



## Agriculture in the Climate Talks

### Looking Beyond Cancún

#### The context

Food production—hence, agriculture—has been a stated concern of the U.N. Framework Convention on Climate Change (UNFCCC) from the outset. In 1992, parties committed to reducing greenhouse gas (GHG) emissions at levels that would no longer threaten the planet; and to achieve this outcome “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 to proceed in a sustainable manner.”

The Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup> predicts that by 2020, 75 to 250 million Africans will face water stress due to climate change; climate variability and change will severely impact food production; and a 1–3 degree temperature rise will subject 20–30 percent of plant and animal species to the risk of extinction. Halting and reversing the threat of climate change is imperative.

Supporting agro-ecological farming practices that build resilient farming communities and ecosystems is an essential first step. In the last few years, discussions related to agriculture and land use have increased within the UNFCCC. However, the emphasis has been on the mitigation, rather than adaptation, potential of agriculture in the developing world. There has been little discussion on the mitigation potential of industrial agricultural practices in the developed world.

At the 16th Conference of the Parties (COP 16) in Cancún, 193 governments will decide whether to expand the role that land use change and agriculture will play in the climate talks. The fate of these proposals may well determine the extent to

which industrialized countries will use rules on agriculture and land use changes to offset their emissions from polluting industrial processes and shift the burden of greenhouse gas (GHG) reduction onto developing countries. Together with proposals on market-based approaches to finance climate change mitigation efforts, Cancún has the potential to further marginalize small-scale producers and their rights to land and livelihoods. It could also lead to perverse incentives to further intensify industrial agriculture practices in the name of mitigation. Finally, it could divert attention from the most immediate task of addressing the resilience and adaptation of ecosystems that provide food security and have the potential to reduce the impact of agriculture on climate change.

#### Mitigation versus adaptation: Whose responsibility, priority?

The UNFCCC recognized the principles of “common but differentiated responsibilities” whereby Annex 1 industrialized countries agreed to adopt national policies to mitigate climate change, followed by further mitigation commitments under the Kyoto Protocol (KP). They also agreed to provide financial resources, including the transfer of technology, to cover “full incremental costs” for developing countries’ commitments under the convention, and help fund “particularly vulnerable” countries with adaptation. At the end of 2007, these principles were reinforced in the Bali Action Plan when negotiations on a framework for Long-term Cooperative Action (LCA) were launched alongside the negotiations for a second commitment period under the KP.

The current conflict in the negotiations is centered around several issues, including the historical responsibility of industrialized countries to fulfill their commitments on mitigation; the need to arrive at environmentally sound global and national mitigation targets that would prevent dangerous levels of GHGs for life on earth; and practical and reliable sources of financing for adaptation and mitigation efforts.

## Mitigation

Fourteen percent of total anthropogenic GHG emissions are said to come from the agriculture sector, up to 30 percent if land use changes and forest conversion are included. Along with energy, transport, industry, waste management and forestry, agriculture is considered one of the “relevant” sectors for greenhouse gas reductions or avoided emissions under the Convention (Art. 4,1(c)). Under the KP, Annex 1 countries were mandated to “promote sustainable forms of agriculture” when meeting their reduction commitments.<sup>3</sup> And the KP’s Annex A lists agriculture as one of the sources of GHG emissions—namely, enteric fermentation; manure management, rice cultivation, agricultural soils, prescribed burning of savannas and field burning of agricultural residues.

The KP set rules for accounting carbon emission sources and removals from Land Use, Land Use Change and Forestry (LULUCF). Under existing LULUCF rules, human-induced deforestation, reforestation and afforestation activities must be accounted for by Annex 1 countries as carbon sources or sinks during the first commitment period (2008–2012). Accounting for agriculture was voluntary and limited to cropland and grazing land given the difficulties in monitoring, verifying and reporting (MRV) changes in carbon stocks of agricultural land. Though very few countries included agricultural land in their reporting to the UNFCCC, LULUCF accounting rules provided an important loophole to Annex 1 countries whereby they could choose to list activities that removed carbon from the atmosphere, but at the same time could choose to ignore agriculture activities that actually contributed to greenhouse gas emissions.

The KP also allowed Annex 1 countries to fulfill their mitigation commitments by buying “offset” credits from developing countries through the formation of the Clean Development Mechanism (CDM). By buying credits for reductions that were to take place in a developing country through a CDM project, an Annex 1 party could continue to pollute back home.

The LULUCF definition of “forests” (and therefore reforestation and afforestation activities) has proved to be problematic from an environmental and social standpoint. This is because the definition includes tree and shrub plantations with genuine forests. This definition has led to perverse

incentives to convert land into monoculture tree plantations that can damage rather than enhance ecosystems. Even palm oil and jatropha plantations for agrofuels have been classified as “forests.” Bioenergy projects are considered “carbon neutral.” Currently 4.49 percent of all registered CDM projects are classified as “related to agriculture” and focus mainly on bioenergy, i.e., agriculture residue use, biofuels and manure management. Such efforts have resulted in negative consequences for many communities due to the conversion of productive land into industrial fuel plantations, land grabs and displacement in developing countries.<sup>4</sup>

Because of the formidable challenges in accounting for carbon stocks in forests due to leakage and impermanence of carbon in trees, only 1 percent of CDM credits could be counted by Annex 1 countries towards afforestation and reforestation activities in the global South. Leakage refers to how carbon stored in one geographical area through reforestation or afforestation activities might be lost by logging or other destructive land-based activity in another. Non-permanence refers to the reversals that can occur of carbon stored in soil and trees.

The CDM in general has also struggled with enforcing “additional” emissions reductions through offsets, i.e., more than would have occurred in a business-as-usual scenario. This has meant that global emissions have continued to rise as Annex 1 countries have continued polluting. By 2020, up to 30 percent of Annex 1 countries’ reduction commitments could come from CDM offsets, if current proposals in the KP are accepted.<sup>5</sup> Friends of the Earth estimates that between 20 and 65 percent of CDM projects do not result in real emission reductions.

## Adaptation

Recognizing the direct and adverse affects that climate change would have on agriculture, parties of the convention also committed to “develop and elaborate” adaptation plans for agriculture, water resources and coastal zone management.<sup>6</sup> Under the Kyoto Protocol an adaptation fund was set up to address some of these needs with 2 percent of CDM credits going towards the fund. As of July 2010, the fund comprises as little as \$160 million USD. The IPCC notes that “sufficient and sustained” funding is necessary given that impacts and risks related to climate change are already happening in “sectors essential for human livelihood, including water resources, food security, coastal zones and health.”<sup>7</sup>

Funding for adaptation is projected to increase slightly due to increased use of CDM credits in the future to around \$350 million USD, a pittance compared to billions needed for adaptation according to the IPCC and the U.N. Food and Agriculture Organization (FAO). However, increasing adaptation risk due to offset schemes that neither result in genuine

emission reductions nor provide benefits to communities is an untenable strategy for climate change mitigation. The current thrust of negotiations is on market-based approaches to finance both mitigation and adaptation through expanding offset possibilities for Annex 1 countries. But real-world adaptation on the other hand needs predictable, additional and reliable public funds for the long-term.

### Looking beyond Cancún: What is in it for agriculture?

Agriculture has been included as Chapter IX of the LCA text on “sectoral approaches” where “sector-specific actions” can be taken. It is the only sector that has received an entire chapter for consideration under the LCA despite the fact that other sectors such as energy, industry, waste management and transport together combine to be larger sources of overall emissions.

New Zealand has played a major role in initiating the inclusion of agriculture in the LCA. And the drafting group of Chapter IX has been led by both New Zealand and Uruguay. Eighty percent of Uruguay’s national emissions come from the agriculture sector and 50 percent of New Zealand’s. It is therefore no surprise that they are calling for the creation of a policy framework that provides incentives for mitigation in the agriculture sector.

The draft chapter decides that all parties, taking into account “their common but differentiated responsibilities and their specific national and regional development priorities” should promote and cooperate with each other in research and development, technology transfer to reduce greenhouse gases, emphasizing mitigation with “practices, processes that control, reduce [or prevent]” GHGs, “particularly those that improve the efficiency and productivity of agricultural systems [and management of emissions from livestock] in a sustainable manner and those that could support adaptation to the adverse effects of climate change, thereby contributing to safeguarding food security and livelihoods.” Both mitigation and adaptation are referenced in the chapter, however the chapter itself is linked to Article 4, 1 (c) of the convention, which emphasizes mitigation. In contrast to the emphasis on agriculture mitigation, the LCA adaptation chapter only footnotes a reference to agriculture, linking the sector to projects and programs (Chapter II, 4 (a)).

Critically, chapter IX requests that a technical body within the UNFCCC process called the Subsidiary Body for Scientific and Technological Advice (SBSTA) establish at its next session a work program on agriculture. After Cancún, the SBSTA will meet next in June 2011. It also “invites” parties to submit the content and scope of the work program by March

22, 2011 and asks the secretariat to compile these views in a “miscellaneous document” for consideration when the SBSTA meets in June 2011.

Insiders are speculating about whether proponents of the agriculture text will attempt to convert Chapter IX to a stand-alone decision rather than tie it with the rest of the LCA text. If it becomes a stand-alone decision, the decision could mean that a work program is started in the SBSTA. Given the strong interest by developed countries in agriculture-related mitigation offsets, it is possible that the SBSTA will be dominated by mitigation interests of industrialized countries rather than adaptation needs of developing countries. Input from the Global Research Alliance on Agricultural Greenhouse Gases (GRA) is likely to play an important role.

New Zealand, along with the United States, Japan and the Netherlands launched the GRA in Copenhagen last year while Chapter IX was being negotiated. Composed of 30 countries,<sup>8</sup> the alliance secretariat is currently run by New Zealand. The alliance’s purpose is to “Find ways to reduce the emissions intensity of agricultural production and increase its potential for soil carbon sequestration, while enhancing food security. Improve understanding, measurement and estimation of agricultural emissions. [And] Improve farmers’ access to agricultural mitigation technologies and best practice.”<sup>9</sup> Information regarding its three main research groups: Livestock (coordinated by New Zealand); Croplands (coordinated by the U.S.) and Paddy Rice (coordinated by Japan) is slowly being made publicly available<sup>10</sup> and will need to be examined. The alliance hopes to launch its activities formally in June 2011 to coincide with any potential SBSTA work program. A senior level meeting is expected in March 2011, the same time as inputs are to be expected in the SBSTA if this decision is passed in Cancún.

Undoubtedly, agriculture’s contribution to climate change cannot be ignored, but the focus must be on industrial agriculture and changing harmful practices that have led to the sector’s contribution to greenhouse gases. Tackling the root causes of agriculture’s contribution to global warming means addressing the scope and scale of industrial production and market concentration which has led to the externalization of environmental and social costs associated with cheap food and feed.<sup>11</sup> It means a serious rethink about patented technologies that marginalize small producers and increase their risks against climate resilience.

For instance, genetically modified crops that require minimum or “no-till” practices have been found to require abundant use of herbicides and to be rapidly becoming susceptible to pest resistance. These proprietary technologies are costly and bind the producer to these methods without

necessarily delivering on the benefits of soil carbon sequestration. Biochar is another “technology” that essentially seeks to put charcoal into soils to increase their carbon content. The potential damaging effects of such schemes, by incentivizing the creation of charcoal plantations and burning of natural forest or biomass, could actually result in net carbon losses to ecosystems, making small-holders more, not less, vulnerable to climate change

According to the U.S. Environmental Protection Agency, 63 percent of agriculture emissions come from “agriculture soil management” practices while 35 percent come from livestock operations.<sup>12</sup> The cap-and-trade bill that the U.S. Congress failed to pass would have assigned agriculture a narrow role as a primary source of carbon offsets. The U.S. is also seeking opportunities globally for agriculture and forestry offsets (see section on REDD below).

Reduction of nitrous oxides from synthetic fertilizers used in food and feed, fossil fuel use in manufacturing and transporting synthetic fertilizer and the industrial livestock industry should be starting points for mitigation actions related to agriculture. Instead, the focus on agriculture mitigation is being placed on soil carbon.

According to the IPCC, up to 90 percent of agriculture’s mitigation potential is in soil carbon sequestration, with 80 percent of this potential in the global South. However, the IPCC is still grappling with the much larger uncertainties regarding leakage and non-permanence of sequestered carbon in soils and the transaction costs associated with measuring reporting and verifying.<sup>13</sup>

### Expansion of agriculture in LULUCF accounting and CDM

This year, emissions of OECD (Organization for Economic Cooperation and Development) countries in Annex B of the Kyoto Protocol are expected to increase by 16 percent above 1990 levels.<sup>14</sup> More than 100 countries, including small island states, least-developed countries and the African group, have called for developed countries to reduce their emissions by 45 percent below 1990 levels by 2020. The IPCC has called for a range of reductions between 20 and 40 percent in order to prevent dangerous levels of warming.

Calculations of current Annex 1 parties’ pledges of their GHG-reduction targets currently fall anywhere between 12-18 percent below 1990 levels by 2020—this includes LULUCF.<sup>15</sup> With loopholes in LULUCF accounting rules and market-based mechanisms including offsets and carbon trading, the burden of mitigation may essentially shift to developing countries. Counting the various loopholes within existing

proposals on LULUCF, Annex 1 countries could be offloading as much as 21 percent of their emission-reduction commitments onto developing countries, essentially neutralizing their current pledges.

The thrust of the KP negotiations towards the expansion of the CDM and the use of carbon markets and “new market mechanisms” incentivize looking at agricultural lands and forests narrowly as “carbon” that can be bought, sold and traded internationally to offset polluting practices in industrialized countries. Ironically, developing countries in Africa and elsewhere are being targeted with promises of a lucrative carbon market that will finance their much needed investment in agriculture to deal with the climate crisis. However, carbon markets, to date, have neither proven reliable nor practical for necessary long-term investment.

Chapter II of the draft proposal<sup>16</sup> by the KP chair calls for parties to do several things on “addressing definitions, modalities, rules and guidelines” on LULUCF. First, it calls for a revision of rules related to review and reporting under the KP for “a move towards complete coverage of managed lands” when accounting for LULUCF (para 5). As such, it calls for the SBSTA to initiate a work program on more “comprehensive coverage” by including “a more inclusive activity-based approach and a land-based approach,” (para 6).

In 2006, the IPCC came out with Guidelines for National Greenhouse Gas Inventories which included agriculture and built upon the Good Practice Guidance for Land Use, Land-Use Change and Forestry (GPG-LULUCF). The shift towards “AFOLU” (Agriculture, Forestry and Land Use) rather than LULUCF has been a topic of debate. On one hand, a mandatory requirement for industrialized countries to report all land-based sources of emissions without the use of offsets would close the existing loophole in LULUCF accounting whereby countries can pick and choose activities to report as sources or sinks. However, the current KP draft still allows options for continued picking and choosing while proposing to widen the scope of land-based accounting.

On the other hand, accounting for sinks is particularly problematic with regards to land-based accounting. Records of carbon fluxes related to land use in forestry continue to pose significant challenges for existing forest carbon schemes (see section on REDD below). It is commonly agreed that agriculture poses even greater problems with regards to establishing baselines and guarding against leakage and impermanence. Moreover, agriculture soil carbon sequestration schemes in developing countries would have to confront a host of social concerns, including land, food and livelihood rights, given the large number of rural producers that would be impacted.

Secondly, Chapter II requests the SBSTA to initiate a work program on the possible expansion of the CDM through “possible additional land use, land-use change and forestry activities under the clean development mechanism (e.g., revegetation, forest management, cropland management, grazing land management, wetland management, soil carbon management in agriculture and other sustainable land management activities with a view to forwarding a draft decision” on the matter by the end of 2012 (para 8). The text further asks the SBSTA to initiate a work program on addressing “the risk of non permanence” in the CDM to be completed by December 2011 at the seventh session of the meeting of the parties of the Kyoto Protocol (CMP7) (para 9). Non-permanence and leakage were major reasons for excluding most LULUCF activities from the CDM. The draft chapter also provides different options for inviting the IPCC to revise and develop its supplementary methodologies of chapter 4 to the GPG,<sup>7</sup> which currently includes methodologies to estimate carbon stocks and emissions related to forest management, cropland, grazing land and revegetation.

These series of proposed decisions could, in a few years, lead to a CDM regime that “manages” controversial social and environmental concerns while steadily moving towards including all land-based activities into carbon offsets through the CDM. If approved, and combined with proposals on markets and “new market mechanisms,” the outcomes could eventually allow industrialized countries to meet their national targets through both voluntary and compliant carbon markets with credits from virtually all land-based activities perceived to be “sinks.” For instance, the European Emissions Trading Scheme has been looking to expand into land-based carbon, hitherto prohibited.

In the LCA track, these same issues are relevant for the discussions being held on mitigation and nationally appropriate mitigation actions (NAMAs), as well as the chapter on markets.

Small-scale producers stand to lose in a terrain of numerous “middlemen” in the form of project developers, carbon traders and strong agribusiness interests that would like to see the adoption of patented “abatement technologies” that would be promoted to deliver on mitigation objectives. Furthermore, signals at the UNFCCC could incentivize a drive to start agricultural “readiness” programs while the SBSTA deliberates on all land-based activities—similar to what has happened with forests under REDD readiness programs. The World Bank (see below) and several other voluntary initiatives are already in the process of developing these in anticipation of progress in the UNFCCC. But even in spite of progress at the UNFCCC, many voluntary carbon markets schemes such

as the Voluntary Carbon Standard and the Alberta Offset market are looking to the land-use sector as new source of carbon for profits.

According to the FAO, “Emerging carbon markets and payments for emissions removals or reductions have attracted much interest and anticipation of such financing as a source of income for some agricultural activities and producers. However, high transaction costs as well as low potential mitigation benefits in many small-holder systems seriously limit the potential of carbon market offsets to small-holders.”<sup>8</sup>

According to the FAO, costs regarding agriculture mitigation in developing countries could run up to €3.8 billion euros alone for monitoring, reporting and verifying the methodologies and converting the information into actual carbon credits with monetary value. Additional measures needed for agriculture mitigation may run as high as €13 billion euros between 2010 and 2030.<sup>9</sup>

In order to be profitable, agriculture soil carbon efforts will require that a large number of farmers are aggregated into “carbon pools” with adequate incentives to apply whichever “mitigation technology” is being promoted. “Aggregating” small farmers for the sake of carbon credits and amidst large environmental uncertainties will create possibilities for increased social conflict around land tenure, incentives for land grabbing, possible displacement of food production and violation of human rights—without the guarantee that environmental benefits are actually delivered.

IATP’s work on speculation, carbon markets<sup>20</sup> and impacts on agriculture prices shows that carbon bundled as a commodity with agriculture has the potential for significant tradeoffs by destabilizing agricultural markets through increased price volatility. An expansion of these markets could present significant tradeoffs with food security. The fact that carbon markets are susceptible to gaming and fraud also does not bode well for the type of support that agriculture needs to respect and improve the lives of small-scale producers and to build climate resilience in agricultural systems.

### Agriculture and REDD+

LCA Chapter V concerns a draft decision on REDD+ (reducing emissions from deforestation and forest degradation) in developing countries, with the “+” including the conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks. Since it was agreed in the Bali Action Plan to include policy approaches and positive incentives to reduce emissions from deforestation and degradation (the scope of which then expanded to include

enhancement of carbon stocks, conservation and sustainable management of forests), debate has been raging over whether market-based mechanisms are appropriate to support REDD. More problematic unresolved issues include how to set baselines without setting perverse incentives; accurately and efficiently measuring forest carbon; guarding against impermanence and leakage; and ensuring the rights of indigenous peoples and local communities are fully respected and that they stand to benefit from REDD policies and programs.<sup>21</sup>

In May 2009, the U.S. pushed for a “sustainable landscapes” approach to REDD.<sup>22</sup> Such an approach, according to the U.S., would ultimately involve “full terrestrial GHG accounting” of sources and sinks and includes both developed and developing countries. Alluding to the challenges this poses for developing countries, the U.S. proposed a “staged process that allows developing countries to begin with accounting for a limited set of key categories.”

However, if the “phased approach” currently being used in REDD is any indicator, there is cause for alarm. In readiness funding for REDD, the current emphasis on generating carbon credits from REDD is creating expensive and unnecessarily burdensome requirements for developing countries to measure forest carbon instead of using limited funds to finance the policies and programs that will actually result in reduced deforestation, like institutional reforms, law enforcement and developing alternative livelihoods. Moreover, through the Carbon Fund of the Forest Carbon Partnership Facility (FCPF), the World Bank is currently proposing to begin generating carbon credits before the readiness phase is even completed, significantly undermining any purported benefits of a phased approach.

Thus far, the inclusion of agriculture has proved too problematic given the ongoing issues with emission baselines, funding mechanisms and the scope and scale of REDD in the forest sector alone. The current negotiating text does not mention agriculture. However, the World Bank and other voluntary carbon market schemes are already moving forward with financing agriculture soil carbon schemes.

The bank recently publicized its first agriculture soil carbon sequestration project in Kenya through its BioCarbon Fund—the project is said to have a 20-year timeline. When asked about its methodology, a spokesperson for the project said that actual measurements of carbon in the soil proved to be too costly and therefore the project would use “increased agricultural production” as a proxy for soil carbon sequestration.<sup>23</sup> More needs to be learned about the World Bank’s methodology, its environmental integrity and the social impacts

of the project. However, the simplification of methodology in the Kenya pilot substantiates the idea that transaction costs are indeed high for such schemes.

If rules on LULUCF and national appropriate mitigation actions (NAMAs) include a wide range of landscapes, then it is likely that these efforts will eventually translate to REDD++ (REDD plus-plus) initiatives characterized by “REALU” (reducing emissions from all land uses, including agriculture) using the IPCC AFOLU guidelines.

### Agriculture and climate change: Finding the balance

Agriculture plays an integral role in our lives. It feeds us and provides livelihoods for a large majority of rural populations in the global South. Not just a source of commodity production in the form of food, feed, fiber and medicines, agriculture serves as a significant safety net against macro-economic shocks when demand shrinks for other goods and services.

In the climate negotiations, agriculture is narrowly viewed as either a source or a sink. For many Annex 1 countries, it is increasingly seen as a sector that can be used to offset their mitigation responsibilities for their most-polluting industries and as an additional source of carbon for carbon markets.

Healthy organic soils provide numerous benefits for ecosystems: they help retain water, guard against erosion, provide necessary nutrients to plants, generate biodiversity, and support animal and human life. Looking at soils from a narrow carbon perspective allows for the introduction of technological fixes that in practice may actually harm smallholders and fail to deliver on food sovereignty objectives.<sup>24</sup> They may thwart, rather than support, agriculture adaptation to climate change.

The multifunctionality of agriculture, the urgency of addressing its adaptation, and the necessity of shifting away from harmful industrial agricultural practices requires a fine balance. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD),<sup>25</sup> known as the “IPCC of agriculture,” produced a series of peer-reviewed reports and recommendations based on a six-year process that included over 400 researchers who address the complicated linkages between agriculture, smallholder production, adaptation, technology and markets. The findings of the IAASTD reports must be a starting point of discussions related to agriculture within the climate context.

## Conclusion

Under common but differentiated responsibility, developed countries have a binding commitment to reduce greenhouse gas emissions. Carbon offsets have not proven to be effective mechanisms to reduce global warming. The carbon footprint in industrialized countries has increased, not decreased, since the signing of the Kyoto Protocol. This means urgent action needs to be taken to address the root causes of climate change rather than on finding loopholes and shifting the burden of mitigation onto small-holder farmers in the global South.

In terms of agriculture, numerous solutions have been put forward by processes that are either led by small-scale producers or keep them as the center.<sup>26</sup> There needs to be political will by both environment and agriculture ministries to listen.

## Recommendations

- Governments must focus on mitigation of industrial agricultural practices in developed countries with a real shift towards agro-ecological processes instead of a further intensification of industrial practices. Addressing over-consumption and ecological health has to be part of the solution.
- Governments must focus on adaptation in developing countries and support agro-ecological approaches that not only build resilience but also cool the planet. Any approaches to agriculture and climate change must integrate principles of food sovereignty, protect rural livelihoods and uphold the right to food. Top-down approaches to address either mitigation or adaptation will not work.

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