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DEVELOPMENT AND OUTLOOK FOR AGRICULTURE IN INTERNATIONAL CLIMATE NEGOTIATIONS

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Agriculture has a specific role to play in current and future climate change. This carbon-intensive sector, which is responsible for 13.5% of global greenhouse gas emissions, is also highly exposed to the impacts of climate change, including a downward trend and increasing variability in yields. Yet agriculture's capacity to adapt and potential for mitigation also make it part of the solution to climate change.

The agricultural sector is often treated as a poor relation in international climate negotiations, which is inappropriate given its specific characteristics and fundamental role. The aim of this report is to consider how agriculture can participate effectively in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations and identify the main challenges faced by this sector in the coming years.

An analysis of the history of negotiations and their current situation belies the idea that agriculture plays no part in the UNFCCC process, although it does not enjoy specific consideration as a sector. It falls within the scope of various mitigation and adaptation mechanisms, while its effective participation remains limited. Since 2009, agriculture has also been included in the COP negotiation process and is currently part of the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA).

However, agriculture is only at the first stage of a long and complex negotiation process which cannot be expected to be completed during COP21. While we can hope for COP21 to achieve progress in dialogue regarding monitoring, reporting and verification (MRV) or the adoption of a landscape approach, the SBSTA's work on agriculture will continue beyond 2015, representing a vital step before the development of any operational tools. Multilateral initiatives such as the Global Alliance for Climate-Smart Agriculture are meanwhile helping to mobilise the international community regarding agricultural issues, in parallel with international negotiations, although they remain on the margins of the UN's action.

The obstacles to establishing mitigation and adaptation mechanisms in the agricultural sector, from engineering to funding, are abundant and difficult to overcome. Therefore the perceived "slowness" of international negotiations on the subject of agriculture only reflects the scale of the challenges to be tackled, i.e. the importance of agriculture in trade, its political sensitivity and the complexity of the scientific and technical challenge presented by the reduction and monitoring of agricultural emissions. Furthermore, it is a matter of rethinking agricultural development trajectories, modifying the organisation of agricultural sub-sectors, from input production to consumption habits, and considering the effective impacts on stakeholders, including in terms of development.

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"We call on [the government representatives meeting in Copenhagen], as they seek agreement on a global response to the challenges of climate change, to recognize and address the specific threat that it poses to the world's food security. [...] No credible or effective agreement to address the challenges of climate change can ignore agriculture and the need for crop adaptation to ensure the world's future food supplies."³

In 2009, at the Conference of the Parties in Copenhagen, well-known agricultural engineers sent an open letter to world leaders encouraging them to include agriculture in the scope of international climate negotiations. Often treated as a poor relation in climate negotiations, agriculture has nonetheless experienced some modest advances since 2009. Left out of general considerations, though not benefiting from a specific approach, agriculture now occupies a complex and changing place in climate negotiations.

Agriculture has a specific role to play in current and future climate change. Being exposed to the impacts of climate change, agriculture is set to see its overall yields fall and their variability increase year on year, with particularly dramatic consequences for this sector which is so vital to many countries' economies, particularly developing countries. Agriculture is a high-impact sector which is particularly intensive in terms of greenhouse gases (GHGs). Although it represents just 3% of global GDP (World Bank, 2012), it accounts for 13.5% of global GHG emissions (IPCC, 2014) rising to 24% including changes of land use and 30% if the entire agricultural supply chain is taken into account (UNCTAD, 2010). Moreover these emissions are not falling. On the contrary, the increase in the world's population and dietary changes are likely to result in a 35% to 60% increase in agricultural emissions by 2030 (ibid.). Although it produces a high level of emissions, agriculture also stands out for its significant capacity to adapt and high mitigation potential, often presenting good value for money mainly relating to carbon sequestration capacities. Far from being incompatible, agricultural mitigation and adaptation strategies offer the potential for considerable synergies.

The inclusion of agriculture in considerations is therefore both a necessity and an opportunity, in a framework of uncertain climate negotiations. International climate negotiations take place under the aegis of the United Nations Framework Convention on Climate Change (UNFCCC), the ultimate objective of which is to "stabilize [...] atmospheric concentrations of GHGs at a level that would prevent dangerous human interference with the climate system" (Nations Unies, 1992). Ratified by 195 States, the UNFCCC has met once a year at the Conference of the Parties (COP) since its launch following the Rio Earth Summit in 1992 and the first COP in Berlin in 1995. In 1997, the UNFCCC was joined by the Kyoto Protocol (KP). Ratified by 192 of the 195 Parties to the Convention, it establishes a binding commitment on developed countries in Annex B in the form of a GHG emissions reduction target of 5% compared with the 1990 level, to be reached between 2008 and 2012, facilitated by the creation of the European Union's emissions trading scheme (EU-ETS). The second commitment period, agreed at COP17 in Durban and in 2011 and detailed at COP18 in Doha in 2012, extends the KP over the period 2013-2020. A new global agreement is expected in 2015 at COP21 in Paris, for implementation in 2020. This will be the culmination of discussions begun in 2011 via the Durban Platform.

In this context of negotiations, this report aims to understand and assess agriculture's integration into international climate negotiations. It will take place in three stages: firstly, an analysis of the principles and measures contained in international agreements affecting agriculture; secondly, an examination of changes to the agricultural theme from a formal perspective over the course of negotiations; before, finally, offering an insight into the in-depth debates in progress and future challenges.

³ Food Security and Climate Change: A Call for Commitment and Preparation, Global Crop Diversity Trust, 2009

I. INTERNATIONAL PRINCIPLES AND MEASURES FOR COMBATING CLIMATE CHANGE IN THE AGRICULTURAL SECTOR

This section examines how agriculture's specific challenges have been taken into account in international climate agreements from the outset, before considering the operational mechanisms resulting from the general principles and strategies as well as their limitations.

A. International commitments incorporating agricultural challenges

1. Recognition of agricultural challenges in the UNFCCC's principles

International climate negotiations incorporated agriculture and took its specific characteristics into account from the outset. The founding text in the fight against climate change, the UNFCCC, resulting from the Rio Earth Summit in 1992, set out action principles addressing agricultural issues and promoting international action in the sector. The UNFCCC explicitly states that its target to stabilise GHG emissions must be achieved in a context ensuring not only the adaptation of ecosystems, but also food security and economic development (Art 2.).

In addition to maintaining food security and the right to economic development, achievement of this objective is framed by general principles which are significant for the agricultural sector:

- *i)* national sovereignty;
- the common but differentiated responsibilities of the Parties and their respective capacities (Art 3.1), which require countries to act according to their historic responsibility for GHG emissions and their respective capacities;
- *iii)* the global nature of policies implemented by the Parties, which must cover all sources and sinks of GHGs and plan adaptation measures targeting all economic sectors (Art 3.3);
- *iv)* non-discrimination and avoidance of barriers to trade (Art 3.5)

These principles govern policies to combat climate change generally and concern all sectors. However, in view of the impact of climate change on agriculture, particularly in developing countries, which are themselves very economically dependent on this sector, and considering the pressures on land use and agriculture's specific potential to offer carbon sinks, agriculture clearly has an especially strategic role to play in international climate negotiations.

2. Attempt at a sectoral approach to agriculture

Governed by the above principles, the Parties are called on to act against climate change and its negative impacts, including in the agricultural sector. The UNFCCC and the Kyoto Protocol (KP) both include more or less explicit references to agriculture.

Agriculture is mentioned in generic terms, for instance, in the same way as other sectors:

- for the establishment of inventories of GHG emissions and absorption (Art 4.1.a, UNFCCC and Art 7. and Art 3.3, KP), with an exception concerning inventories of CO_2 flows linked to management of crops and grazing land, which remains optional (Art 3.4, KP)

- concerning "protection and enhancement of sinks and reservoirs of greenhouse gases" (Art 2.1.a.ii, KP);

Agriculture is referred to explicitly several times in the context of particular actions:

- technology transfers "in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors" (Art 4.1.c, UNFCCC)

- adaptation, as a result of " *plans for coastal zone management, water resources and agriculture*" (Art 4.1.e, UNFCCC)

- "Promotion of sustainable forms of agriculture in light of climate change considerations" (Art 2.1.a.iii, KP)

- mitigation and adaptation programmes in the "energy, transport and industry sectors as well as agriculture, forestry and waste management." (Art 10.b.i, KP)

Successive COP meetings have only confirmed the recognition of agriculture already evident in climate treaties, particularly via the sectoral mitigation approach, which emerged from COP13 in Bali in 2007. The Bali Action Plan emphasises the importance of cooperative sectoral approaches and actions specific to each sector for implementation of technology transfers – marked out as a priority – in various sectors, including agriculture. This sectoral approach gave rise to two negotiating tracks: one relating to the KP, the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) and the other relating to the 1992 Convention, the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA). The sectoral approach includes increased cooperation with various international organisations, i.e. the United Nations Food and Agriculture Organization (FAO) for the purposes of this report⁴.

Despite affirmations of a sectoral approach in conventions dating from 2007 onwards, the UNFCCC's practical actions demonstrate a non-sectoral approach to climate issues, in respect of agriculture as well as other sectors. The sporadic references to agriculture in climate treaties indicate a lack of specific consideration and the UNFCCC's organisational chart supports this perception, since no UNFCCC body is assigned a specific sectoral mission. In the case of agriculture, numerous bodies cover the sector and separate projects relating to agriculture even exist within some bodies: e.g. the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) organises discussions concerning the agricultural sector, as well as provides a framework for the Nairobi Work Programme which also covers agriculture; the Adaptation Committee, the Technology Mechanism, etc. which also address agricultural questions non-specifically and from other perspectives (see Figure 1).

⁴ The annexes to the Bali plan include provisions for inviting the FAO – among other organisations – to contribute to the SBSTA's technology transfer activities as well as inviting the FAO's invited experts to participate in the Expert Group on Technology Transfer (EGTT).



Source: CDC Climat Research based on data from the UNFCCC

Despite acknowledgement of the vital challenges and specific characteristics of agriculture, recognised in international conventions and agreements since 1992, agriculture has not generally benefited from specific treatment, either under the UNFCCC or the KP. Similarly, inclusion of a sectoral approach in agreements since 2007 has not been reflected in the work of the UNFCCC.

B. Mitigation and adaptation solutions with limited scope for the agricultural sector

1. Monitoring, reporting and verification of emissions – the cornerstone of mitigation solutions

Based on inventories and reports, agriculture features in various mitigation solutions, including the Kyoto Protocol and resulting flexibility mechanisms (see Figure 2).



Figure 2: UNFCCC mitigation measures featuring agriculture

Note: the measures mentioned in Figure 2 are explained below

Source: CDC Climat Research

The UNFCCC and the KP call for the production of reports, communications and action plans by the Parties – national communications, GHG inventories, mitigation and adaptation measures – with a differentiated level of obligations according to the Party's status (Annex 1 of the UNFCCC or Annex B of the KP or non-Annex B, non-Annex 1)⁵. These reports concern all sectors responsible for carbon emissions or sequestration, therefore including agriculture.

⁵ Annex 1 of the UNFCCC lists the Parties committed to reducing their GHG emissions. Annex B of the Kyoto Protocol contains most of the countries from Annex 1 of the UNFCCC which ratified the KP, stipulating their detailed commitments for reducing GHG emissions.

Segmentation of the agricultural sector in GHG inventories

The UNFCCC requires the Parties to submit GHG emissions inventories, which each party must "*periodically update*" and produce "*to the extent its capacities permit*" (Art 4.1.a and Art.12.1.a). The Parties listed in Annex 1 of the UNFCCC therefore submit an annual GHG inventory as well as periodic national communications. If they have ratified the protocol, KP Annex B countries must also submit additional information each year, including for the Land use, land-use change and forestry (LULUCF) sector. Non-Annex 1 countries, meanwhile, must submit an initial national communication – including an inventory of emissions – within the first three years of the Convention coming into force. At COP17 in Durban in 2011, it was decided that non-Annex 1 countries should also submit a bi-annual update from 2014, subject to funding and capacities.

Under the KP, GHG inventories incorporate emissions from agriculture as from other sectors (Art 7.). Anthropogenic emissions reported for the agricultural sector are limited to methane (CH₄) and nitrous oxide (N₂O). These are characterised by significant atomisation, very unequal distribution globally and the fact that they are difficult to estimate.

Inventories divide national emissions into six sectoral categories: energy, industrial processes, solvents, agriculture, waste and LULUCF. Emissions from the agri-supply, agriculture and agri-food (AAA) sectors are therefore spread over four categories:

- energy: including CO₂ emissions linked to combustion activities in the AAA industries (production of inputs, production of agricultural machinery, agri-food industries, etc.; energy consumption of buildings to house cattle, greenhouses, tractors, etc.);
- **industrial processes**: including N₂O emissions produced during production of nitrogen fertilizers and CO₂ emissions produced by use of limestone in sugar manufacturing;
- **agriculture**: including CH₄ and N₂O emissions from enteric fermentation, animal waste management, rice growing, crops and grazing or burning of crop residues on site;
- LULUCF: including GHG emissions and absorption linked to conversion of land between uses: forest, crops, grazing land, wetlands and residential use. Excluding change of land use, this sector reports changes to carbon stocks in the ground linked to changing practices such as the presence of multi-annual crops in rotation, ploughing or leaving fallow. Concerning changes to carbon stocks in farmland and grazing land in particular, reporting is based on article 3.4 of the KP: reporting is optional, only being compulsory for countries which have chosen to report carbon flows linked to crop management and/or the management of grazing land before 2007, i.e. Canada⁶, Denmark, Spain and Portugal;

Limited role of mechanisms resulting from the Kyoto Protocol

The KP set a target of a 5% reduction in anthropogenic GHG emissions over the period 2008-2012 compared with 1990 for Annex B countries. The KP entered its second commitment phase in 2013 (2013-2020). Commitments made during the second phase generally reflect voluntary commitments for 2020 made in Copenhagen in 2009. Under the Kyoto Protocol, each Annex B country is allocated a quantity of quotas corresponding to its target, i.e. its maximum emissions. States must return as many of these carbon assets as emissions they have produced, by buying surplus quotas from other Parties if necessary, hence the need to carry out annual national emissions inventories according to precise and common rules. As explained above, a significant proportion of agricultural emissions are reported in these inventories.

Furthermore, offset mechanisms have been created in the context of the Kyoto Protocol, i.e. the Clean Development Mechanism (CDM) and Joint Implementation (JI) – flexibility mechanisms, which can be used by Annex B countries to achieve their GHG reduction targets.

⁶ Since Canada withdrew from the KP, reporting stopped for the 2011 inventory (submitted in 2013).

The Clean Development Mechanism (CDM) generates Certified Emission Reduction (CERs) credits by funding GHG emissions reduction projects in non-Annex B countries. Around 10% of the 247 CDM methodologies validated as of 1 December 2014 concern the agricultural sector in a broad sense, i.e. a total of 25 methodologies, with just eight concerning agriculture specifically⁷. A large proportion of these methodologies relate to bioenergies, although all sorts of agricultural projects can theoretically be implemented in the context of a CDM, with the exception of carbon sequestration in farmland, although this option is currently under discussion within the UNFCCC. Some 954 projects linked to agriculture were recorded as of 1 December 2014 out of 7,578 CDM projects (only 213 strictly categorised as agricultural), i.e. almost 13% of CDM projects. In order of importance, these projects relate to bioenergies, methanisation of agricultural waste and reduction in N₂O emissions from fertilizer production. These had generated more than 100 million CERs as of 1 November 2014, or 7% of all credits generated under the CDM standard (1.5 billion CERs). The difference between the number of methodologies and projects concerning the agricultural sector and those relating strictly to agriculture is due to the fact that the large number of projects working on biofuel from first generation alcohol and oils and some types of biomass are classified in the energy rather than agriculture category and that projects relating to the production of nitrogen fertilizers are placed in the industrial processes category.

Joint Implementation (JI) generates Emission Reduction Units $(ERUs)^8$ carbon credits by funding GHG emissions reduction projects in Annex B countries. Over the period 2008-2012, 70 projects linked to agriculture were recorded out of a total of 648 JI projects (only 12 strictly relating to agriculture), i.e. 9% of projects. Most agricultural projects relate to, in order of importance, the reduction of N₂O emissions during the manufacturing of fertilizer, biomass or avoiding ploughing. Agricultural projects have generated 70 million ERUs or 9.4% of JI credits.

To generate carbon credits in the context of the CDM and JI, project coordinators must demonstrate emissions reductions achieved using emissions Monitoring, Reporting and Verification (MRV) tools.

Despite incentives resulting from international climate negotiations, an examination of agricultural projects in CDM and JI mechanisms reveals that the scope and reach of these projects remains limited:

- i) their GHG emissions reductions are fairly low compared with projects overall;
- few sub-sectors are covered by these projects: most concern the substitution of fossil fuel with agricultural biomass, methanisation or, at sector level, emissions reduction projects linked to the production of nitrogen fertilizers;
- iii) these mechanisms are confined to particular regions: CDM projects are mostly carried out in Asia and Latin America and JI projects in Eastern Europe;
- iv) certain barriers, mainly technical and technological, limit the scope for agriculture in carbon offsetting mechanisms. The reliability of data, the diffuse and transient nature of agricultural emissions, the diversity of agricultural systems and the complexity and therefore cost of measurement and monitoring are all factors making it harder to construct solid methodologies particularly for a reference scenario as well as evaluation of additionality and project development;
- v) institutional barriers and difficulties accessing funding limit their development, particularly in the case of the CDM (institutional weakness and failings, divergence between governmental development priorities and those of the CDM, etc.);

Moreover, these mechanisms' economic efficiency, environmental integrity and effective contribution to sustainable development are often questioned, particularly when it comes to the CDM, due to the high

⁷ CDM agricultural methodologies relate to: multi-site collection and treatment of manure, manure management systems and recovery of methane by these systems, offsetting of synthetic nitrogen fertilizers through the application of inoculants in legume-grass rotations on acidic soil on existing farmland, use of seeds effective use of nitrogen, appropriate use of water in rice growing and increasing dairy companies' productivity using strategic nutritional supplements.

⁸ Certified Emissions Reductions (CERs) and Emissions Reduction Units (ERUs) differ in their origin: CERs result from CDMs (Art 12., KP) while ERUs come from JIs (Art 6., KP)

transaction costs and uncertain additionality (Shishlov and Bellassen, 2012). Although they continue to be developed during sessions held by SBSTA and the UNFCCC and KP Subsidiary Body for Implementation (SBI) within the framework of international negotiations, these offsetting mechanisms are increasingly limited. Demand for these credits is currently very low, reflected in a price close to zero. The work and attention paid to these mechanisms therefore contrast sharply with the reality of the market in these credits and offsetting mechanisms.

Some national agricultural mitigation initiatives

In addition to the market mechanisms established by the KP, the Annex B Parties are free to implement national measures to achieve their GHG emissions reduction targets, such as regulations, carbon market, etc. Some Parties have therefore adopted carbon market solutions, some of which encompass agriculture.

<u>New Zealand case study.</u> In 2008, New Zealand created the *New Zealand Emission Trading System* (NZ-ETS), covering all sectors and all gases within the scope of the KP. Agriculture accounts for almost 47% of national GHG emissions⁹, compared with 18% in France for instance. Reporting obligations have therefore been imposed on agricultural processors since 1 January 2012 and New Zealand planned to integrate agricultural emissions into its emissions trading scheme, placing restrictions on producers of nitrogen fertilizers for N₂O emissions and on meat processing industries for emissions linked to cattle breeding. Plans to include the agricultural sector in the quotas system have been abandoned, however, after being postponed from 2013 to 2015 following pressure from farmers^{10, 11}.

<u>Australian case study</u>. The Carbon Farming Initiative (CFI) dating from 2011 sets out the framework for the Australian agriculture and forestry sectors to generate national carbon credits called Australian Carbon Credit Units (ACCUs). Some 20 methodologies have been approved in this respect, relating, by order of importance, to afforestation, landfill gas, methanisation of livestock manure, etc. Out of the 174 projects validated as of 1 November 2014, 82 are related to landfill gas, 62 to forestry, 23 to reducing bushfires and seven to methanisation. Credits are reserved in an insurance account to address risk of non-permanence. The CFI is in the process of being replaced by the *Emissions Reduction Fund* (ERF), covering other sectors.

These two national initiatives illustrate possible ways for incorporating agriculture into mitigation solutions (market mechanisms, choice of players to bear responsibility, etc.), as well as the difficulties implementing such systems, including in terms of politics. We note that few efforts are focused on the agricultural sector, despite its high mitigation potential, mainly due to the diffuse nature of its emissions and the difficulty in estimating them, resulting in high transaction costs.

NAMAs - a format suited to developing countries remaining to be finalised

Nationally Appropriate Mitigation Actions (NAMAs) were defined in 2007 and launched in 2009. They are voluntary mitigation measures implemented at a national level by and in developing countries, sometimes supported by developed countries. Thanks to their national – or regional – dimension, their aggregation capacity and appropriate national monitoring, NAMAs appear particularly well suited to the agricultural sector, which is highly fragmented.

Nevertheless, out of the 88 NAMAs registered at the start of 2015, only seven referred directly to actions in the agricultural sector, to which we can add projects involving energy crops. The scope of NAMAs needs close examination however, since: i) the majority are still at the declaration of intent stage; ii) since the format and conditions for presenting NAMAs are flexible, it is not always possible to compare NAMAs with one another and they do not always have the same level of ambition; iii) the limited investment in the agriculture sector during international climate negotiations and particularly in NAMAs could also result

⁹ New Zealand Ministry for the Environment, 2010

¹⁰New Zealand Government, Agriculture in the Emissions Trading Scheme, 2013.

¹¹ David Bullock (2012) Emissions Trading in New Zealand: Development, Challenges and Design, Environmental Politics, 1:4, 57-675

from a lack of agricultural expertise within international climate financing institutions, as suggested by the FAO (FAO, 2013).

The implementation of credible MRV methodologies is at the heart of the difficulties faced by mitigation solutions in the agricultural sector, both in developed and developing countries. The Reducing Emissions from Deforestation and Forest Degradation (REDD) mechanism, devoted to the forestry sector and launched by the UNFCCC, has benefited from stringent MRV procedures since COP19 in Warsaw in 2013. In the future, the UNFCCC could harness technical progress to adapt this into an agricultural mechanism (see **Box 1**), although the mechanism is currently not completely operational due mainly to a lack of funding for results-based payments.

Box 1: Agriculture and REDD

Unlike agriculture, the forestry sector is addressed specifically during international climate negotiations, through the Reducing Emissions from Deforestation and Forest Degradation (REDD) mechanism, which could well inspire or be adapted to the agricultural sector. Proposed in 2005 by the governments of Papua-New Guinea and Costa Rica¹², in 2007 the system was included in the Climate negotiations roadmap as part of the Bali Action Plan. The REDD concept then evolved into the idea of a REDD+ mechanism. The aim is not only to tackle factors causing deforestation and deterioration of forests, but also to encourage conservation actions, sustainable management of forests as well as the increase in carbon stocks in developing countries.

The work which began in 2007 regarding the methodological difficulties of REDD+ culminated in 2013 in an MRV methodological programme for implementation of a REDD+ framework at national level: procedures and coordination of funding, the establishment of a system of social and environmental guarantees, evaluation of reference levels and enhanced coherence between reference scenarios and data subsequently transmitted as well as reinforced verification.

This mechanism is linked to the agricultural issue within international climate negotiations in two ways: i) the idea of a specific mechanism for agriculture based on the REDD model is referred to in international climate negotiations; ii) the inclusion of agriculture in REDD is often seen as vital to its success:

i) A "REDD" programme for agriculture?: The specific nature of agricultural issues and their similarities with forestry issues encourage the consideration of a mitigation system specific to agriculture, as exists for forestry. These two sectors share a number of characteristics: both use the land, are responsible for significant GHG emissions and have the unusual characteristic of offering carbon sinks/reservoirs. The need for action in these sectors is accepted by the UNFCCC and both fields have achieved significant progress in the UNFCCC process since 2009. Agriculture and forestry are interconnected with other sectors and involve vital considerations (food security, development, energy, land issues, etc.), especially in developing countries. Finally, they face the same methodological difficulties in terms of accuracy of inventories and permanence of GHG emissions reductions. Considering the similarities between forestry and agriculture in terms of combating climate change, it is feasible to predict the creation of a sectoral programme dedicated to agriculture, similar to REDD+, inspired by and drawing lessons from it. For example, by promoting work carried out by programmes devoted to results-based funding or by replicating the methodological and MRV framework used by REDD+. As far as possible, such a programme should also take into account the difficulties encountered by the REDD programmes in relation to additionality. This type of initiative is not yet on the agenda of international climate negotiations, however. Furthermore, the Parties and Observers have also mentioned in contributions, the importance of work carried out under REDD+ in order to provide food for thoughts and mechanisms which could be established in the agricultural sector (CCNUCC, SBSTA, 2012) (Negra & Wollenberg, 2011).

¹² Reducing emissions from deforestation in developing countries: approaches to stimulate action, FCCC/CP/2005/MISC.1, 2005

ii) <u>Agriculture in REDD:</u> The development of REDD+ following COP16 in Cancun in 2010, incorporating conservation, sustainable forestry management and increasing carbon stocks, did not involve agriculture in the mechanism however. Yet agriculture is identified as one of the main factors in deforestation by the United Nations itself. The SBSTA has also initiated a programme of work in this respect, demonstrating its importance in negotiations. The need to take agriculture into account in REDD+ seems to be generally accepted.

2. Adaptation solutions dependent on funding levers

Adaptation – the UNFCCC's second action focus – has generally moved up the agenda at international climate negotiations in recent years¹³. This is demonstrated by the fact that the Parties' National Communications are placing increasing importance on it, particularly in Latin America¹⁴ and, more generally, in developing countries. Agriculture is taken into account in various programmes addressing the impacts of climate change and in adaptation plans.

The global origin of climate change requires international coordination of objectives and tools for combating GHG emissions. Adaptation is more local in nature, however, since adaptation actions undertaken in a region will only impact that region. Nevertheless, in a globalised economy the impact of climate change on a region can have global consequences, particularly in the agricultural sector. This is the case, for instance, in the event of a fall in production of goods or an agricultural commodity in an exporting country leading to a worldwide increase in prices.

The challenges of adaptation relate mainly to an assessment of each country's responsibility and vulnerability as well as fund-raising to implement adaptation measures specific to local contexts.

Agriculture – the most represented sector in NAPAs

Created in 2001, National Adaptation Programmes of Action (NAPAs) belong to a broader programme of work dedicated to Least Developed Countries (LDCs)¹⁵ and can also claim in funding from the Least Developed Countries Fund (LDCF) created for that purpose, as well as being eligible for grants from the Adaptation Fund and the Special Climate Change Fund (SCCF). It should be noted, however, that only 20% of the funding required to carry them out came from these specialist funds in 2010¹⁶. NAPAs target urgent needs, activities in which vulnerability or future costs will increase. According to the FAO, in 2011, 47 NAPAs comprised 490 projects, 20% of which related to the most represented sector – food security. Many projects relating to other sectors were indirectly linked to agriculture, for example projects concerning regional ecosystems (16% of projects) and water (15% of projects) (FAO, 2011). Like NAMAs, NAPAs have the advantage of originating from LDCs themselves, allowing them to prioritise the actions to implement as part of a national framework. Most NAPAs remain at the declaration of intent stage, since their implementation generally depends on a far higher level of international funding than is currently available.

Effectiveness of funding tools to be increased

Funding is at the centre of adaptation challenges. It is a matter of defining which projects – often local and not profitable when located in developing countries – need to be funded, by whom and how. Adaptation projects currently only represent a small proportion of climate change projects. For instance, out of all

¹³ Progress on Adaptation to Climate Change in Developed Countries: An Analysis of Broad Trends, Gagnon-Lebrun, Agrawala, 2006

¹⁴ Vulnerabilidad y Adaptación al Cambio Climático: Diagnóstico Inicial, Avances, Vacíos y Potenciales Líneas de Acción en Mesoamérica. Notas Técnicas, Gutiérrez, Espinosa, 2010

¹⁵ The Least Developed Countries (LDCs) are the poorest countries according to the UNCTAD classification. These are developing countries which have a low level of income per capita, are behind in terms of Human Development are have a high degree of economic vulnerability.

¹⁶ Briefing Paper for the Commonwealth High Level Meeting on Climate Finance. Commonwealth Secretariat, Neil Bird, 2011

projects managed by the Global Environment Facility (GEF), barely one in six relates to adaptation. In 2013, out of the \$331bn assigned to combating climate change, \$25bn was destined for adaptation, \$2bn of which was for agriculture and \$14bn for water management. However, some of the funds intended for mitigation are not included in this \$2bn, since they are distributed among projects and are therefore not as easily identifiable.

Under the aegis of the GEF, three funds contribute to financing adaptation and therefore agricultural adaptation: the Adaptation Fund (AF), the LDCF and the SCCF.

- The AF was established in 2001 to fund adaptation projects and programmes in the developing countries most vulnerable to climate change. Despite collecting \$100m in donations in 2013, the AF has run into financial difficulties due to the low price of carbon credits, which partially fund it via a 2% charge on credits issued by the CDM. As of 22 December 2014, the AF had approved 12 projects relating to agriculture or food security, out of a total of 41 projects over the period 2011-2014. Agriculture projects represent \$74m out of a total of \$265m, attributed, i.e. 28% of allocated funds. Other projects funded by the AF are indirectly linked to agriculture, such as some rural development and water management projects.
- The LDCF, resulting from the 2001 Marrakesh Agreements, funds the specific needs of LDCs under the UNFCCC and therefore mainly relates to adaptation. It received funds of \$379m in 2012 and finances the implementation of national adaptation plans, among other things.
- The FSCC, also resulting from the 2001 Marrakesh Agreements, is the final mechanism created by the UNFCCC, in the fields of adaptation, technology transfer and capacity building, energy, transport, industry, agriculture, forestry, waste treatment and economic diversification. It received funds of \$170.6m in 2012 and, like the LDCF, contributes to financing national adaptation plans.

II. AGRICULTURE'S PROGRESS IN INTERNATIONAL CLIMATE NEGOTIATIONS

This section assesses agriculture advances in international climate negotiations: the context and main stages of its recognition since its breakthrough in 2009, of the UNFCCC process and the events parallel to the official negotiation process.

A. Return of the subject of agriculture at the end of the 2000s

Two debates linked to agriculture were taking place in parallel on the international stage at the end of the 2000s, at the time when agriculture was first entering international climate negotiations. First, the debate relating to food security and development, which pushed agriculture into the spotlight when the food crisis occurred in 2008; and, secondly, the older debate concerning production methods and the environment, which was addressed in various international reports during the 2000s.

1. Food crisis: the debate on agriculture, food security and development

The international community's interest in agriculture emerged following long neglect of the subject in favour of private interests¹⁷. In the liberal context of the 1980s programmes to adjust the agricultural sector, international agricultural trade grew and States were encouraged by international institutions such as the World Bank to withdraw from the agricultural sector. It was only at the end of the 2000s that agriculture returned to the front of the international stage, particularly with the World Bank's 2008 world development report. The report, entitled *Agriculture for Development*, made government intervention in agriculture possible once more – although in a liberal version.

¹⁷ World Development Report, Agriculture for Development, Remarks and Comments, World Bank, 2008

Following the global food crisis of 2007-2008, agriculture was no part anymore of the trade considerations to which it had often been confined and began to be addressed from a development and food security perspective. A special high level team was formed from managers in UN agencies, international financial institutions and the World Trade Organization (WTO) to provide a global action framework to ensure food security in order, firstly, to tackle the crisis but also, in the longer term, to accomplish the Millennium Development Goals (MDG) of reducing by half the proportion of people suffering from poverty and hunger between 1990 and 2015.

Agriculture's emergence in climate negotiations has therefore occurred in a context of renewed interest in agriculture, following a global food crisis which revived debates over food security and price volatility. However, although the food crisis of 2008 coincided with agriculture's first progress in international climate negotiations, the influence of the crisis on this renewed interest should not be overestimated. The food crisis led to a focus on production: the price volatility of agricultural commodities was attributed to restricted production, calling for increased production to improve market fluidity¹⁸. The response offered to the crisis by international institutions, via the special high level team, therefore focused on production rather than the environment, although adaptation issues were also raised.

2. Agro-ecology vs. industrial agriculture: the debate on agriculture and the environment

The debate within the international community on agricultural methods and the environment is older, highly polarised and politicised, and remains decisive. It contrasts industrial agriculture, understood as being highly technological crop farming, relying on the use of chemicals and economies of scale, with agro-ecology, understood as a production system promoting natural organic processes and aiming to preserve the environment.

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) sets out the debate between agro-ecology and industrial agriculture. The study, conducted between 2005 and 2007 under the supervision of an umbrella group made up of the FAO, UNEP, UNDP, the World Bank and others, extends the work of the Millennium Ecosystems Assessment (MEA)¹⁹ and the IPCC on agriculture, by seeking to answer the question: how can we reduce hunger and poverty, improve standards of living in rural areas and promote fair and sustainable development on an environmental, social and economic level through the creation, access to and use of agricultural knowledge and science and technology? The study, concluding that agriculture can be multifunctional and promoting agro-ecological practices, has been criticised, particularly for highlighting controversy over GMOs, criticisms made by its own backers and stakeholders (Edwards, 2012).

At the end of the 2000s, a time when the economic climate was favourable to agriculture, debates were therefore distinct and polarised. The trade and development debate triggered by the 2008 food crisis helped place agriculture at the centre of the international stage, although it did not drive forward the environmental considerations covered in the agro-ecology debate.

¹⁸ The Rise of Prices and the Return of "Productionist Farming": Issues to Be Tackled at the World Food Security Summit in Rome, Bricas and Daviron, 2008

¹⁹ The Millennium Ecosystems Assessment (MEA) was launched in 2000 by Koffi Annan. This wide-ranging study (including more than 1000 expert opinions, five volumes of technical conclusions and six summary reports) recognises the importance of ecosystems and their link to development, acknowledges the damage done to them and considers possibilities for restoring and preserving them.

B. Agriculture's progress in terms of sectoral approaches and the Kyoto Protocol

1. Non-sectoral programmes of work in the UNFCCC

Two programmes of work concerning adaptation have addressed the subject of agriculture:

The Nairobi Work Programme has contributed since 2005 to researching and assessing impacts, vulnerability and adaptation to climate change in developing countries. The programme has the following working focuses: methods and tools, data and observations, climate modelling and scenarios, extreme risks and events, socio-economic information, adaptation planning and practices, research, adaptation technologies and economic diversification. These working focuses aim to improve general understanding and provide vulnerability and adaptation tools. Although this work is not sectoral, agriculture, as one of the sectors most vulnerable to climate change, is given priority for the construction of scenarios, assessment tools and modelling.

<u>The Work Programme on Loss and Damage</u>, launched in 2010, provides the Parties with information and expertise in order to tackle deterioration and loss associated with climate change. In 2013, this work programme led to the creation of the Warsaw Mechanism for loss and damage, encouraging the implementation of actions to tackle loss and damage associated with the negative impacts of climate change. The mechanism's structure, role and detailed funding still need to be defined²⁰. Like the Nairobi Work Programme, it is a sectoral programme, although agriculture will certainly be discussed due to its vulnerability and its critical role.

2. From AWG-LCA to SBSTA: agriculture's progress since 2009

COP15 - Copenhagen 2009: non-finalised draft agriculture text

The Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA), created by COP13 in Bali in 2007 served to accelerate sectoral negotiations, particularly in relation to agriculture. Following the distribution of a technical report pushed through by the Parties regarding mitigation challenges and opportunities in the agricultural sector²¹, a reporting group devoted to agriculture was formed as part of AWG-LCA's consideration of sectoral approaches to mitigation. An initial negotiating text draft, proposed by the contact group, was discussed at COP15 in Copenhagen: *Cooperative Sectoral Approaches and Sector-Specific Actions in Agriculture*. It emphasises the importance of technology transfer for mitigation and adaptation and proposes the creation of a working programme devoted to agriculture within the SBSTA. In the end, the text was not finalised and the Copenhagen Accord refers to mitigation of GHG emissions from "deforestation and forest degradation" (CCNUCC, 2009), but not agriculture.

COP16 - Cancun 2010: sectoral negotiations not completed

Following on from the Copenhagen Conference, discussions of the AWG-LCA agriculture text continued at the Bonn Climate Change Conference in mid-2010, resulting in a definition, under the SBSTA's supervision, of the potential scope of a work programme of mitigation in the agricultural sector (IISD, 2010). Despite the AWG-LCA's preliminary work, however, the 2010 Cancun accords still did not mention agriculture. The text relating to agriculture was negotiated in the context of sectoral approaches jointly with the international aviation and maritime transport sectors and, although the section devoted to agriculture was approved overall, disagreements concerning bunker fuels led to rejection of the general framework. We should note that these sectoral discussions reflect approaches initiated by the Bali Action Plan, although they are more the exception than the rule. Indeed, the sectoral approach promoted by the Bali Action Plan is struggling to gain a foothold in the UNFCCC negotiating process and agriculture is one of the few sectors to have been treated in a separate way. A mechanism for technology has been created

²⁰ An initial programme of work by the executive committee for the loss and damage mechanism was validated by the COP during the Lima negotiations in December 2014: see decision FCCC/CP/2014/L.2

¹ UNFCCC, Challenges and opportunities for mitigation in the agricultural sector Technical paper, FCCC/TP/2008/8, 2008.

within the SBSTA in order to facilitate technology transfers, particularly towards developing countries²². No specific sector is mentioned, although agriculture could play a significant part in it.

COP17 - Durban 2011: historic progress for agriculture

The 2011 Durban programme extended the sectoral approach initiated in 2007 and began a process of reflection dedicated specifically to agriculture, again in the framework of greater mitigation. According to Patrick Verkooijen, Special Representative for Climate Change at the World Bank, the outcome of the Durban summit in 2011 was historic for the agricultural sector²³, since it was the first time that agriculture was included in the final agreement of a COP, with the adoption of the conclusions of the AWG-LCA report (FCCC/CP/2011/9/Add.1).

- i) agriculture explicitly and officially entered the SBSTA agenda under item *Questions relating to agriculture* in the context of stronger mitigation action and more specifically cooperative sectoral approaches and sector-specific actions,
- The Parties and observers have been invited to submit their contributions concerning questions relating to agriculture, ahead of COP18, when a decision concerning sectoral approaches is expected.

We note that between the draft AWG-LCA text of 2009 and the version adopted in 2011, the following points have been removed: recognition of small producers²⁴; the relationship between climate change and food security; the role of adaptation and setting up of an agriculture working group. Agriculture's progress in 2011 has therefore less to do with the content of the text adopted by the UNFCCC – which does not recognise principles or a working approach or an action programme – and more to do with the principle of procedural process. Agriculture's inclusion in this agenda is a necessary side-step to enable agriculture to make progress in the UNFCCC process in a technical context, while avoiding the inherent tensions when addressing the topic of agriculture (trade relations, price volatility, biofuels, etc.).

Agriculture is the only economic sector discussed as generally in the SBSTA, other sectors featured on the agenda are included as part of another working agenda: aviation and maritime transport under the item *Methodological Problems Under the UNFCCC* and LULUCF under *Methodological Problems Under the KP*.

In 2011, the agricultural sector also achieved progress under the KP framework. The management of crops and grazing land may have been optional when reporting emissions during the second commitment period, except for countries which chose to report during the first. Nevertheless, four LULUCF working programmes were launched within SBSTA for a global approach to land use and inclusion of new activities linked to land use in the CDM, such as carbon sequestration in farmland.

COP18- Doha 2012: a new call for contributions for agriculture

The COP18 in Doha in 2012 did not fulfil the hopes raised in Durban in relation to agriculture. The central question concerning the second period of the KP and the lack of consensus on agricultural issues during COP18 led to agriculture being varied over once again to the following year. A decision regarding agriculture was therefore postponed until the 38th session of the SBSTA in June 2013, a session which began with a new call for contributions regarding the *"scientific knowledge on how to enhance the adaptation of agriculture to climate change impacts while promoting rural development, sustainable development and productivity of agricultural systems and food security in all countries, particularly in developing countries; while taking into account the diversity of agricultural systems and possible*

²² See Report of the Subsidiary Body for Scientific and Technological Advice on its thirty-third session, held in Cancun from 30 November to 4 December 2010, FCCC/SBSTA/2010/13 in reference to the documents FCCC/SBSTA/2010/INF. 4, 6 and 11

¹¹ ²³ CCAFS press release, 13/12/11

²⁴ The proposed 2009 text expanded the principles set out in the 1992 UNFCCC and indicated that the COP took account of the "*interests of small farmers and marginal farmers, the rights of indigenous people and traditional knowledge and practices*" (FCCC/AWGLCA/2009/L.7/Add.9)

adaptation co-benefits" (FCCC/SBSTA/2013/L.20). Developing countries' concerns appear to have been listened to since adaptation in developing countries was at the centre of this call for contributions.

COP19 - Warsaw 2013: G77+China block agriculture negotiations

The SBSTA's first in-session workshop on agriculture took place at COP19 in Warsaw. Despite discussion described as "*fruitful*" in the SBSTA report (CCNUCC, SBSTA, 2013), no text was submitted for a decision by the COP and the report on the workshop and the examination of contributions on the state of knowledge and on how to enhance agriculture's adaptation were adjourned until the June 2014 session. Unlike other sessions, the proposal to establish a contact group on agriculture to draft a text which the SBSTA plenary could adopt was rejected by SBSTA 39. This blocking, on procedural grounds, ended agriculture negotiations until the following SBSTA session in June 2014.

COP20 - Lima 2014: an agenda for 2015 and 2016

In June 2014, at the 40th session of the SBSTA, a working agenda was fixed for the next two years (2015 and 2016) – a first for agriculture (see **Box 2**).

During this session, a workshop was also held by the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) expert group regarding mitigation possibilities linked to land use (CCNUCC, ADP, 2014).

Box 2: 40th session of the SBSTA, June 2014. Questions relating to agriculture (FCCC/SBSTA/2014/L.14.)

3. Recalling article 9 of the Convention and based on its objective, principles and provisions, the SBSTA continued to exchange views pursuant to paragraph 75 of ruling 2/CP.17 and concluded that, taking into account the conclusions adopted at its 38th session, it would undertake the following technical and scientific work:

a) Establish early warning systems and emergency plans concerning extreme weather phenomena and their effects, such as desertification, drought, floods, landslides, storm surges, land erosion and salt water intrusion;

b) Assess risks and vulnerability of agricultural systems in light of various climate change scenarios at regional, national and local level, particularly, but not only, parasites and diseases;

c) Define adaptation measures taking account of the diversity of agricultural systems, indigenous knowledge systems, differences of scale and any positive feedback and sharing experiences in terms of research and development and activities on the ground, including socio-economic and environmental aspects and gender equality issues;

d) Identify and assess agricultural practices and technologies to sustainably increase productivity and reinforce food security and resilience taking into account differences between agro-ecological zones and farming systems, e.g. different practices and systems applicable to grazing land and farmland.

During COP20 in Lima in December 2014, agriculture was not discussed during plenaries and the final decision does not mention either agriculture or food safety.

Unlike previous sessions, the agenda for the 41st SBSTA session in December 2014 did not include the "Questions relating to agriculture" item. Discussions of agricultural affairs will not resume until the next SBSTA session, as indicated in the working agenda adopted in June 2014.

Only minimal progress can be reported. Concerning the KP, it was decided that the CDM Council should consider the eligibility of revegetation for the CDM, including agro-forestry and woodland grazing practices. The SBSTA is meanwhile responsible for continuing work to expand the CDM to new LULUCF activities.

The agricultural sector's progress in international climate negotiations is therefore dependent above all on how it is treated by the UN rather than on concrete results achieved. Agriculture is no longer only considered in generic terms, in the same way as all other sectors. It has been incorporated into discussions, firstly within an AWG-LCA contact group, then in successive efforts by the SBSTA. It is a matter of analysing the relevance of the subject, reporting on the current state of knowledge of the

subject, as well as having consideration for the degree of political sensitivity, before planning implementation of more concrete measures. A consensus exists regarding recognition of the specific nature of agriculture as a major challenge, impacted by and impacting climate change, and the need to include the sector in international climate negotiations, although progress achieved by COPs remains minimal, as demonstrated by the most recent COP in Lima.

C. Parallel efforts and emergence of concepts

The modest progress in terms of agriculture and forestry in Convention discussions and KP mechanisms is partially encouraged by announcements and events in parallel to the official negotiation process, themselves stemming from UN programmes of work, international organisations and expert groups working to construct expertise and develop agriculture mitigation and adaptation capacities at an international level. However, even if parallel efforts feed into the debate and encourage progress, they do not necessarily mean it will eventually be incorporated into the UNFCCC. These events are an opportunity to arrange meetings, to advance discussions, even to make announcements, but they remain on the margins of the UN framework.

Side events - generating media coverage and involvement

Several hundred side events are organised at each COP by various organisations or States, bringing together thousands of participants: researchers, campaigners from NGOs, government negotiators and representatives. The aim of these events is to strengthen capacities, construct and disseminate shared knowledge and introduce items into the official negotiations (Hjerpe & Linnér, 2010). Although the positive role played by side events in implementing the overall environmental agenda is not universally accepted (Seyfang, 2003), it is nevertheless certain that the elements agreed in official UNFCCC negotiations originate in side events and that some of them are linked directly to specific UNFCCC topics (Hjerpe & Linnér, 2010). In relation to agriculture, for instance, side events have certainly acted as an incubator for subjects such as Climate-Smart Agriculture (CSA) and the landscape approach, as well as feeding into the debate on LULUCF policy, promoted and supported by international agriculture events.

Generally, the attention and media coverage attracted by agriculture in relation to climate change have increased during COP meetings as a result of various side events, especially Agriculture and Rural Development Days (ARDDs), renamed Agriculture, Landscape and Livelihood Days in 2012 before eventually being incorporated into the Global Landscapes Forum in 2013 following a merger with Forest Day²⁵. Launched in 2008, these events are organised by the CGIAR²⁶ among others, and are attended by hundreds of people each year.

They have popularised a holistic approach to agriculture in climate change, with joint consideration for agriculture, forestry, land use, food security and economic development. These events support or anticipate developments in the debates and propose and explore solutions specific to agriculture to be incorporated into the UNFCCC system. For instance, the debate between the adaptation and/or mitigation approach, the concepts of landscape approach and CSA began to be developed at parallel events in 2009.

The emergence of the Climate-Smart Agriculture concept: combining mitigation, adaptation and food security

The growth in the CSA concept illustrates the dynamism generated by these external events and their penetration into official negotiations. In parallel to these official negotiations, the first Hague Conference on Agriculture, Food Security and Climate Change in 2010, officially gave international recognition to the CSA concept. At the conference, organised by the Netherlands, the FAO definitively defined CSA as "agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes

²⁵ For further information: <u>http://www.landscapes.org/</u>

²⁶ Formerly the Consultative Group on International Agricultural Research, the consortium has been known by its acronym CGIAR since 2008

GHGs (mitigation), and enhances achievement of national food security and development goals" and signalled its support for this approach, along with the World Bank. The name of the event was subsequently changed to Global Science Conference on Climate-Smart Agriculture, launching a cycle of international events devoted to CSA. A second conference was held in Wageningen in the Netherlands in 2011 and a third in Davis, California, in 2013. The next conference will be held in Montpellier in March 2015.

The results of these conferences have contributed to various side events devoted to CSA, including Agriculture and Rural Development Days (ARDDs). In 2013, at COP19 in Warsaw, the CSA concept was the focus of the Global Landscapes Forum. Finally, a Global Alliance for CSA (GACSA), formed by the FAO, the World Bank and CGIAR, among others, was launched in September 2014 at the Climate Change Summit launched by the Secretary General of the United Nations. This aim of this alliance is to raise awareness among governments, farmers, researchers, the business world, civil society and various organisations to influence knowledge, encourage a favourable context and promote investment in CSA (see section III.). The CSA concept made progress at COP20 in Lima, in parallel to official negotiations, particularly via the GACSA, which was particularly active at the Global Landscapes Forum.

Involvement of non-governmental players in the UNFCCC for recognition of agriculture by the COP

Non-governmental players are also represented within the COP, allowing them to communicate their messages directly to the UNFCCC. Farmers are one of the nine Major Groups, recognised as having a potentially substantial contribution to make to sustainable development in Agenda 21. These Majors Groups correspond to Constituencies, i.e. free and flexible groupings formed by organisations accredited to the UNFCCC. They include NGOs, scientific organisations and trade bodies. The Farmers Constituency is led by three main organisations: the World Farmers' Organisation (WFO); the International Federation of Organic Agriculture Movements (IFOAM), representing organic farmers, and the Southern African Confederation of Agricultural Unions (SACAU), representing farmers from developing countries. The WFO is the focal point of the Farmers Constituency and is responsible for direct communications with the UNFCCC secretariat.

At the COP20 in Lima, for the first time a day was dedicated entirely to official side events concerning farmers – Farmers' Day. Mainly coordinated by the Farmers Constituency, the event gave organisations representing farmers a chance to raise awareness among negotiators²⁷.

The main message communicated by the Farmers Constituency relates to recognition of the importance of agricultural challenges in climate change and the need to include them in the post-2020 agreement, with an approach to agriculture combining mitigation and adaptation also recommended. The wide range of participants in the Farmers Constituency makes it difficult to reach a consensus beyond very general communications difficult. The CSA concept is not generally accepted by all members, for example.

Multilateral initiatives for agriculture

COPs are also the place to promote national and international initiatives to combat climate change. In relation to agriculture, two major funds have been launched by COPs:

- In parallel to the Copenhagen conference in 2009, the Global Research Alliance on Agricultural Greenhouse Gases was launched at the initiative of New Zealand. This voluntary alliance was designed to reinforce cooperation and investments in research, mainly into mitigation in agriculture. Its original membership of 33 countries has now grown to 40 members, including France. The Alliance has received significant investment promises from New Zealand (NZ\$ 45m), Canada (C\$ 27m) and the United States.
- A funding programme targeting forests (the BioCarbon FundInitiative for Sustainable Forest Landscapes) was created at COP19 in 2013 at the initiative of Norway, the United Kingdom and the

²⁷ Here is the list of side events on agriculture during COP20:

http://unfccc.int/files/side_events_exhibits/application/pdf/cop20cmp10_list_of_side_events_on_agriculture.pdf

United States, which has committed to investing almost \$280m. The fund will finance GHG reduction initiatives linked to various types of land use.

III. DEBATES AND CHALLENGES FOR THE AGRICULTURAL SECTOR

An examination of the positions and obstacles which currently exist regarding agriculture in international climate negotiations will allow an analysis of agricultural challenges for future COPs.

A. Content of debates and national positions

1. Recognition of agricultural challenges

Contributions by the Parties and Observers reveal a consensus on agriculture's importance in combating climate change, recognition of its specific characteristics and the need for international cooperation regarding technology transfers and funding for developing countries²⁸. For instance, the contributions gathered by the SBSTA in 2012 concerning challenges linked to agriculture agree on agriculture's vulnerability to climate change, in both developing as well as developed countries²⁹. The sector is described as "key", "central" and "important" for development and food safety, especially in developing countries³⁰. These considerations were reiterated in 2013 in contributions concerning the state of scientific knowledge regarding agriculture's adaptation.

Structural debates prevent the Parties from adopting a consensual working approach regarding agriculture, however, partly explaining the absence of specific solutions dedicated to enhancing mitigation and adaptation in agriculture. Despite these decisive debates, reflecting friction between North and South, the strategic national positions adopted in negotiations result from a combination of factors such as balance of trade, organisation of the agricultural sector, the proportion of emissions from agriculture, food security, etc.

2. Adaptation and/or mitigation – an approach to be defined

Polarized positions dictated by negotiating policies

The second most significant focus of the debate concerns whether to adopt an approach prioritising adaptation or implementing mitigation and adaptation simultaneously. This debate exposes concerns and expectations on an economic, technical and even ideological level regarding the more or less direct consequences of each short-term and long-term approach. For some mitigation is a tool to attract funding and assist development, while for others it is a threat to food security and local populations.

Developed countries and international institutions are in favour of an approach combining mitigation and adaptation. They believe that incorporating mitigation into agriculture would generate additional financial flows, contributing to the development of Southern countries, e.g. through carbon payment mechanisms. It would not harm adaptation efforts since strategies could be adopted harnessing synergies between

²⁸ See contributions and analysis: (CCNUCC, SBSTA, 2012) (CCNUCC, SBSTA, 2013) (IISD, 2012)

²⁹ Examples of contributions from Australia, Burundi, Iran, LDCs, Japan, Saudi Arabia, the United States, China, the European Union, Gambia and Uganda, i.e. 10 contributions out of the 22 from the Parties

³⁰ Example of contributions from Costa Rica, the European Union, LDCs, Iran, Uruguay, Australia and African states, reiterated by Sudan, Uganda, Malawi and Zambia, i.e. almost half of contributions from the Parties

mitigation and adaptation³¹. Developing countries, on the other hand, particularly India, Argentina, Indonesia and generally the G77+China negotiating group, insist that adaptation of agriculture should remain the priority, especially in developing countries, where agriculture plays a crucial role in the economy and, more broadly, in development. They believe that supporting technology transfer and enhancing agriculture's capacity for adaptation by developed countries in favour of developing countries is more of a priority. These positions had real impacts on the progress of the agriculture work programme (**Box 3**).

According to the G77+China, the introduction of mitigation will only deflect and divide existing efforts to encourage agricultural adaptation. This concern relates to the short and long term. In the short term, it is argued that funding from developed countries to developing countries would be redirected away from the priority of adaptation and, in the longer term, agricultural mitigation targets could be imposed on developing countries with them being obliged to pay part of the cost of mitigation, although those countries do not consider themselves to be historically responsible and their practices as already having a low level of emissions, which is true as an absolute value, but is not correct if emissions are considered in proportion to production by region. For instance, Africa and South America release more GHGs per commodity produced (CDC Climat Recherche, 2011). The assumption of a transfer of mitigation actions towards Southern countries is supported by a 2007 study by Per-Anders Enkvist, Tomas Nauclér and Jerker Rosander, *A Cost Curve for Greenhouse Gas Reduction*, indicating that most measures offering good value for money (less than €40/ton of CO₂) are located in developing countries, including in the agriculture and waste disposal sectors³².

Box 3: Example of the draft work programme specific to agriculture

The debate on the creation of a work programme specific to agriculture – which has never been finalised – illustrates divergence concerning the adaptation/mitigation approach. The idea of a SBSTA work programme specific to agriculture, as exists for forestry, was formalised by scientists in a direct call to the UNFCCC following a climate change and food security conference organised in 2011 in Beijing by the International Food Policy Research Institute (IFPRI)³³, supported by developed countries and international organisations like the FAO. Supporters of the programme consider that it would facilitate fund raising to promote CSA and contribute to mitigation research. Bolivia, the programme's main opponent, meanwhile considers that such a programme would divert urgent adaptation efforts towards mitigation and, more generally, that agricultural adaptation does not require a specific programme³⁴. The explicit mention of a possible SBSTA agriculture working group, which was contained in the original version of the AWG-LCA report proposed in 2009, was therefore removed from the text adopted in 2011 and replaced by an examination of "questions relating to agriculture" in the COP17 conclusions. This divergence persisted and was evident again in the contributions to questions relating to agriculture following COP17. Although the COP's call for contributions no longer mentions the agriculture work programme, many of these contributions address the subject.

Some actions speak louder than words

Mitigation is therefore a particularly controversial and divisive topic in agriculture negotiations, although the debate is not solely split along North/South lines. The Parties' positions are often nuanced. On the one hand, developed countries, including the European Union (CCNUCC, SBSTA, 2012) broadly recognise the importance of tackling adaptation, particularly in the context of developing countries, although the

³¹ See the contributions from the European Union, New Zealand, the Environmental Integrity Group and the United States (CCNUCC, SBSTA, 2012)

³² However, it should be noted that this study does not take account either of common but differentiated responsibility (CBDR), nor of transaction costs generated by mitigation projects in developing countries.

³³ Annual Report: Groundwork for Success, CCAFS, 2011

³⁴ Bolivia emphasised that the UNFCCC was only one of many institution to support more robust agriculture at an international level and that a work programme specific to agriculture would only duplicate work being carried out by existing programmes addressing adaptation, such as the Nairobi Work Programme and the Work Programme on Loss and Damage.

same is also true of the Parties most in favour mitigation, including the United States, Canada, New Zealand and Japan. Developing countries have meanwhile backed an approach combining mitigation and adaptation, as announced by Costa Rica and South Africa in 2012 (CCNUCC, SBSTA, 2012). Uruguay and Mexico are also increasingly open to mitigation questions and prepared to work on synergies between adaptation and mitigation. Finally, the open opposition to mitigation displayed within UNFCCC bodies sometimes contrasts with strategies adopted at a national level. Brazil, for instance, although a member of the G77+China, has implemented a national agricultural mitigation policy through its Agricultura Baixo Carbono or ABC programme (see **Box 4**).

Box 4: ABC – the Brazilian agricultural mitigation programme

Brazil launched the Agricultura de Baixo Carbono or ABC agricultural mitigation programme in 2010. It combines technical studies, with training for crop farmers in methods to reduce GHG emissions (direct sowing, reclaiming degraded grazing land, agroforestry, afforestation, fixing of nitrogen, treatment of livestock manure) and funding via credit lines offered to farmers using these techniques. Despite a number of difficulties to be overcome, such as the lack of expertise and qualified technical staff (IPAM, 2012), the ABC plan reflects emerging countries' awareness, ambition as well as capacity to implement sectoral mitigation plans relating to agriculture.

The link to carbon markets increases concerns over the inclusion of mitigation

A number of NGOs, including Via Campesina, IATP, Econexus, Practical Action and the Gaia Foundation, in conjunction with some LDCs, consider that defining an agricultural strategy incorporating mitigation would also contribute indirectly to extending offsetting mechanisms which would mainly benefit developed countries and could potentially harm developing countries, reviving the controversy over the CDM which existed from the outset (Karp & Liu, 2000). Introducing mitigation into the agricultural sector would result in an extension to flexibility mechanisms, particularly the CDM, which could lead to new solutions being validated – notably carbon sequestration in farmland. Yet the benefits of including methods for carbon sequestration in farmland into flexibility mechanisms have been criticised, reviving the debate over adding more activities to the CDM (Coordination Sud, 2012):

- methods involving not ploughing or introducing biochar as well as the reliability of carbon storage are controversial (e.g. use of pesticides and GMOs)
- the smallest farmers would mostly be excluded from these mechanisms, which have prohibitive transaction costs. The actual benefits to farmers would be insignificant, while most financial gains would go to intermediaries and certification bodies.
- carbon sequestration methods are also likely to have negative impacts on property (monopolising land) and food security (prioritisation of crops compatible with carbon sequestration)

We should note that the IPCC's 2014 report acknowledges the potential negative effects of mitigation measures in the Agriculture, Forestry and Other Land Use (AFOLU) sector and particularly the development of biofuels, e.g. acquisition of land by industrial companies and water usage rights³⁵.

Nevertheless, the CDM's strict methodologies could allay some of this criticism, since all projects applying to join the CDM are subject to in-depth analysis. In the case of agriculture, CDM projects must demonstrate that they will not reduce yields, which would be considered as a risk of carbon leakage³⁶, before being awarded CDM certification³⁷. As CDM methodologies are currently defined, mechanisms incorporating carbon sequestration are therefore prohibited from have a direct impact on food security. As for the exclusion of small producers, aggregation strategies should theoretically ensure their integration without excessive costs being incurred. These strategies aim to share transaction costs between small-

³⁵ Climate Change 2014, Working Group II, Chap 1, IPCC, 2014, in reference to Borras, McMichael, and Scoones, 2011; Cotula et al., 2009; Scheidel and Sorman, 2012; Mwakaje, 2012; Messerli et al., 2013; German et al., 2013

³⁶ Although there may be a decrease in production, this could be transferred to other areas and so push up GHG emissions elsewhere.

³⁷ EB41 Report, Annex 12, Clean Development Mechanism Executive Board, UNFCCC, 2008

scale projects, although aggregation raises the issue of potential free-riders, who would benefit from CDM funding without achieving their emissions reduction obligations. Enhanced MRV methods would limit the potential for free-riders, but make small-scale projects less financially viable. Furthermore, it is easy to imagine mechanisms involving carbon sequestration in the ground being established outside the carbon market, e.g. in the context of payments for environmental services³⁸.

In international climate negotiations, although NGOs' concerns are sometimes echoed by African LDCs, these countries have nevertheless shown a certain interest in carbon payment mechanisms. Bolivia appears to be the only Party radically opposed to carbon mechanisms.

In terms of civil society, the mitigation debate has focused on the expansion of the CDM to carbon sequestration projects on farmland. Given the incredibly low price of international credits, however, the CDM is threatened by an imbalance between supply and demand and these arguments may appear anachronistic. Nonetheless, these considerations are still relevant since concerns have been echoed in the general debate over mitigation/adaptation and found their way into discussions over CSA (see below).

B. Challenges and stages in future COPs

1. Challenges for COP21

Monitoring, Reporting and Verification

Due to their diffuse nature and the complexity of the biophysical mechanisms at work, emissions are extremely difficult to estimate in the agricultural sector. Scientific research is progressing and reducing uncertainty over agricultural emissions. Current methods providing the greatest accuracy are extremely expensive, however, with direct measuring systems (flux towers, remote detection, etc.) and inversion models. A compromise is therefore needed between accuracy and cost in order to implement appropriate measures for the climate, without transaction costs, including those linked to measurement of GHG emissions, being prohibitive.

There are three challenges facing the agricultural sector:

- continue scientific research into measuring GHG emissions in order to reduce uncertainty and prevent any practices/technologies from being counter-productive, according to soil and climatic conditions;
- ii) establish a rigorous common transparency framework concerning GHG emissions;
- iii) ensure that remaining uncertainty, which will no doubt continue to exist, does not result in inaction in this sector. The conservation principle is used to adapt to uncertainties, meaning that conservative values are used so as not to underestimate emissions.

These MRV tools are vital whatever agreement is reached at the end of 2015 and whatever instruments are finally chosen³⁹ in order to achieve GHG emission reduction targets, while ensuring the coherence and relevance of the mechanisms and policies put in place. Having access to reliable data concerning a sector's emission is necessary in order to monitor associated commitments. Up until now, most countries have only updated data concerning CO₂ emissions from energy combustion and cement manufacturing. In general, MRV tools are vital for COP21, since the credibility of national mitigation contributions, mutual trust between the Parties and funding channels are closely linked.

³⁸ Payments for Environmental Services (PES) can be defined as "a payment to an agent for services provided to other agents (wherever they may be in space and time) by means of a deliberate action aimed at preserving, restoring or increasing an environmental service agreed by the parties" (Karsenty, 2011). The conditions for allocation of these direct incentives, particularly determination of the amounts, are still under discussion, although there is a great deal of interest in these tools.

³⁹ Various instruments can be considered when deciding on a carbon price to achieve the Kyoto objective, such as direct pricing, a regulatory approach or carbon taxes.

Adoption of a landscape approach: combining land use in a land sector

Different types of land use overlap in the agriculture, forestry, LULUCF and AFOLU sectors. The distinction between them is not always obvious and complicates debates and solutions to offer. Deforestation, for instance, is largely due to the extension of farmland while in other regions deterioration in soil quality is having a negative impact on farmland. Carbon flows linked to changes in land use of farmland (extension or destruction), however, are addressed jointly with the forestry sector, under the label LULUCF, but completely independently of the agricultural sector. Moreover, carbon flows linked to management of farmland (crops and grazing land) are counted in the "LULUCF" category for KP inventories, unlike N_2O emissions produced by crops and grazing land, which are counted in the "agriculture" category, despite carbon and nitrogen cycles being extremely closely linked.

Although the current state of international climate negotiations, protecting national sovereignty and encouraging relatively free national contributions, does not make specific sectoral treatment look likely, many contributions nevertheless call for general consideration of land use and the construction of links between these different uses, as in the case of LULUCF and agriculture.

Agriculture and the LULUCF sector were merged to form AFOLU (Agriculture, Forestry and Other Land Uses) in the fifth IPCC report. Agricultural mitigation and forestry mitigation were previously covered in separate chapters. Overall consideration of land uses in a general sense provides a better understanding of competition between land use, water, co-benefits and undesirable effects as well as interactions between mitigation and adaptation (GIEC, 2014). The IPCC also maintains that this comprehensive overview of land use could help achieve more ambitious sustainable development targets, contributing to other UN conventions for biodiversity and against desertification. In due course, this scientific work could therefore pave the way for general considerations of the land sector within the SBSTA, as well as mechanisms adopting these considerations as well as links between the various UN environmental agreements.

Linking climate ambitions to other UN processes

The various issues raised by agriculture mean it is addressed in a number of UN conventions, as part of both the development and environmental processes. In order to encourage the achievement of their various objectives, the coherence and recognition of shared considerations may seem necessary.

In 2015, two UN processes will enter a new stage: the UNFCCC, which will conclude a new international agreement to take over from the KP, at COP21 in Paris; and the Millennium Development Goals (MDGs), which will be replaced by the Sustainable Development Goals (SDGs). The coincidence of these two commitments coming up for renewal at the same time could be an opportunity to create links between the two processes, based on their joint targets. Article 2 of the UNFCCC, for instance, recalls that the reduction in emissions must be carried out in a context guaranteeing food security and sustainable economic development. The 2000 Millennium Declaration meanwhile identifies respect for nature as a fundamental value⁴⁰.

Similarly, the processes of the Convention to Combat Desertification (CCD) and the Convention on Biological Diversity (CBD), both enshrined along with the UNFCCC in 1992, attribute a key role to agriculture and development goals. The CCD commits to promoting *"ecologically sustainable farming practices"* and improving economic conditions⁴¹ while the CBD sets out goals recognising the importance of sustainable management of agriculture and climate mitigation and adaptation efforts in its 2011-2020 strategic plan⁴².

⁴⁰ See "IV. Protecting our Common Environment", Resolution adopted by the United Nations General Assembly A/RES/55/2: United Nations Millennium Declaration, 2000

⁴¹ Resolution adopted by the United Nations General Assembly A/AC.241/27: United Nations Convention to Combat Desertification, 1992

⁴² Targets 7 and 15 of the Aichi Biodiversity Targets, 2010

For instance, commitments for 2015 and beyond could reiterate targets and values common to the various conventions: food security, nutrition, reducing poverty and sustainable economic development. This recognition, combined with the establishment of multi-criteria tools, would enable processes to mutually support one another and avoid parallel negotiations creating competition, particularly over funding (IDDRI, 2013). In the case of agriculture, this mutual recognition is particularly important given the challenges faced by the sector. It should be noted, however, that the introduction of external concepts and references into the UNFCCC could make it more difficult to bind the various countries to the agreement, through ignorance or fear of the possible implications.

2. Longer term challenges

Continuation of agriculture debates within the SBSTA in the coming years

Discussions about agriculture continue to develop within the SBSTA. The Bonn meeting in June 2014 opened new avenues for discussion within the SBSTA, mainly on the theme of adaptation in issues relating to agriculture, although without planning the definition of a strategy combining mitigation and adaptation or prioritising adaptation. Work on early warning systems and meteorological emergency plans, as well as on the risks and vulnerability of agricultural systems, will be undertaken in 2015 following on from 2013's discussions on the state of knowledge and strengthening of adaptation. Work on adaptation measures and an inventory of "agricultural and technological practices that increase sustainable productivity, food security and resilience" (CCNUCC, SBSTA, 2014) will also be discussed in 2016.

The 2015 and 2016 agenda adopted by the SBSTA also suggests that it would be premature to expect specific agriculture provisions in the Paris COP21. This programme of work indicates the scale of work in relation to agriculture remaining to be carried out by the UNFCCC technical and scientific body. It is likely that agriculture will continue to be discussed and developed within international climate negotiations under the SBSTA item beyond 2016, particularly in respect of adaptation issues.

Four years have passed since the first call for contributions on the agriculture sector in 2011. By way of comparison, the negotiating process which resulted in the REDD mechanism began in 2005 with the first contributions from the Parties to the UNFCCC on *Questions related to Reducing Emissions from Deforestation in Developing Countries*⁴³ and only produced a detailed agreement in 2013 at COP19 in Warsaw (see **Box 1**). From the first call for contributions, eight years of international negotiations were therefore required to put together a mitigation solution in the forestry sector. These international forestry negotiations illustrate the very gradual stages leading to the creation of a sectoral mechanism, indicating that patience will be required in relation to agriculture.

The SBSTA's considerations represent a key stage in agriculture's progress and no consideration of potential implementation, funding and technology transfer tools can be expected unless these discussions form a solid basis for dialogue. Although initial action may be taken in the 2015 Paris accord, this will be through Intended Nationally Determined Contributions (INDC)⁴⁴ and it is unlikely that they will result from a general system specific to agriculture – either for mitigation or adaptation – particularly since discussions regarding a potential work programme specific to agriculture have been abandoned. Nothing suggests that agriculture will enjoy a special status in the coming negotiations.

Climate-Smart Agriculture and Global Alliance for CSA: how to combine mitigation, adaptation and food security in complete transparency?

Definition and structure

⁴³ UNFCCC, Report by the 11th session of the Conference of the Parties, held in Montreal from 28 November to 10 December 2005, FCCC/CP/2005/5, 2006

⁴⁴ INDCs are national contributions from the Parties, explaining the actions they plan to implement in the framework of the general 2015 agreement.

The CSA concept is now widely recognised at an international level, although its definition is still the subject of debate (see definition above). The CSA concept is discussed in some contributions regarding agriculture submitted to the SBSTA, although the term CSA does not appear in the final documents for the official negotiations.

In September 2014, the launch of the Global Alliance for CSA (GACSA) created a means for the CSA concept to be included in climate negotiations. At the same time as the Climate Summit convened by the Secretary General of the United Nations, Ban Ki Moon and attended by 120 heads of State and almost 200 business leaders, intended to involve them ahead of COP21 in 2015, GACSA was launched to work on agricultural practices, invest and develop policies encouraging farmers to commit to sustainable mitigation actions. The alliance forms a platform of partners grouping 20 governments (including France), public bodies (particularly research organisations and, in France, CIRAD) and 30 agricultural organisations, civil society and companies.

A concept and a structure in need of clarification

The CSA concept, based on a triple win – mitigation/adaptation/food security – does not propose a doctrine regarding the technical model to adopt, but tries to fuse different technical, institutional, socioeconomic and public policy options. The capacity of the CSA to incorporate public bodies, international organisations, some NGOs and farmers' associations shows that it has partially succeeded in stepping beyond the politicised debate between agro-ecology and industrial agriculture.

This lack of choice of technical solutions attracts criticism however. The concept is criticised by some civil society organisations for possible technocratic excesses and an economic risk (farmers' economic dependency). For example, an open letter was sent to GACSA during the summit in September 2014 and signed by more than 100 national and international civil society organisations including Friends of the Earth, GRET, Action contre la Faim-France and CCFD-Terre Solidaire⁴⁵. This accuses the alliance of being "deceptive and deeply contradictory" and asserts that CSA will lead to the spread of agribusiness and industrial agriculture, in the interests of the GACSA's platform for corporations and at the detriment of small-scale farmers, pushing the concept of agroecology out of the debate. Civil society organisations believe that CSA is too vaguely defined and can include unsustainable practices such as the use of chemical fertilizers, GMOs and intensification and industrialisation of livestock. These criticisms have been noted by supporters of CSA and a number of organisations and governments take the view that CSA should be considered in conjunction with ecological intensification or agroecological principles⁴⁶, as is the case in France with CIRAD as well as the government⁴⁷. However this is not the case for all GACSA players, since FAO and CCAFS (a CGIAR programme) do not reject the use of GMOs for example. A second ground for opposition is the development of carbon offset markets, promoted by institutions supporting CSA, potentially leading to monopolisation of land. Finally, in the absence of clarification of stakeholders' accountability, CSA will become a sort of green label for large companies which are GACSA members.

A line of research associated with the agroecology movement also rejects the CSA concept as insufficient and deficient, as expressed in an open letter from scientists to the FAO during the international symposium on agroecology for food security and nutrition in September 2014⁴⁸. Part of the historic North and South American research movement into agroecology, led by Miguel Altieri from Chile and Stephen Gliessman from the United States, promotes a global approach encompassing agroecology and food security, emphasising the importance of taking into account not only ecological principles, but also food

⁴⁵ Corporate-Smart Greenwash: Why we reject the Global Alliance on Climate-Smart Agriculture, open letter to GACSA, 2014

⁴⁶ Harnessing of natural processes, reduction of inputs, etc.

⁴⁷ See declaration by Annick Girardin, Minister of State for Development and Francophony, at GACSA's launch on 24 September 2014

⁴⁸ Scientists' Support letter for the International Symposium on Agroecology, 18-19 September, 2014

sovereignty and social justice. According to the agro-ecological movement, compared with this global and inclusive vision, the CSA concept is lacking in terms of justice (distributive and procedural justice), without which a sustainable approach is impossible. The authors of the open letter also argue that CSA lacks the empiric and experimental scientific depth developed by agroecology. The letter called for the creation of a system for agroecology within the United Nations, in which a direct role would be given to the Committee on World Food Security, the Global Strategic Framework for Food Security and Nutrition (GSF) and, indirectly, the UNFCCC. The group's proposal to create a system dedicated to agroecology or CSA. Such a solution would require contributions from and integration of various UN components, such as the FAO and UNFCCC, making it hypothetical in the near future.

Interaction with international climate negotiations to be specified

The launch of GACSA could herald official recognition of CSA in international climate negotiations in the coming years and possibly promotion of the concept in the identification of the synergies and co-benefits of strategies in the agricultural sector. We note that the GACSA's articles of association recognise the UNFCCC as the only legitimate negotiating body and that it would appear unlikely that GACSA will compete with the UNFCCC. Nevertheless, the relationship and interaction between the two processes needs to be clarified.

In the longer term, it is feasible that dissemination of the concept – taking local development into account – will contribute to developing links between the UNFCCC's agricultural mechanisms and public development projects providing aid for subsistence in rural areas and agriculture.

Interface between agricultural mitigation and adaptation and international trade

Reflecting demand policies in inventories

The UNFCCC does not currently oversee reporting and mitigation measures linked to agricultural trade. Inventories cover all a country's emissions without taking trade into account. They enable reporting of emissions reductions from production as a result of technical improvements or directly due to a fall in production, but do not reveal changes in behaviour in terms of demand, pushing up exports or reducing imports, for example. Therefore a change to human and/or animal food reducing the carbon balance would not necessarily be visible in inventories or could even, in some cases, result in a higher carbon balance in national industries (e.g. substitution of soya for local proteins). The inclusion of the balance of trade into carbon accounting would prevent the risk of carbon leakage as well as recording progress linked to consumption.

Preventing market distortions

The prospect of climate measures specific to agriculture is debated for commercial reasons. This is because of the potential for trade barriers on exports or imports, imposed on the pretext of mitigation. UNFCCC and WTO principles and rules prevent these difficulties arising. The UNFCCC states firstly that: "Climate protection measures, including unilateral measures, should not be a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade" (UNFCCC, 1992). The WTO regulations meanwhile allow its members to derogate from agreements in the case of measures "necessary for the protection of human, animal or plant life or health" (GATT, 1947 and General Agreement on Trade in Services, 1994) or " relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption" (GATT, 1947), provided it does not constitute discrimination or protectionism.

In practice, developing countries – particularly those dependent on agriculture – fear the introduction of protectionism in the guide of green measures by countries subject to an emissions reduction obligation⁴⁹, negatively affecting developing countries' exports. WTO negotiations have also highlighted these fears. During negotiations in Doha, for example, the proposal for reduced customs duties on environmentally-

⁴⁹ See LDCs' contributions on matters linked to agriculture in 2012 (CCNUCC, SBSTA, 2012)

friendly products raised concerns, since the reverse of this proposal would be to increase taxes on products with a high carbon footprint from countries with low environmental standards⁵⁰. Other countries such as Saudi Arabia, where soil and water are scarce, are also concerned by the consequences of environmental regulations covering agriculture, which could have the potential to distort the market⁵¹. Environmental regulations specific to agriculture in the UNFCCC would therefore require measures coherent with the WTO and consideration of special cases, so as not to detract from food security or countries' economic development.

Finally, the WTO could contribute to the efficiency of climate policies by considering:

- mitigation and adaptation programmes. References to agriculture in the context of climate change could be specified and supported in international trade regulations. For example, the WTO's Agriculture Agreement could clarify, expand on or further facilitate certain green box subsidies⁵². For example, the WTO sets out the framework for insurance schemes and subsidies in the event of a natural disaster using strict criteria⁵³, limiting States' use of these measures. Similarly, subsidies in the framework of environmental programmes are restricted to compensation⁵⁴, limiting their appeal (Sharma, 2014).
- *exports*. In a context of an increasingly variable climate with more and more extreme weather events, consideration of food exports and ways of facilitating them would appear vital⁵⁵.

3. Funding for a transition to a resilient and low-carbon agriculture

The issues mentioned previously are dependent on the existence of funding, a particularly significant matter in the context of the current economic crisis. The lessons learned from existing mechanisms will be incorporated into the development of future funding methods. The CDM, for instance, is an important tool for funding and technology transfer from North to South, with some \$300bn raised, mainly from the private sector. But it has also demonstrated its limitations, particularly in the agricultural sector (see p9). Other sectoral mechanisms may also be planned, such as REDD for forestry (see **Box 1**). There are therefore numerous challenges in terms of funding. These include *i*) raising capital and diversifying sources of funding for agriculture: public, private, payments for environmental services, eco-certifications etc.; *ii*) coordinating funds earmarked for adaptation, mitigation and development, to avoid any competition between them; *iii*) and ensuring that funds contribute effectively to the adoption of sustainable practices, e.g. access for farmers to funding and technical information.

International negotiations are currently focusing on the objective of capitalising the Green Climate Fund⁵⁶ with \$100bn a year between now and 2020. The fund has so far collected just €10.14bn. Although uncertainty remains regarding the scale of the funding which could be devoted to agriculture, the timetable for making it available and the taking into account of adaptation, the agricultural sector was nevertheless

⁵⁰ Fischler, 2009

⁵¹ See Saudi Arabia's contribution on matters linked to agriculture in 2012 (CCNUCC, SBSTA, 2012)

⁵² The WTO classifies measures to support agriculture as follows: i) the green box, including authorised subsidies, with minor no distortion effects on trade, including subsidies linked to the environment or development; ii) the amber box, referring to measures with distortion effects on trade, whose overall amount should be reduced; iii) the blue box, containing measures that distort trade, but limit agricultural production

⁵³ Paragraphs 7 and 8 of the green box

⁵⁴ Paragraph 12 of the green box

⁵⁵ Agricultural Export Restrictions and the WTO: What Options do Policy-Makers Have for Promoting Food Security?, Giovanni Anania, ICTSD, 2013

⁵⁶ The Green Fund is the UNFCCC's financial mechanism, decided on in 2009 and finalised in 2010, designed to allow transfers from developed countries to developing countries as part of a mitigation and adaptation approach

named a priority for the Green Fund in 2013, firstly under the heading "Agriculture and related land use" before being incorporated into the "Sustainable land use management to support mitigation and adaptation" (Green Climate Fund, 2013)). Mitigation and sustainable farmland management approaches planned by the Green Fund include reduction of carbon losses using improved agricultural practices, reduction in direct and indirect emissions from the use of fossil fuels, reduction in non-CO2 emissions from crops and livestock and, finally, energy crops.

CONCLUSION

Although recognised as crucial and specific by the UNFCCC, agriculture is treated generically in international climate negotiations and included in a range of UN measures to tackle climate change in the same way as other economic sectors. These measures developed by the UNFCCC are many and varied, relating to both adaptation and mitigation, at a national and international level. These mechanisms developed by international climate negotiations come in addition to national agricultural mitigation and adaptation initiatives, demonstrating the specific nature of agricultural problems and the ambition of developed and developing countries to take action in this vital area.

Since 2009, the theme of agriculture has made progress in terms of both form and substance in international climate negotiations and is now being examined by the UNFCCC's Subsidiary Body on Scientific and Technological Advice (SBSTA). Although procedural, this stage is crucial before any political decision by the COP or any practical implementation tools can be envisaged. It allows the agriculture theme to be developed from a technical perspective as part of the UNFCCC process. Alongside official negotiations, events such as scientific meetings, organisations and programmes of work, research and funding act as an interface between official negotiations and external third parties. They allow dissemination of concepts (such as Climate-Smart Agriculture) and exchanges between stakeholders, without directly influencing the outcome of negotiations.

In addition to recognition by the Parties of the importance of agricultural challenges, SBSTA discussions of agricultural issues have highlighted key disagreements, particularly regarding the choice of a mitigation and/or adaptation approach, as well as differentiated commitments by the Parties depending on their level of development. Future debates in relation to agriculture will also need to decide MRV questions, closer assimilation of agriculture with other land uses, as well as the UNFCCC's interaction with other UN agendas. In the longer term, certain negotiating tracks could reinforce agriculture's role in mitigation and adaptation, for example through a system or mechanism specific to agriculture; the Global Alliance for Climate-Smart Agriculture as a support for policies combining mitigation, adaptation and development; or through a closer relationship and better coherence with WTO regulations.

While multilateral initiatives such as the Global Alliance for Climate-Smart Agriculture are creating new possibilities for the theme of agriculture in international climate negotiations, the challenges facing agricultural adaptation and mitigation remain many and varied, affecting agronomy, engineering and funding, among other aspects, calling for an alignment of international trade and development agendas. More generally, it is a matter of rethinking the agricultural development trajectories, modifying the organisation of agricultural sub-sectors involved in input production to consumption habits and considering the effective impacts on stakeholders, including in respect of development. Therefore the perceived "slowness" of international negotiations on the subject of agriculture actually only reflects the scale of the challenges to be tackled, i.e. the political sensitivity of the agriculture theme and the scale of the scientific and technical challenge presented by the reduction and monitoring of agricultural emissions. Agriculture is only at the first stage of a long and complex negotiation process which cannot be expected to be completed during COP21.

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