paradigm shift at all levels if the world's growing population is to be fed and the natural resource base that underpins food production is to be sustained. Business as usual is no longer an option. With a transition to climate resilient, low emitting production systems agriculture can become part of the solution to sustainable development. Food security requires agricultural production systems to change in the direction of higher productivity and production, lower output variability and eco-efficiency, including eco-agriculture.

Farmers have adapted to climate variability for centuries. The agricultural sector has the capacity to offer sound solutions to cope with this challenge, provided that farmers are encouraged to do so. Farmers' organizations can play an important role in promoting dialogue between farmers and across sectors. Close links between research, education and extension are vital for a proper application of research results on the ground. Traditional and indigenous knowledge needs to be linked with modern technologies with the latest scientific knowledge about climate-smart agriculture.

Agriculture and water are closely linked. There are many competing claims on water. Worldwide agriculture consumes seventy percent of all freshwater withdrawals. Agricultural water productivity has to be increased significantly. Integrated land and water resources management, efficient use of water resources and safe reuse of waste water are vital in our approach to climate change adaptation. Adaptation efforts must begin now, because institutions and the infrastructure will bind us to patterns of water use and behavior for years to come.

Tolerance to shocks of temperature extremes, drought, flooding, pests and diseases is determined by genetic make-up. Preservation of genetic resources is fundamental in developing resilience of plants and animals to shocks, in improving the efficient use of resources, in shortening production cycles and in generating higher yields and improving market access and germ-plasm exchange. The role of (small) farmers in preserving local crops and seeds is important.

The conference highlighted the important links between agriculture and food & nutrition security, climate justice, MDGs, livelihoods, culture and biodiversity.

However, the final **Road Map** announced by the conference was rejected by more than 100 civil society organizations because the process lacked genuine participation of people impacted most by climate change including small-scale farmers, indigenous people and women especially from developing countries. They stated that the Road Map developed by a few people cannot claim to have a shared understanding on climate change and solutions. Further they asserted that the conference also lacks the legitimacy of a UN process where all governments are represented, and negotiate and adopt decisions. It therefore cannot produce as its output an agreed Roadmap for Action.

In Cancun

Even though there was not much controversy regarding the existing text on agriculture, it was not discussed in the COP16. The reason was that the developing countries did not want to finalize the section on agriculture without discussing the previous section on framework with the fear that developed countries would then choose to deal with agriculture with the focus entirely on 'mitigation'. Some parties were opposed working on the general framework in the absence of agreement on the text on bunker fuels. Parties were not able to agree on this issue. In the absence of consensus on the framework, the entire chapter was dropped from the final text of LCA.

The work program on agriculture is yet to be established. This is expected in the June 2011 meeting. This period is being used by stakeholders working on agriculture and climate change to give their inputs on what should be the focus of the section on agriculture.

Though agriculture and food security appear only as a footnote in the agreements as areas deserving priority consideration in projects and programmes for enhancing action on adaptation, several important measures were reached:

- Provision of \$30 billion in **fast-track financing**, and plans to create a \$100 billion fund by 2020, to help developing countries cope with climate change and reduce emissions from deforestation.
- Agreement on a process for designing a **Green Climate Fund** under the Conference of the Parties, with a board with equal representation from developed and developing countries. A **Transitional Committee** is already in place and is engaged in designing the details of the fund, the process to be completed by the Durban meeting. The fund will support projects, programmes, policies and other activities in developing countries using thematic windows. Adaptation actions in agriculture can be funded through the Green Climate Fund.
- A registry to be set up to record and match developing country mitigation actions to finance and technology support from industrialised countries. Developing countries are to publish progress reports every two years.
- Establishment of a new "**Cancun Adaptation Framework**" to allow better planning and implementation of adaptation projects in developing countries through increased financial and technical support, including a clear process for continuing work on loss and damage.

- Strengthening the Kyoto Protocol's Clean Development Mechanism to drive more major investments and technology into environmentally sound and sustainable emission reduction projects in the developing world.
- Establishment of a technology mechanism with a Technology Executive Committee and Climate Technology Centre and Network to increase technology cooperation to support action on adaptation and mitigation.

In the final hours of the Cancun negotiations, industrialized countries led by New Zealand, the United States and Canada, attempted and failed to fast track a special work program on agriculture. As IATP reports, significant efforts were made by New Zealand and others to bypass the impasse on “cross sectoral approaches” to move ahead on agriculture. Moreover, the primary focus was on “mitigation” in the form of soil carbon accounting, at the expense of progress on “adaptation” measures to help farmers adapt to climate variations. However, developing countries opposed a decision on agriculture without a framework that deals with other sectors that contribute to greenhouse gases.

Cancun Adaptation Framework (CAF)

For the first time in the history of the UNFCCC process, a decision was made that elevates ‘adaptation’ to a significant level in the discourse and gives it a substantial link to the development of financial mechanisms. Parties adopted the Cancun Adaptation Framework (CAF) as part of the Cancun Agreements at the 2010 Climate Change Conference in Cancun, Mexico (COP 16). In the Agreements, Parties affirmed that adaptation must be addressed with the same level of priority as mitigation. The CAF is the result of three years of negotiations on adaptation under the AWG-LCA that had followed the adoption of the Bali Action Plan at the 2007 Climate Change Conference in Bali, Indonesia (COP 13).

The Cancun Adaptation Framework, which raises the profile of adaptation in the policy dialogue, acknowledging the reality of climate impacts that people and ecosystems are already seeing. This framework establishes an adaptation committee and a work program which will consider approaches to loss and damage linked to unavoidable climate impacts in vulnerable countries.

The objective of the **Cancun Adaptation Framework** (paras 11-35) is to enhance action on adaptation, including through international cooperation and coherent consideration of matters relating to adaptation under the Convention. Ultimately enhanced action on adaptation seeks to reduce vulnerability and build resilience in developing country Parties, taking into account the urgent and immediate needs of those developing countries that are particularly vulnerable.

The Cancun Adaptation Framework includes the following **five clusters**:

1. Implementation

- All Parties to plan, prioritize and implement adaptation actions and to use existing channels to provide information on support provided and received for adaptation actions and on activities undertaken;

- A process to enable LDC Parties - building upon their experience with the NAPAs - to formulate and implement national adaptation plans and an invitation to other developing country Parties to employ the modalities formulated to support those plans;
- A work program to consider approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change.

2. Support

- Developed country Parties to provide developing country Parties, taking into account the needs of those that are particularly vulnerable, with long-term, scaled-up, predictable, new and additional finance, technology, and capacity-building (paras 95-137) to implement adaptation actions, plans, programs and projects at local, national, sub-regional and regional levels, including activities under the Cancun Adaptation Framework.

3. Institutions

- **At the global level:** establishment of an Adaptation Committee to promote the implementation of enhanced action on adaptation in a coherent manner under the Convention;
- **At the regional level:** strengthening and, where necessary, establishing regional centres and networks, in particular in developing countries;
- **At the national level:** strengthening and, where necessary, establishing and/or designation of national-level institutional arrangements.

4. Principles

- Be undertaken in accordance with the Convention;
- Follow a country-driven, gender-sensitive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems;
- Be based on and guided by the best available science and, as appropriate, traditional and indigenous knowledge;
- Be undertaken with a view to integrating adaptation into relevant social, economic and environmental policies and actions.

5. Stakeholder engagement

- Relevant multilateral, international, regional and national organizations, the public and private sectors, civil society and other relevant stakeholders are invited to undertake and support enhanced action on adaptation at all levels.

Side events on agriculture

A scan of the list of side events published by the UNFCCC shows the following events related to agriculture. Some of the events were cancelled in Cancun (COP16).

1. UN system side event on adaptation (UNFCCC, UNDP, UN-HABITAT, UNISDR, WFP, WMO)
2. Food security and human rights in the SIDS and the arctic (CICERO)

3. Is climate smart agriculture possible? (FAO, IFAD, UNCCD, WFP)
4. Sustainable Agriculture and terrestrial C management: Research and best practices to inform climate policy (Rainforest Alliance)
5. Agriculture in the UNFCCC: Focusing on small holder farmers and producers (CECOEDCON)
6. Attitudes and policy issues in the developing world (included farm level adaptations) by University of Gothenberg
7. Food for all in a warming world? Agricultural systems that enable adaptation and support systems (Practical Action, BfdW)
8. The Malaysian approach: climate change mitigation and adaptation measures by the oil palm industry (Malaysia)
9. Agriculture and forestry under hot and arid conditions (techniques for overcoming constraints) by Isreal
10. Climate change impacts are a reality and severe in Sub-Saharan Africa ((ENDA-TM, IIED)
11. Transition to climate friendly agriculture: the current finance regime vs. viable alternatives (IATP and IFOAM)
12. Climate techno-fixes: Is the curse worse than the disease? (ETC and ECONEXUS)
13. Biochar's mitigation and adaptation potential for global agricultural systems and soil benefits (IBI)
14. The role of agriculture and land use in climate change policy
15. Enabling agriculture and forestry to contribute to climate change responses
16. Low carbon development strategies – panacea or placebo (DIE Bonn, Chatham House)
17. Leveraging carbon markets for adaptation, mitigation and poverty alleviation in the rural sector (Environment Defence Fund)
18. Ending deforestation for cattle: (NWF, UCS)

This year saw emphasis on rights of displaced people, disaster risk reduction and insurance, livelihoods, social protection, and safeguards in REDD implementation. Some events also focused on water resources – an issue relevant to agriculture but largely absent from the general discussions. Examples related to agriculture were discussed in events on adaptation and capacity building.

ARDD 2010

During the UNFCCC negotiations Agriculture and Rural Development Days are celebrated. These events bring together stakeholders working on agriculture, and over the years the event has contributed in a major way to the mainstreaming of agriculture into the UNFCCC negotiations as they stand today. In the COP 16 various groups working on agriculture were asked to give their inputs through this event to the UNFCCC. The Agriculture and Rural Development Day (ARDD) 4th Dec 2010 presented a statement which was then presented in a side event of the UNFCCC on the 6th of December 2010.

Key messages from ARDD 2010

1. More fast-track financing to support agriculture is required.

2. Action on food security, nutrition and hunger must be part of agreements especially in AWG-LCA text.
3. An agricultural work program should be set up under SBSTA.
4. REDD+ must explicitly recognize the links between forestry and agriculture.
5. The synergies and opportunities for adaptation, and mitigation co-benefits must be recognized.

Research Program Initiated

The CGIAR was created during March 2011 by a consortium of agricultural research institutions. This program brings together senior natural and social scientists working in agriculture, climate, food and nutrition, economics and natural resources from all the continents. At the conclusion of the ARDD a networking reception was organized during which CGIAR and the Earth Science System Partnership (ASSP) launched a strategic research program titled ' Climate Change, Agriculture and Food Security' (CCAFS) - a ten year partnership with support from the Global Donor Platform for Rural Development. By the end of 2011 this program is expected to identify actions needed to address climate change and achieve sustainable agriculture and food security while retaining a focus on food security of poor people.

The ARDDs have helped in bridging the gaps and building partnerships among different stakeholders and have demonstrated the value of partnerships between public and private sector, especially farmers and communities. Beginning with the first event in 2009 the ARDDs have helped in building the momentum on agriculture, but not all stakeholders are satisfied with the actions proposed for mitigation and adaptation in the context of agriculture.

Establishment of the Green Climate Fund

Parties agreed to establish a Green Climate Fund that is accountable to and operates under the "guidance" (rather than the direct "authority") of the Conference of the Parties. The trustee will be accountable to the 24-member Green Climate Fund Board, with equal representation from developed and developing countries, and supported by an independent secretariat. The World Bank serves as its interim trustee, subject to a review three years after the fund begins operations.

The design of the fund was delegated to a 40-member **Transitional Committee** (15 members from developed countries, 25 from developing), which will be convened initially by the UNFCCC secretariat and is to submit its recommendations to CP17 in December 2011. The decision also establishes a new Standing Committee to assist the CP in areas such as "improving coherence and coordination" among different finance channels and the MRV of finance. Its specific roles and functions are to be further defined.

As of now the inputs on design of the Transition Committee have been invited by the UNFCCC and the work is in progress.

Developing Countries Perspectives – some issues

CDMs

Carbon markets are considered to be an efficient decentralized system in which buyers and sellers can freely trade without the bureaucratic hurdles and delays of centrally managed funds. It is based on the win-win concept of the buyer helping a developing country to go on the path of clean development through financial support and the buyer gains credits for reducing emissions. But after the long experience with CDMs, this mechanism has thrown up a lot of criticism.

The Clean Development Mechanism (CDM) is an arrangement under the Kyoto Protocol allowing industrialized countries with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries. Apart from helping Annex 1 countries to comply with their emission reduction commitments, the purpose of the CDM is that it must assist developing countries in achieving sustainable development.

The foremost argument against CDM is that this mechanism allows the polluters to continue emitting GHGs while poorer countries shoulder the burden of emission reduction. Overall experience with CDMs worldwide has shown that at the global level there has been no reduction in GHG emissions in spite of the huge number of carbon credits being sold. Some researchers have also warned that carbon trading can create huge temptation for graft due to the amount of money it generates. The system is ungovernable from start to finish. We do not have the capacity to monitor every polluter and every derivatives trader in every part of the globe, and yet we are opening up markets to trading in invisible gases that will involve these.

In India at the national level, CDM endorsements criteria have been established which include sustainable development indicators. These indicators have to be articulated in the project design. The four indicators stipulated by the Government of India are:

Social well being: the project should lead to alleviation of poverty through employment generation, provision of basic amenities, removal of social disparities

Economical wellbeing: project should bring in additional investment consistent with the needs of the people.

Environmental wellbeing: mention impact if any on resource degradation and sustainability and pollution levels.

Technological wellbeing: project should lead to transfer of safe and sound technologies that are comparable to best practices in order to assist in up-gradation of the technological base.

India has the second largest number of CDMs. The experience with some of the ongoing CDMs has highlighted the following problems:

- Employment generation is very low. Contractors engage outsiders who are not unified and cannot raise their voice against injustice, locals hardly get any employment.
- Pollution has increased (air, water and soil) affecting surrounding agricultural lands and drinking water quality
- Access to basic services for the locals has not been achieved
- Food producing lands have been converted to energy plantations and communities are losing access to livelihood sources (MFPs)
- Due to decreased access to fuel wood from commons, community is forced to buy costlier fuel for cooking
- There are very few cases of actual technology transfer
- Most of the CDMs are being implemented by private companies and in these projects almost entire benefits accrue to the companies while communities are even farther marginalized through decreased access to livelihood sources and a polluted impoverished environment.

Since the CDM projects do not address life and livelihood issues of the marginalized then there is little meaning in having 'sustainable development' as its core objective. (Main source: CDMs for sustainable development? Laya Resource Centre, 2009).

Soil Carbon Sequestration

Given the difficulties in measuring and verifying carbon sequestration by soils in a myriad farming systems, soil sequestration was not included under CDMs in the Kyoto Protocol, but looking at the vast potential of offsetting carbon emission reductions through agriculture in the developing countries, the World Bank, FAO, and many developing countries practicing industrial agriculture on a large scale are trying to get mitigation in the agriculture sector to be included in the negotiations. Even many of the developing countries have committed to emission reduction through mitigation in agriculture. In fact the reason behind the sudden rise in profile of agriculture in the overall climate discussions has been due to the attraction of agriculture as an offset mechanism while ignoring the need for adaptation required in developing countries. Most of the actors in the climate negotiations are trying to bring agriculture in the negotiations in spite of the technical problems in measurements, absence of baselines for comparison and many issues of small holder farmers raised by farmers' organizations and civil society.

From the perspective of smallholder farmers, it is unlikely that farmers will have access to carbon markets because of lack of skills and adequate resources to formulate the projects. Until farmers organize into groups and consolidate their holdings they will not get significant benefits from soil sequestration measures. In fact, the need for large holdings for gaining benefits can lead to further land grabbing and marginalization of farmers.

India's position

NAPCC includes promotion of GM crops as an adaptation measure under the Sustainable Agriculture Mission. India in principle approves of CDMs in agriculture, subject to development of technology for MRV. This is in spite of the fact that India has not committed to climate change mitigation in the agricultural sector. The Rajasthan State Climate Change Agenda also includes promotion of No-till agriculture and drought resistant GM crops; these technologies may be formally included in the final Action Plan.

According to FAO (2009b), neither climate change mitigation, nor food security, nor sustainable development benefit from exclusion in the climate change negotiations.

The Myth of Climate Smart Agriculture (main sources: Agriculture and climate change: Real Problems, False Solutions by Grupo de Reflexion, Biofuelwatch, EcoNexus, and NOAH – Friends of the Earth Denmark 2009, several articles by Vandana Shiva)

The technologies proposed for climate change mitigation are embedded in the same industrial agriculture model that has contributed to climate change. The proposed technologies do not decrease the amount of resources used, amount of GHGs emitted during the production of agrochemicals required in these technologies. In fact many of these technologies increase GHG emissions (biochar through black carbon in the air, no till through greater use of pesticides transported over long distances and through killing weeds that can return carbon to soils after their death)

No Till Agriculture

In **non-tillage agriculture** (NT or no-till), soil carbon emissions are meant to be reduced by not disturbing the soil through tillage. There are different forms of this practice, but the dominant method is to sow (or drill) the seeds into the residues for the previous crop, and to deal with weeds through the application of herbicides.

To date there are only estimates of how much carbon is sequestered in the soil in NT systems, and how this interacts with other factors, like soil respiration, N₂O emissions and de-nitrification. At the same time, experiences from existing, large scale NT agriculture show negative impacts on the environment and the climate

In 2009 in Argentina, nearly 17 million hectares are cultivated with GM soya under NT, representing 20% of the total NT acreage worldwide. After more than 10 years of this practice, problems include such a heavy compaction of the soil that it fails to absorb water, herbicide resistant weeds, high use of agrochemicals with associated environmental problems, soil de-mineralization and

adverse effects on waters. It is still unclear to what degree the leaves left on the field at the end of the growing season contribute to nitrates in the soil, and how much phosphorus is effectively removed from the soil in form of the harvested soybeans.

Genetically modified crops

Since already there is less land than what is required to feed the growing human population, there is emphasis on increasing crop productivity without increasing land under cultivation. Climate variability (especially increased occurrence of droughts, floods and higher temperatures) is also giving the biotechnology industry the excuse to push genetically modified crops.

New genetically modified (GM) crops are proposed for higher yields and resistance to droughts and floods. But crop productivity as well as drought tolerance are controlled through a number of new or enhanced traits (more yield; the ability to grow in different and/or hostile environments; changed composition to convert plants into raw materials more efficiently etc.). However, none of these crops, even if they could be developed, are likely to be available any time soon, and for a number of the promised GM traits, it becomes more and more questionable whether they can ever be achieved given the complexity of the genome and gene regulation. At the same time, despite adverse claims, the currently herbicide tolerant and insecticide producing GM crops, in general do not show yield increases.

Genetic engineering does not “create” climate resilience. Drought tolerance is a polygenetic trait. It is therefore scientifically flawed to talk of “isolating a gene for drought tolerance. “Genetic engineering tools are so far only able to transfer single gene traits. That is why in twenty years only two single gene traits for herbicide resistance and Bt. toxin have been commercialized through genetic engineering.

Herbicide tolerant crops kill plants therefore they reduce return of organic matter to soil. These crops demand more water, they destroy biodiversity and they increase toxics in farming. Genetic engineering is embedded in an industrial model of agriculture based on fossil fuels. It is falsely being offered as a magic bullet for dealing with climate change.

Given the scientific evidence of unexpected health impacts of GM foods on consumers there is no justification for promoting GM crops until the safety aspects of GM crops are proved beyond doubt.

Biochar

Biochar is proposed as a new form of soil carbon sequestration in which fine-ground charcoal is applied to the soil. The type of carbon in this case is identical to 'black carbon', small particles known for its disastrous effects on climate change when airborne. The application of charcoal is known from some traditional agricultural practices where it has been part of bio-diverse integrated farming methods,

but the practices supported by the International Biochar Initiative (IBI) bear little resemblance to this. IBI argues that applying charcoal to soils would create a reliable and permanent carbon sink, and would mitigate climate change, as well as making soils more fertile and water retentive. However, even the studies of IBI members and supporters indicate high levels of uncertainty and counter-indications. In addition, proponents of biochar do not consider the direct and indirect impact of land-use changes required to grow enough biomass raw materials, or the impact of removing large quantities of so-called residues from fields and forests. Biochar advocates describe the burning of biomass to produce charcoal (pyrolysis) as (close to) carbon neutral because GHG emissions during combustion are supposedly offset by new growth. This completely overlooks the impacts associated with the conversion or degradation of large areas of land necessary in this process, and thereby the destruction of existing ecosystems. Yet biochar is explicitly proposed for negotiations.

It is also unclear how long most black carbon will remain in the soil, how fast much of it will be degraded and turned into CO₂, and to what extent it can cause pre-existing organic carbon in the soil to be degraded and emitted as CO₂.

In addition to these unanswered questions about the effectiveness of biochar as carbon sequestration and its possible effects on soil fertility and soil respiration, a real danger lies in the actual application procedure of biochar. Laying charcoal near the soil surface may lead to erosion, oxidation and air borne particles. Airborne black carbon has a global warming impact 500-800 times greater than that of CO₂ over a century. Tilling it into the soil on the other hand can damage soil structures and cause break-down of pre-existing soil carbon.

Few existing problems in agriculture are solely caused by a lack or failure of technology but instead derive from other social, economic or legal frameworks. It is therefore critical to first define what problems are best solved by changing legal frameworks, trade policies or human behaviour and, second, which are best solved using technology.

Climate friendly technologies

The pressure of limiting emissions in the transport sector is pushing the demand for agro-fuels. In countries including Tanzania, Mozambique, India and Columbia there are already reports of land acquisition through illegitimate titles, water being denied to local farmers, inadequate compensation agreements and the forcible displacement of communities. While there is evidence to show that growing biofuels on agricultural lands has led to displacement of food crops and has contributed to increase in food prices worldwide, the very basis of growing biofuels on common lands is flawed in that it reduces the access of the poorest people to resources (fodder, fuelwood and others) from the commons.

Another sector that carries a high resource curse risk is mining, increasingly undertaken to extract minerals for renewable energy supply and distribution facilities, as well as telecoms and information technologies that cut on global travel. Lithium ion LI batteries are expected to be produced in greater quantities for electric cars. This will drive the extraction of lithium from the limited salt lakes half of which are in Latin America. Similar situation for Gallium an aluminum byproduct that is used in photovoltaic cells – comes from bauxite mining from Guinea, China, Russia, Kazakhstan. Platinum group metals (PGMs) important chemical catalysts used in pollution control appliances come from South Africa. Extraction of such minerals is increasing despite resistance from community groups also consultation efforts have been limited. This usually happens in resource rich countries that also lack strong governance systems.

Environment friendly technologies are driving natural resource extraction in poor nations. The drive to prevent climate change should not result in a new resource curse, a green resource curse, condemning poorer countries to miss the opportunity for economic development while others profit from their wealth in the growth of the green economy. Steps to be taken: ensure local communities receive some benefits from the profits. Governments should enforce mining and environmental regulations, more public information on public-private partnership, civil society should be encouraged to help set up a transparent and sustainable process for resource extraction.

