ENABLING AGRICULTURE TO CONTRIBUTE TO CLIMATE CHANGE MITIGATION

A SUBMISSION BY

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The magnitude of the challenge to stabilize greenhouse gas (GHG) concentrations in the atmosphere and limit average temperature increases makes it imperative that the contributions of all sectors with significant mitigation potential be tapped to the fullest extent possible. Agriculture is recognized as a sector with such potential and farmers, ranchers, herders and other land users around the world can and should be part of the solution to climate change.

This submission highlights ways in which the potential of agricultural mitigation in general, and from smallholder agriculture in particular, may be realized under a future global climate change agreement. It addresses quantifying mitigation and dealing with uncertainty issues associated with soil carbon sequestration, enabling institutional and policy environments required to link carbon finance to mitigation from smallholder agricultural sector and modalities/mechanisms needed to effectively link carbon finance to agricultural sources of mitigation, including financing options for agriculture, including smallholder agriculture. The focus of the submission is on soil carbon sequestration in view of its high mitigation potential, relevance to smallholders, and its current exclusion from the CDM.

1. Background

a. The agricultural sector: high mitigation potential with strong adaptation and sustainable development co-benefits

Agriculture accounts for roughly 14% of global GHGs or about 6.8 Gt of CO_2 equivalent (e) per year (IPCC 2007). GHG emissions from land-use change, including deforestation in tropical areas, are around 17% of total GHG emissions. In most countries they are associated with agricultural activities and exceed emissions from all other agricultural sources. About 74% of total agricultural emissions originate in developing countries.

The technical mitigation potential of agriculture (estimated upper limit if ‘best management practices’ are widely adopted) has been calculated as 5.5-6 Gt of CO2e per year by 2030 (IPPC 2007). This potential is extremely large, especially relative to emissions from the sector. About 89% of this potential could be achieved through soil carbon (C) sequestration. Mitigation of CH_4 can provide 9% (through improvements in rice management and livestock/manure management) and mitigation of N_2O can provide 2% (primarily through cropland managment). The majority of the potential (70%) can be realized in developing countries (Smith et al. 2007).

In terms of abatement costs, the sector is particularly attractive, with many abatement options being cost neutral or net-profit-positive (increases in agricultural production, already economically justify the adoption of some mitigation activities), with low capital investment required (IPCC 2007 and

McKinsey 2009). Moreover, many of the technical options are readily available and could be deployed immediately.

Also significant is the high potential that the agriculture sector offers for synergies with climate change adaptation and key co-benefits of relevance to sustainable development. As emissions from agriculture are concentrated in developing countries, mitigation options that can contribute to food security, poverty reduction and resilience of agro-ecosystems are of crucial importance to sustainable development. The sector is expected to provide more food for future domestic markets within developing countries. 75% of the world's poor live in rural areas in developing countries, and most depend on agricultural for their livelihoods. (World Bank 2008) Agriculture is the main sector of the economy in most Least Developed Countries and generates essential environmental services (conservation of domesticated biological diversity, land and water management). Perhaps no other sector has the potential to contribute so directly to the aspirations of Article 2 of the UNFCC Convention (the ultimate objective of the Convention is stabilization of GHG concentrations in the atmosphere...at a level...which *ensures that food production is not threatened and enables economic development to proceed in a sustainable manner).*

b. With such significant potential, why has agriculture remained relatively marginal within the climate change negotiations?

Agriculture is perceived to be a difficult sector for climate change mitigation due to the sheer size of land areas under agriculture around the world (but at same the time this breadth of opportunity, which exceeds that of forestry, is part of its potential) the variation in agroecosystems and farming systems, as well as the large numbers of farmers that would need to be involved. Like its land-based sister sector, forestry, it shares challenges related to implementation uncertainties: permanence (and saturation), leakage and additionality, as well as those related to measurement (baselines), monitoring, reporting and verification. Methodologies to deal with these problems do exist and are being continuously improved and simplified. Extensive field testing, coupled with capacity building, to enable confidence and use will come once agricultural mitigation projects are eligible for generating emission reductions for a compliance market..

Existing climate change financing mechanisms to support mitigation have so far been highly inadequate in enabling agriculture (and forestry) to contribute, in line with its potential, to GHG reduction and carbon sequestration through activities with robust co-benefits. For example, soil carbon sequestration, through which nearly 90% of agriculture's potential could be realized, is excluded from CDM unless it is adopted in the framework of CDM A/R projects (N.B A/R.in 2007 number only one out of a toal of 1,100 projects). Financing options that enable agriculture to contribute more effectively to GHG abatement, including through more sector-specific options and those that innovatively combine public and private funding, are urgently needed if climate change is to be addressed to the extent, and at the pace, needed. .

<u>2. How can we quantify mitigation and deal with uncertainty issues associated with soil carbon sequestration?</u>

a. Soil carbon sequestration

Improved land use and management that can increase and maintain greater soil C stocks (i.e., sequester C) include a variety of practices that either increase the amount of C added to soils (as plant residues and manure) and/or reduce the relative rate of CO_2 released through soil respiration. Such practices include: 1) improved grazing land management,, 2) improved crop rotations, 3) improved fallows, 4) residue management, 5) reduced tillage, 6) organic matter amendments, 7) restoration of degraded lands, 8) rewetting of cultivated organic soils and (9 Agroforestry (Paustian et al. 1998, 2004, Smith 2007). If properly implemented these practices can remove and sequester CO_2 while improving agricultural productivity and sustainability. Improved nutrient management, to increase the plant uptake efficiency of applied nitrogen, can also reduce N_2O emissions, while contributing to soil C sequestration.

On the other hand, barriers to adopting C sequestration activities include saturation (maximum capacity of soils to store C); the risk of losing stored C; dificulties in establishing a baseline due to the lack of information on emission estimates and their assessment, achieving low transaction and measurement/monitoring costs. As can be seen below, new methodologies, mechanisms and approaches go some way to addressing these barriers.

b. Current state of measurement capabilities

A crucial requirement for ensuring that soil C sequestration represents real net removals of CO_2 from the atmosphere is that C stock changes be estimated accurately (unbiased) and with a known, and acceptable, level of precision. Further, methods need to be practical (particularly with respect to developing countries) and cost-effective.

Part of reason that soil C sinks have not received much consideration in current GHG reduction policies, may due in part to confusion about the state-of-the-art with respect to soil C measurements and what the most significant limitations are. In general, the scientific capability to quantify soil C *per se* are high and builds upon many decades of research, i.e.:

(i) The carbon content of a soil sample can be measured with a high degree of accuracy and precision. Instrument error associated with modern dry combustion auto-analyzers are < 0.1% and overall lab measurement error using proper protocols is in the neighborhood of 1-2%.
(ii) Equipment and protocols for soil sampling are well documented and have been applied throughout the world for decades.
(iii) The general response of soil C stocks to environmental variables and management practices is relatively well known. There are hundreds of long-term field experiments globally that provide information on management-climate-soil interactions on soil C dynamics.
(iv) Sophisticated models to predict soil carbon stock changes in relation to managment practices have existed for > 20 years and are increasingly deployed for research, management and policy applications.

However, there are challenges to measuring soil C stock changes at field scales and larger, including:

(i) Soil carbon contents are often highly variable within an individual field.
(ii) Annual changes are usually small relative to existing C stocks, e.g., typical C stocks in the top 20 cm or so of many agricultural soils are on the order of 20-80 tonnes/ha whereas typical rates of C changes might be on the order of 0.1-1 tonnes/ha/yr, hence there is a low 'signal to noise ratio' over short time scales.
(iii) Multiple factors (e.g. soil type, climate, previous land use) influence soil responses at a specific location.
(iv) Despite existence of many long-term field experiments (as stated above), experimental measurements are lacking for most crop, soil, climate and management combinations, particularly in developing countries.
(v) There are few existing inventory measurement systems for soil C (e.g. compared with, for example, forest biomass inventories systems).

Thus the **fundamental issue with respect to direct measurement of soil C stocks and stock changes is not so much an issue of measurement capabilities *per se*, but rather a question of**

applying efficient sampling designs and rigorous protocols. Various measures, such as use of benchmark sampling locations that can be precisely relocated (to reduce the influence of spatial variability) and remeasured over multi-year intervals can contribute to an efficient design to quantify soil C stock changes (Conant and Paustian 2002, McConkey and Lindwall. 1999, Mooney et al. 2007).

c. A combined measurement and modeling approach

While direct 'on-the-ground' measurements can provide the most accurate estimates of C stock change, requiring an intensive set of field measurements for each project participant, would be too expensive and moreover unnecessary. An alternative approach, is to **combine field measurements and model-based approaches, thus leveraging existing knowledge and data embodied in models of soil C change.** However application of this approach requires an adequate empirical database to draw upon, as well a global coordinated system of information sharing. Applicable models could include empirical approaches, such as the Tier II methods developed for soil C inventory estimates in the IPCC guidelines (IPCC 2006) and/or more process-based models that have been developed for soil C stock change assessment (e.g., Milne et al. 2008, Paustian et al. 2009). In such an approach, **aggregated field measurements from multiple projects provide the means to estimate uncertainty and correct for potential bias in the model-based estimates** (e.g. Ogle et al. 2007), and the models provide the capability to 'interpolate' the results for varying climate and soil conditions and thus capture the spatial heterogeneity represented individual project participants. Over time, the reliability and performance of such a hybrid system would improve so that **monitoring and verification could increasingly be based on practice-based approaches.** These might include a combination of remote sensing, rapid ground survey methods and participatory ground survey methods, and over time, correspondingly less reliance on only on direct measurement based verification. **Steps to implement such an approach include**:

i) Establishment of a 'fund' or other mechanism to support the establishment of remeasurable inventory locations for a suite of pilot projects, in different major agroecological zones, where direct measurements of soil C would be collected, along with pertinent soil, climate, land use and management information.

ii) Establishment of a set of rigorous field and lab protocols that would be applied across all the pilot projects.

iii) Establishment of a common data archive in which all the information from the various projects participating (with appropriate safeguards for data confidentiality) would be available for use.

iv) Use of pilot projects to develop and test remote sensing-based and ground survey-based methods for monitoring and verification of management practice implementation.

d. Additional considerations

To gain acceptance as a viable mitigation option, soil C sequestration (as for other C removals such as in woody biomass) needs to be a true reduction of CO_2 with respect to the atmosphere. This requires that they be: 1) Real, 2) Additional, 3) Verifiable and 4) Permanent (Offset Quality Initiative 2008). There is abundant research showing that main management practices being considered for increasing soil C stocks can in fact do so, i.e., that if properly executed the removals of CO_2 into the sink are in fact 'seen' by the atmosphere (i.e., they are Real). However a valid quantification approach that is, and is perceived to be, rigorous is needed.

To achieve such an approach, there is a crucial role for direct measurements, particularly in the initial stages of soil carbon crediting. At this point adequate data to construct practice-based performance standards that are quantitatively sound is limited. A coordinated effort is needed, so that measurements that are taken can be ‘pooled’, thus optimizing the value of a more limited set of measurements rather than requiring each individual project to do an extensive set of cost prohibitive measurements. However, until such time as performance-based standards are robust enough for certain crops or regions, conservative crediting default values should be used. Once robust systems are in place, crediting values might be adjusted.

Leakage (which can negate the ‘reality’ of sinks) is arguably less of a problem for many agricultural practices as compared to activities such as afforestation or avoided deforestation, if the production of agricultural services is maintained or even increased, as a consequence of adopting C sequestering practices. However, for activities involving land use change (e.g. agricultural set-asides), leakage associated with displaced agricultural production is an important issue, but several strategies to mitigate leakage have been developed for AR (afforestation-reforestation) projects that are applicable to agricultural settings as well.

Permanence is a real issue for biological C sinks in general, which do have the potential for reversal. However, **mechanisms to ensure the integrity of sinks over a specified duration have been developed, perhaps most notably the Permanence Buffer** concept adopted by the Voluntary Carbon Standard (VCS 2008). This approach considers factors affecting the variable risk of loss of permanence for different types of projects/activities which has several advantages over other approaches such as discounting. By **pooling the permanence risk across a portfolio of projects and taking a conservative approach in ensuring an adequate buffer, soil C sequestration can be fully equivalent to CO_2 emission reductions**. Moreoever, where adoption of soil C sequestration practices also leads to more sustainable/profitable farming systems, the risk of non-permanence is much lower.

3. What modalities/mechanisms are needed to effectively link carbon finance to agricultural sources of mitigation?

a. *Moving beyond present mechanisms*

Current global financing mechanisms have not enabled the capture of the potentially large mitigation effects that agriculture could provide. The CDM in its present form is inadequate. Not only are many sources of agricultural mitigation not allowed under CDM, but its project-based and offsets approach does not generate the breadth and scale of incentives that are needed. Capturing the full potential of agricultural mitigation and its co-benefits requires widespread changes in agricultural production systems, which in turn requires changes in policy, institutions and technologies and a much broader approach by mitigation financing mechanisms. A range of financing mechanisms are needed from market based offsets to public sector funds, which are flexible enough to adjust to the specific agro-ecological, institutional and technological situation of Parties.

Key issues to be addressed include the need to scale up funding and delivery mechanisms, reduce transactions costs and improve the contribution to sustainable development. Several means of scaling up have been proposed including:1) programmatic CDM, sectoral CDM, sectoral “no-lose” accounting and 3) Sustainable Development Policy and Measures (UNFCCC/TP/2008/7) page 80 These vary in the degree to which they can provide incentives for mitigation on a large scale, linked to sustainable development, and their respective transactions costs.

In the development/expansion of financing mechanisms, the following considerations are important for mitigation from agriculture:

a) Equal opportunities for large scale land owners and smallholders.
b) Rights to emissions reductions are held by land users, based on formal as well as traditional systems of property rights.
c) Options for trading and crediting that allow for a range of nationally appropriate mitigation actions
d) Activities to reduce GHG emissions are carried out in accordance with the principle of common but differentiated responsibilities and the sustainable development objectives of the host country, inspired by the Millennium Development Goals, UN conventions on desertification and biological diversity, and Declarations of the World Food Summits.

b. *Consistent accounting for terrestrial carbon pools*

A fundamental requirement for realizing the potential of agricultural mitigation from developing countries is the establishment of a holistic accounting and trading regime for terrestrial carbon. Proposals like that from the Terrestrial Carbon Group (2008) highlight the advantage of establishing national terrestrial carbon budgets that recognize differentiated carbon ownership. The proposal includes two possible ways of establishing a national level terrestrial carbon baseline:

> a) including all terrestrial carbon pools (soil & biomass, below & aboveground related GHGs)
> or
> b) including all terrestrial carbon pools, but with a separate account for those that are already regulated under a national REDD baseline. Nations could propose a baseline year to best reflect business as usual scenarios.

Emission reductions and agricultural carbon sequestered above the baseline could then be credited and marketed on the international compliance or voluntary market or for public sector support, Varied accounting and monitoring standards could be developed, e.g. as outlined within the CDM or the Voluntary Carbon Standard. Carbon crediting would be registered at the national level, and would then be added to a "protected" category additional to the baseline. Countries would hold the ultimate responsibility for protecting credited carbon, but would also have the opportunity to allow sub-national carbon trading where responsibility for protecting carbon could be transferred to contracted entities. A permanence buffer or an insurance mechanism can be developed to manage the respective risks related to unprotected carbon that may have to be replaced. .

Trading rights could be put on hold if the nation's terrestrial carbon budget is not in compliance with the established baseline. This mechanism ensures permanence and that emission reductions are fully fungible with all carbon trading systems. Environmental policies could be developed to ensure that allowances of large emitters will not increase and a low carbon development pathway is adopted.

For such a system to be effective, a national coordination and monitoring body for the above mentioned accounting and trading system would need to be established with international oversight.(an entity reporting to the CDM Executive Board or the UNFCCC COP?) Environmental and social safeguards would also have to be developed.

c. *Key elements for future financing mechanisms to realize the potential of smallholder agriculture*

i. Carbon markets

Carbon market mechanisms that provide strong incentives for government carbon funds and the private sector in developed countries to buy agriculture-related emission reductions from developing countries (to achieve compliance targets) are needed. Crediting emissions reductions generated from smallholder agricultural activities in LDC countries is one important step in leveling the playing field and allowing greater access of smallholder farmer to the benefits of international carbon markets. To achieve this, agricultural land management activities should be considered eligible under international compliance mechanisms. However changes in the operation of these mechanisms are also required to capture the value of mitigation from smallholder agriculture.

Often, mitigation from this sector involves relatively low amounts of tCO_2 e per year, per unit, resulting in a need for aggregation, in order to be cost effective in international compliance markets. Aggregation and up-scaling mechanisms like the programme of activities (PoA) or sectoral approaches are thus critical, and need to be further tested and evaluated in the particular context of smallholder agricultural mitigation. Use of this type of approach for offsets may also reduce the transactions costs associated with establishing additionality, which is recognized as a significant cost barrier in the CDM, but at the same time essential to the acceptance of any offset. In many cases it should be possible to devise broadly applicable practice-based tests of additionality for the agricultural sector at the national level, based on sector wide assessments of likely business-as-usual trajectories. In order to ensure that agricultural offsets are financially feasible, they must be fully fungible with other types of offsets. This will prevent them from being relegated to low value niche markets with credits that are not convertible or recognized in the financial market, for example, temporary certified emission reductions (tCERs).

Carbon revenues could provide the needed stimulus and capacity to adopt sustainable agricultural land management practices that are eventually more profitable for the producer, even without carbon revenues. This temporary role of carbon finance in stimulating the change to more productive and profitable production systems fits well with the saturation of soil carbon pools. Most carbon sequestration activities are expected to reach saturation at a certain point in time, i.e. after 20 to 100 years and therefore do not provide sustainable income in perpetuity. If C sequestration incentives also lead to more productive and sustainable forms of agriculture, there will be a lower risk of non-permanence (compared to the baseline conditions).

However, carbon financing must be structured to meet the specific constraints faced in these situations, such as the need for investment financing and appropriate technologies. Carbon financing based on payments-on-delivery are not suitable for smallholder agricultural mitigation projects. This suggests a need to create flexible funding approaches within existing carbon funding mechanisms, as well as explore alternative funding mechanisms, including public/private partnerships.

ii. Alternative sources of finance

Some forms of mitigation from smallholder agriculture will not be cost effective for international compliance markets, due to low returns, high transactions costs or high risks. Thus public finance has a critical role to play in realizing the benefits of mitigation from smallholder agriculture. Public finance can also play an important role in facilitating the flow of private sector finance, by funding needed capacity building, reducing risks to private sector investors and assisting in the development and dissemination of technologies. Various proposals have been made regarding the source of such finance, i.e. auctions, international taxes, assessed contributions and dedicated budgetary support. In addition, various proposals have been made for the most effective delivery mechanisms, including the support of Nationally Appropriate Mitigation Actions (NAMAS), the implementation of sustainable development policies and measures (SD-PAM) and actions that link mitigation and adaptation.

Crediting voluntary mitigation action through the implementation of NAMAs and use of national registries could be a relatively low cost means of stimulating the supply of mitigation from smallholder agriculture. Potential links to compliance markets could also be explored. Here, as with market based approaches it is critical to consider the specific nature of various agricultural production systems and the requirements needed to transition to more sustainable systems that also generate mitigation. Financing approaches that address the need for investment capital, risk management and access to new technologies is needed. Another important potential means of reaching agricultural producers with carbon funds is through agricultural product markets, e.g. through the development of agricultural product standards and labeling related to mitigation benefits provided. Building upon the institutions and lessons learned from the development of organic and sustainable agricultural production marketing channels for smallholders can greatly facilitate the implementation of such an approach.

***4.* What is the enabling institutional and policy environment required to link carbon finance to mitigation from smallholder agricultural sector?**

Four important aspects of an enabling environment are required to realize the potential of agricultural mitigation from developing countries: 1) institutions that can facilitate the aggregation of carbon crediting amongst a large number of smallholders, 2) policies in the agricultural, financial and environmental sectors that facilitate the flow of carbon finance from private and public sectors and 3) capacity building and (4) an agreed system of property rights to the carbon benefits that can be generated.

Aggregation capacity is fundamental to realize the potential of agricultural mitigation from smallholder agriculture. In many cases agricultural institutions are the natural candidates for such aggregation, be they public, private or NGO. Evidence from the voluntary carbon market shows the importance of local level institutions in linking smallholders to carbon markets, with examples ranging from national forestry agencies (Costa Rican National Forestry Fund; Uganda National Forestry Authority), local NGOs (Grupo Ecológico Sierra Gorda, Mexico), to village forest committees in Indonesia and Tanzania participating in REDD project planning. Local institutions can play an important role in helping farmers build a resilient project plan and providing support with the contractual agreements made with buyers or aggregators. They have also been successful in attracting donor funds, sometimes coupled with private sector contributions, or facilitating future market agreements to generate funds to cover start-up costs.

Building upon existing capacity and integration with ongoing institutional developments in the agricultural smallholder sector is one way to realize aggregation potential at a relatively low cost and in a way that results in the mainstreaming of climate mitigating sustainable production systems into agricultural development. Working with farmer fields schools and agricultural extensions services is an important example.

An enabling overall policy framework is needed to realize the capacity and effectiveness of any type of approach to realizing the benefits of smallholder mitigation. Agricultural sectoral policies that encourage the adoption of sustainable agricultural production systems are clearly a priority. In some cases this requires removing or changing existing tax, pricing and land management policies that generate perverse incentives for sustainable production systems, such as overuse of pesticides and fertilizers or land degradation Coordination between environmental, natural resource and agricultural policies is needed to maintain a consistent set of incentives for adoption of sustainble management systems and to facilitate cross-sectoral interactions which are often involved in carbon crediting from agriculture. Regulations in the financial sector that facilitate the flow of funds for mitigation benefits to local communities are also important and have been a barrier to paying farmers for environmental benefits in some cases.

Clarification/definition of property rights (individual, community, state) at the outset, may help to reduce the risk of future loss of return on investments related to land. Carbon crediting projects implemented together with land tenure and resettlement projects is one potential way of addressing the property rights issue. Another way is to establish crediting programs that recognize local systems of property rights as a basis for crediting, and build upon local systems of collective action and enforcement. Experience with payment for environmental services (PES) schemes indicate the potentail of designing schemes that allow and support the participation of farmers with unclear property rights. Under the Costa Rican national PES scheme holding a property title is no longer required- participants may apply with proof of possession rights alone. Public sector finance to support a system of clearly recognizable and enforceable rights to carbon revenues generated from agricultural mitigation may be necessary in many cases.

5. Conclusions

(a) Agriculture in general, and smallholders in particular, have tremendous potential to mitigate GHG emissions, while generating co-benefits of the highest importance to sustainable development (poverty reduction, food security, environmental services).

(b) There are certain challenges in operationalizing agricultural mitigation activities: permanence/saturation, leakage and additionality. In measuring, reporting and verifying GHG emission reductions and sequestration, these difficulties must be taken into account. Methodologies and approaches to deal with these exist and are continually being perfected and simplified (e.g. combining measurement and model-based approaches or monitoring and verification employing practice-based approaches, the VCS Permanence Buffer, applying efficient sampling designs and rigorous protocols). Greater coordination of data collection, modeling and field testing of these methodologies is needed, together with capacity building for their use.

(c) Existing financing mechanisms have enabled only a very small fraction of the mitigation potential of agriculture to be realized. Soil carbon sequestration, which has the highest potential for generating mitigation from agriculture, and engaging/benefiting smallholder farmers, is outside the scope of the CDM. Neither climate change mitigation, nor food security, nor sustainable development, benefit from this exclusion.

(d) Whether existing mechanisms are reformed or new ones created (and the two are not mutually exclusive), certain features are required for agriculture to contribute to climate change mitigation in accordance with its potential, including:

- Institutions for carbon finance where up-scaled and broad approaches can be applied, facilitating the involvement of large numbers of smallholder farmers covering a wide area and range of ecosystems and that can have an influence on developing needed policies and technologies.
- Financing arrangements that address specific needs in smallholder agriculture mitigation adoption including the need for investment capital and insurance.
- A range of options for mobilizing private and public funds for financing, including use of compliance market credits, voluntary market credits, publicly funded programs and agricultural product labels.

(e) Linking farmers, including smallholder farmers, to carbon financing requires an enabling environment with appropriate policies, institutions/capacity building and an agreed system of property use/rights/access.

6. Possible Options for consideration by Parties

(a) Establishment of a REDD-like approach/initiative for agriculture in order to build a globally coordinated effort to test MRV methodologies and incentive/payment schemes, and build readiness, possibly with the following sector-sensitive financial instruments: a global agricultural land management accounting and trading system; smallholder agriculture climate change readiness fund, linked to a public-private trust fund serving as a market incubator to buy emission reductions from early action agricultural mitigation projects from smallholder farmers

(b) Consideration of the need to establish a range of funding and delivery mechanisms to realize the potential from agricultural mitigation and its co-benefits, related to sustainable agricultural development and adaptation to climate change.

(c)Consideration could be given to the eventual possibility (post Copenhagen) of moving towards a more comprehensive approach to terrestrial carbon in all land uses to enable better management of synergies and trade-offs across different land uses and land use changes, as well as to capture efficiencies and cost-effectiveness.

(d) Integration of soil carbon sequestration into the scope of LULUCF accounting, as well as into existing/future financing mechanisms, including any eventual mechanisms linked to NAMAs.

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