CIDSE
Guiding Principles and Recommendations

Agriculture: from Problem to Solution

Achieving the Right to Food in a Climate-Constrained World

} Moving away from a market-based approach to food, agriculture and climate change

} Redirecting agriculture to serve its social, economic and ecological function in a sustainable way

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In this **paper**

Executive Summary	3
Principles	6
Recommendations	9
Conclusion	18

Adaptation*
Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic *stimuli* or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation.

Mitigation*
An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.

Resilience
Is defined as "the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change" (Adger 2000).

*IPCC definitions, 2001, www.ipcc.ch/pdf/glossary/tar-ipcc-terms-en.pdf.

How can we redirect agriculture to serve its social, economic and ecological function in a sustainable way? This document presents CIDSE's views on the guiding principles which should govern agricultural and climate policies given the challenge climate change poses to people and the planet.

Policy recommendations and considerations are based on the current state of discussion and analysis on the climate-agriculture nexus in CIDSE and its member organisations.

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Executive Summary

Climate change, agriculture and food security are inextricably linked. CIDSE believes the challenge of addressing existing global hunger while preparing to feed an increasing population in the context of a changing climate is the defining challenge of our times. This challenge can only be overcome through coherent cross-sectoral policies that reduce emissions from agriculture and simultaneously increase the capacity of the sector to cope with the impacts of climate change, while harnessing its potential for poverty alleviation.

This paper outlines basic principles which CIDSE believes should provide a framework for addressing agriculture and securing the right to adequate food amidst the climate challenge. As the international alliance of Catholic development agencies, our principles are grounded in Catholic Social Teaching and human rights principles which uphold dignity, equity and justice. We believe human rights – particularly the right to adequate food – must be the starting point for all analysis and policy development in relation to climate change, agriculture and food security. As development organisations, we ground our analysis in the experiences of our projects and programmes, and in the hands-on work of our Southern partners who engage directly with affected communities.

Today, nearly one in seven human beings is denied their basic human right to food. The challenges of ensuring food security are already significant and climate change will only make it harder to overcome them. Agriculture is a key sector as far as climate change is concerned, both in terms of its contributions and the impacts it suffers as a result of it. Agricultural activities, including the indirect ramifications of land use change and deforestation,[1] account for one third of total greenhouse gas (GHG) emissions.[2] At the same time, the agricultural sector is particularly affected by climate change and adaptation will certainly be needed to face climate-related challenges such as desertification, land degradation, drought, floods and water scarcity. In addition, agriculture is the primary source of livelihood of the majority of the world's poor people, 75 percent of which are small-scale food producers.[3] These are the most vulnerable, who not only produce the majority of the world's food[4] through low emissions practices, but also have the least capacity to cope with climate change.

Despite strong scientific evidence, growing impacts and emerging policy frameworks, the ambition to address climate change is still largely inadequate. Levels of CO_2 emissions reached an "all time high of 34 billion tonnes in 2011."[5] With emissions increasing and inadequate targets and policies in place, the gap between political commitments and the science-based reductions needed to stay within the 2°C limit[6] is widening.[7]

Under a 'business as usual scenario' for food demand and production, emissions from agriculture are set to rise by almost 40 percent above 2005 levels until 2030.[8] "On a global scale, nitrous oxide (N_2O) emissions from soils and methane (CH_4) from enteric fermentation of ruminants constitute the largest sources of GHG emissions from agriculture. In recent years, the consequences of land use change have also released into the atmosphere large quantities of ecosystem carbon such as CO_2."[9] Beyond these global figures, the reality is very diverse, with industrial agriculture accounting for a significantly larger contribution to GHG emissions than smallholders, due to its reliance on external farming inputs, use of synthetic nitrogen fertilizers, concentration of methane from livestock production, and CO_2 released from farm machinery use and large-scale land clearing.

Despite historical overall boosts in production in the last 50 years, hunger is increasing. Today we produce 17 percent more calories per day per person than we did 30 years ago in spite of a 70 percent population increase,[10] yet increases in yields have not automatically translated into food security. Hunger is not just a matter of insufficient production, and the question of unequal access is crucial as far as food security[11] is concerned.

The 'Price Volatility and Food Security' Report (2011)[12] by the Committee on World Food Security (CFS) High Level Panel of Experts (HLPE) on Food Security and Nutrition stated that there is "no need to boost agricultural growth [but rather an] urgent need to guide that growth towards long-term food security". The question is: how can we redirect agriculture to serve its social, economic and ecological function in a sustainable way? For this to happen, we believe there is a need to forge sustainable development pathways which will redirect the role of agriculture to the service of society and to build diverse and resilient food production systems which contribute to food security, social equity and environmental regeneration.

Finally, there is also an urgent need to question our current consumption and production models which are not only unsustainable from an agricultural perspective but also a major driver of climate change. It is imperative to put an end to highly emitting economies in general, and to place the finitude of natural resources at the centre of our economic system. As such, developed countries must start to drastically reduce their emissions, notably in the agricultural sector, and support developing countries to take low emissions development pathways.

In this light, this paper sets out key recommendations for decision makers, targeting particularly the negotiations on agriculture within the Subsidiary Body for Scientific and Technical Advice (SBSTA) of the United Nations Framework Convention on Climate Change (UNFCCC) and the round table on food security and climate change at the 39th session of the Committee on World Food Security (CFS), as these are the two most legitimate intergovernmental bodies dealing with climate change and food security respectively.

A real change of direction is urgently needed and long overdue. CIDSE calls for the following principles, which are presented in detail in this paper, to guide future policy direction:

- **Right to food approach;** removing concepts of charity and emphasising the moral and legal obligation to ensure that all people have the capacity to feed themselves in dignity.

- **Harnessing agriculture's role in reducing poverty;** as the principle economic sector of most developing countries, agriculture constitutes the main source of livelihood for the majority of the world's poor. States have an obligation to protect and fulfil the right to adequate food for their populations, and consequently, to support their local agricultural sector in a way that responds to the needs of the most vulnerable.

- **Respect for Common but Differentiated Responsibilities (CBDR);** a principle which translates the joint responsibility of the international community for environmental damages resulting from human activities in a way that reflects countries' respective contributions to GHG emissions, the way they are impacted by those emissions, and their respective abilities to cope with the impacts.

- **Science integrity and precautionary principle;** the scientific knowledge provided by intergovernmental scientific bodies on climate change and its environmental and socio-economic impacts must be the basis of political action.

In this paper CIDSE also presents six detailed recommendations to policy makers on climate and agricultural issues.

Recommendations:

} Invest in small-scale food production
} Support sustainable models of production
} Beware of false solutions – agriculture in carbon markets and agrofuels[13]
} Secure access to land, natural resources and the commons
} Align finance, trade and agriculture policies to realise the right to adequate food
} Change consumption patterns and reduce food waste and post-harvest loss

Overarching **Principles**

1. Respect for and adherence to human rights

Human rights are protected under international human rights and humanitarian law, and the correlative State obligations to all signatories are equally well-established under international law. The impacts of climate change put basic human rights at risk.

The right to adequate food is a human right. It is the right of all human beings to live in dignity, free from hunger, food insecurity and malnutrition. A right to food approach removes concepts of charity and emphasises the moral and legal obligation to ensure that all people have the capacity to feed themselves in dignity. The right to adequate food is recognised in the Universal Declaration on Human Rights[14] and the International Covenant on Economic, Social and Cultural Rights (ICESCR),[15] among other instruments. As authoritatively defined by the Committee on Economic, Social and Cultural Rights (Committee on ESCR) in its General Comment 12: "The right to adequate food is realised when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement."

According to Olivier de Schutter, UN Special Rapporteur on the Right to Food, "To produce his or her own food, a person needs land, seeds, water and other resources, and to buy it, one needs money and access to the market. The right to adequate food therefore requires States to provide an enabling environment in which people can use their full potential to produce or procure adequate food for themselves and their families. To purchase food, a person needs adequate incomes: the right to adequate food consequently requires States to ensure that wage policies or social safety nets enable citizens to realize their right to adequate food."[16]

An approach centred on human dignity regarding all policies and sectors is needed to focus on those whose access to food is insecure, i.e. on those whose rights are either being violated or are at risk, and to address the responsibilities of duty holders to promote, protect and fulfil those rights. Such an approach will ensure an analysis of the root causes of hunger

What is Agroecology?

Agroecology is concerned with the maintenance of a productive agriculture that sustains yields and optimises the use of local resources while minimising the negative environmental and socio-economic impacts of intensive practices. It:

- Is a whole-systems approach to agriculture and food that is deeply localised and reflects traditional knowledge and experience,
- Links ecology, culture, economics, and society to sustain agricultural production, healthy environments, and viable communities,
- Applies principles of ecology to the design and management of sustainable agroecosystems.

in the context of climate change, and the importance of the participation of those affected in developing and implementing responses. An approach centred on the respect of human rights will also ensure an analysis that identifies people and groups that are particularly vulnerable to food insecurity and the specific barriers they face, including, for example, women.

2. Poverty Alleviation and the Socio-Economic Role of Agriculture

The importance of the agricultural sector to poverty alleviation is significant. Agriculture represents a larger share of the economy in those countries with the highest percentage of poor and undernourished people. As the principle economic sector of most developing countries, it constitutes the main source of livelihood for the majority of the world's poor. The rural poor are particularly dependent on the agricultural sector, either on a subsistence level or for income to meet household needs.

However, to encourage growth in this sector, and to face the lack of financing by the international community, governments in developing countries have been turning increasingly to private sector actors and the foreign direct investment[17] they provide for solutions, the latter becoming a commonly accepted measure of how we define 'success' in development. There are major concerns with such an approach because the short-term, profit-seeking objectives of some powerful businesses do not address the multi-functionality of agriculture, including factors such as poverty reduction, environment preservation and territorial development, amongst others. Moreover, standards for transnational private companies' activities with regards to their impacts on human rights, and their enforcement, are still very much a work in progress. This is a major issue, as foreign direct investments by transnational companies can lead to land and natural resources' grabbing, which compromise the human rights of local communities.

One major risk of this increased role given to private sector actors is the use of public funds to subsidise the interests of certain businesses at the expense of local populations. Hunger should not be perceived as a business opportunity – to take a recent example reported in the press, for arbitrage in relation to food prices induced by the 2012 US drought.[18] Hunger and poverty eradication are first and foremost a responsibility of governments themselves. States have an obligation to protect and fulfil the right to adequate food for their populations, and, consequently, to

Agroecological farming methods include: agroforestry, biological control (controlling pests and diseases with natural predators), water harvesting methods, intercropping, green manure cover crops, mixed crop and livestock management, and many other practices. One feature uniting all of the above advances is the low use of external inputs.

To put agroecological technologies into practice requires technological innovations, agriculture policy changes and socio-economic changes, but mostly a deeper understanding of the complex long-term interactions among resources, people and their environment. To attain this understanding, agriculture must be conceived of as an ecological system as well as a socio-economic system.

From: Center for Agroecology and Sustainable Food Systems (UCSC), www.agroecology.org.

support their local agricultural sector in a way that responds to the needs of the most vulnerable. It is imperative that both agricultural and climate policies do not lose sight of the important role that agriculture plays in poverty alleviation. In fact, any policy to address the nexus must harness this potential if it is to be truly effective.

Moreover, we express our concern regarding the current trend in the 'financialisation' of the agricultural sector and related commodification of natural resources. We support the concepts of social equity and encourage the recognition of the finitude of natural resources. We reaffirm the limits of a market-based approach to food, agriculture and climate change – an approach which has failed to ensure global food security.

3. Common but Differentiated Responsibilities towards Climate Justice

The 'Common but Differentiated Responsibilities and Respective Capabilities' principle (CBDRRC)[19] is one of the founding principles of the UNFCCC, and of international environmental legislation. Its implementation throughout the different areas impacted by climate change is key in relation to the role of agriculture in mitigation and adaptation. The CBDRRC principle is crucial for a fair sharing of the burden and efforts to solve the climate crisis. It aims to translate the joint responsibility of the international community towards environmental damages resulting from human activities into policies in a way that reflects:

- Countries' contributions towards the unsustainable levels of GHG emissions;
- The way countries are impacted by these GHG emissions; and
- Their respective abilities to cope with the impacts, with an emphasis on developed countries' responsibility towards the unsustainability of the current environmental models.

These elements must be embodied throughout all climate policies – whether they concern mitigation, adaptation, delivery of climate finance or technology transfer – as well as throughout the different areas impacted by climate change, agriculture and food production. Climate action must reflect countries' responsibilities towards climate change, and their respective abilities to cope with it, if we are to achieve climate justice.

Sharing the efforts and costs of solving the climate crisis in a fair and equitable way needs to reflect the historical responsibility of developed countries, the growing role of emerging economies and the right to sustainable development for all, particularly for least developed countries. This is a challenge that the international community must meet to ensure that climate policies will enable the global effort urgently needed for sustainable development, the fulfilment of human rights and poverty eradication.

4. The Precautionary Principle

The scientific knowledge provided by intergovernmental scientific bodies on climate change and its environmental and socio-economic impacts must be the basis of political action. Climate science is able to give valuable information on what is needed to avoid the worst climate scenarios and their impacts on the most vulnerable areas and populations.

In addition, although the current scientific information and work on future scenarios is becoming increasingly rich and accurate, consistent actions are still needed where scientific uncertainties might remain. Article 3.3 of the UNFCCC recalls that countries need to take "precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures."[20] The precautionary principle should be a guiding principle of any climate-related measure in the field of agriculture, particularly when food security might be put in jeopardy.

Recommendations for Climate and Agriculture policies

The Committee on World Food Security

The Committee on World Food Security (CFS), as the foremost inclusive international and intergovernmental platform dealing with food security and nutrition, is the legitimate policy-making organ which should guide international efforts to ensure coherence and avoid fragmentation. Climate and agriculture features high on the agenda of the 39th session of the CFS in October 2012, where a policy roundtable has been devoted to discussing the issue. We thus urge the CFS to take into consideration the findings of the High Level Panel of Experts on Food Security and Nutrition Report on 'Food security and climate change' (2012), in addition to our policy recommendations detailed below.

The United Nations Framework Convention on Climate Change

The consideration of agriculture in the United Nations Framework Convention on Climate Change (UNFCCC) falls under the Subsidiary Body for Scientific and Technological Advice (SBSTA). In its decision 2/CP17, the Conference of the Parties (COP) decided in Durban (2011) to mandate the SBSTA to consider issues related to agriculture in the context of "cooperative sectoral approaches and sector specific actions, to enhance the implementation of article 4, paragraph 1(c) of the Convention",[21] with a view to a decision at COP18. The establishment of a work programme on agriculture is one of the options considered in terms of taking the issue forward.

It is important to note that CIDSE rejects any work programme in the UNFCCC under the Subsidiary Body for Scientific and Technological Advice (SBSTA) which does not address the urgent adaptation challenges and the need for financial and structural support to sustainable farming practices first and foremost. It is crucial that the proposal for a work programme on agriculture within the UNFCCC does not lead to mitigation measures only, or place additional pressure on small-scale food producers via inadequate climate policies. Addressing agriculture in a new dedicated framework may undermine the valid efforts already being undertaken in regards to agriculture adaptation within the UNFCCC framework, such as the Nairobi work programme and the work programme on loss and damage. The interconnection of food production with social, environmental and economic issues must be integrated into UNFCCC policies.

Based on the four principles outlined earlier, CIDSE's key recommendations to guide agriculture and climate policy are as follows:

Recommendation 1
Invest in small-scale food production

Investment in small-scale food producers via agroecological approaches can realise multiple dividends, simultaneously increasing production, food and income security, enhancing resilience to climate-related and other livelihoods shocks, and reducing agriculture's contribution to the greenhouse gas emissions.[22]

To reduce vulnerabilities and increase the capacity to adapt, power structures that made people vulnerable in the first place must be challenged. For example, if the problem of food insecurity is caused by farmers not being able to afford farming inputs or having too insecure land tenure to have an incentive to invest in it, food aid or provision of better climate information will do nothing to reduce vulnerability.

Increased investment in agriculture and rural development is needed, placing the rights and resilience of the most vulnerable communities at the centre. This should include increased investment in agricultural research, farmer-to-farmer exchanges and close cooperation between farmers and scientific bodies. Such investments should focus in particular on low external input, agroecological approaches, as well as extension services which are as close to the community level as possible, incorporating and building on existing knowledge, practices and institutions.

Food for thought:

- Address misinvestment by shifting agricultural public spending and aid from high-emitting practices towards models that are accessible to the most vulnerable and that are socially, economically and environmentally sustainable. Prioritisation of the provision of public goods, such as extension services and rural infrastructure, is much needed.
- Increase investment in agroecological approaches and small-scale food production. Such investment is currently far below the necessary levels to support the adaptation and mitigation potential these approaches possess.
- Prioritise adaptation needs over mitigation, especially as far as small-scale food producers[23] are concerned, particularly as adaptation needs are currently severely underfunded.
- Include in every agriculture-related policy a strong focus and dedicated measures to improve women's conditions of living and working, addressing factors such as women's access to land tenure. Women are amongst the most vulnerable and yet make significant contributions to national food production. According to the FAO, women produce between 60–80 percent of food in most developing countries.[24]
- Support research focused on the on-farm realities of those most affected by food insecurity and climate change, and ensure that the real needs of farmers are effectively addressed.
- Promote indigenous knowledge and community-led innovation as ways of increasing the resilience of agricultural models.
- Take into account the needs, views, capacities and experiences of small-scale food producers and the most food insecure in climate adaptation and mitigation policies relating to agriculture, as well as ensuring their participation and representation in policy spaces where relevant issues are discussed. There is a need to provide support for initiatives which facilitate the inclusion and participation of the most affected in the processes that concern them.
- Strengthen producers organisations so they pool resources, spread risk and increase their bargaining power in the food chain.
- Support enhanced access to markets for small-scale food producers, and implement measures which will ensure food markets and supply chains are both socially and environmentally sustainable. Specifically:
  a. Support the development of local markets so that farmers are able to sell their produce at a fair price.
  b. When small-scale producers are inserted into regional or global markets, support initiatives to increase the power of these producers within supply chains in order to challenge the current domination of individual actors within those chains and to promote more inclusion.

We urge parties to the UNFCCC to:

- Develop policies that jointly address adaptation and mitigation challenges, whilst ensuring specific focus on adaptation needs of small-scale food producers and on the primary responsibility of industrial agriculture in the sector's GHG emissions. If agriculture has to be addressed under a new framework in the UNFCCC, it must be done in a way that (i) does not focus on mitigation only (thus ignoring urgent adaptation needs) and (ii) does not undermine ongoing efforts regarding climate adaptation.

- Address the severe underfunding of adaptation. Sustainable agriculture programmes that both strengthen food security and increase climate resilience must be supported as a priority within

the delivery of new and additional public climate finance.
- Fill the UNFCCC frameworks, such as the Nairobi work programme and the work programme on loss and damage, with political investment, content and money. To this end, it would be more efficient to consolidate these efforts before developing any new framework that might only make the negotiations even more complex than they already are.
- Implement participatory mechanisms in the SBSTA (similar to those found in the CFS) to ensure that the needs, views and experiences of small-scale food producers can be expressed and taken into account.

We urge the CFS to:
- Encourage the development of local and regional platforms where those most affected by food insecurity and climate change can participate in the design, implementation and evaluation of adaptation and mitigation plans.
- Integrate climate change concerns in all of its future work and liaise with and inform UNFCCC discussions on agricultural issues.

Recommendation 2
Support sustainable models of production

There is a significant distinction between the role of different food production models and their contribution to GHG emissions, as well as their added value to local food systems and potential resilience to climate change. Large-scale industrial agriculture – with high external input use of synthetic nitrogen fertilizers and methane from cattle production – is highly emitting. Moreover, these production methods contribute to the reduction of forest cover, and, as a result, to emissions from deforestation. The CFS HLPE report on 'Food security and climate change' (2012) warns that "significant conversion of new land to food production should not be a major contributor to increased production because of its consequences for GHG emissions."[25] Also, such industrial models are largely characterised by monocropping systems which are inherently vulnerable to climate change.[26] There is therefore a need to recognise and acknowledge the damage that has been done by these models of production. Any mitigation policy in agriculture must therefore, as a priority, tackle emissions where they are most important, i.e. focusing first and foremost on industrialised agriculture, while respecting the right to development of small producers.

The current trend to push for 'sustainable intensification' via 'climate-smart agriculture'[27] should be viewed with caution. Even though climate change is clearly undermining production capacities, an approach solely based on increasing yields, without questioning the model of production itself and its impacts, would be very limited, particularly as food insecurity is not solely a matter of insufficient production but also inadequate access.[28]

The development of export-driven industrial agriculture in some developing countries is one example of the fact that increased production does not necessarily lead to increased equitable access to food. Limited access to food, due to high food prices, is one structural root cause of food insecurity. What is needed is rather to support increased productivity and efficiency of small-scale food production and policies which will ensure food security at a local level with stable access to food. It must be noted that beyond the production of commodities, agriculture also has a social and economic role, whilst providing important environmental services which are public goods. The "multifunctional nature"[29] of the agricultural sector is largely neglected in approaches that solely focus on increasing production.

The 2008 report by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) notably reminds us that "small-scale diversified farming is responsible for the lion's share of agriculture globally. While productivity increases may be achieved faster in high input, large-scale, specialised farming systems, greatest scope for improving livelihoods exist in small-

scale, diversified production systems in developing countries."[30]

Moreover, support for sustainable models of production (that is to say models which are based on the functioning of ecosystems) implies the choice of small-scale and family farming over large-scale industrialised agriculture. Indeed, small-scale farmers are in a better position to implement techniques for conserving natural resources (such as water, soil and forests) which respect local conditions, thereby creating more resilient and sustainable systems.

Food for thought:

- Promote policies which will address the climate crisis and food insecurity in a holistic way, assessing the emissions range from different agricultural models, as well as their ability to sustainably reduce emissions. Decisions must be based on independent scientific assessments (such as that of the IAASTD report) of the emissions from different practices, and on accurate information regarding the adaptation and mitigation potentials of each model, including social aspects and cost effectiveness.
- Provide incentives for sustainable food production, agroecology and regenerative agriculture, as well as promote the diversity of the genetic resource base.
- Take into account the primary responsibility of industrial production models in the design of climate mitigation policies.
- Further clarify the concepts of 'sustainable intensification' and 'climate-smart agriculture', taking into account their impacts on the environment and food security of local communities.

We urge parties to the UNFCCC to:

- Ensure policies are based on sound scientific research and are governed by the precautionary principle. Decisions under the convention must be informed by relevant international institutions, notably the Committee on World Food Security (CFS), and also the IAASTD report and the findings from the UN Special Rapporteur on the Right to food[31] on the adaptation and mitigation potentials of agroecological practices.

We urge the CFS to:

- Deliver more action-orientated policies and decisions and promote monitoring and accountability mechanisms for States to effectively implement policies and programmes.
- Assess and compare different farming systems and their contributions to emissions (direct and indirect) and potential for adaptation.
- Call for increased investments and research into agroecological models to ensure food security and increase resilience with special attention to the needs of women farmers.
- Encourage States to remove incentives for emission-intensive agriculture.

Recommendation 3
Beware of false solutions – agriculture in carbon markets and agrofuels

Though low-emitting food production systems are crucial for reducing the contribution of agriculture to overall GHG emissions, such systems need to be supported in a way that is coherent and addresses agriculture adaptation as a priority. For instance, many false solutions to climate change mitigation in the agricultural sector are being promoted. Essentially, these 'solutions' are inadequate for both climate mitigation and food security. The inclusion of agriculture in carbon markets is one example of a false solution. It is argued that this solution would be a good way to mobilise financial resources to ensure climate mitigation in agriculture whilst fostering adaptation and alleviating poverty. Proposals to include agriculture in offsetting markets are, however, questionable from an environmental perspective and present considerable risks for small-scale producers. There are indeed major concerns that soil carbon markets lead to increased pressure on food security, whilst at the same time contributing nothing to emissions reductions and also undermining climate mitigation efforts. Firstly, large farms and agribusiness, rather than small-scale farms, would be likely to attract most investment in soil carbon sequestration. Under the

Clean Development Mechanism (CDM) and any regulated carbon offset mechanism, project development and certification cycles are lengthy, complex and costly. Consequently, those most likely to obtain carbon credits are those who can afford to pay for specialist 'carbon consultants' and who can offer offset projects large enough to cover the CDM-related transaction costs.

Moreover, there is a fear that such a solution may undermine climate change mitigation. Carbon offset strategies such as the CDM are only feasible for industrial processes, where greenhouse gas emissions can easily be measured. Agricultural fields, however, are subject to complex biological processes and are highly heterogeneous in nature. This makes it difficult to obtain the reliable soil carbon measurements which would be essential for the quantification of sequestered CO_2 and the generation of corresponding credits.

Finally, including agriculture in carbon markets could also lead to increased pressure on land as investors become attracted to the financial gains associated with acquiring land under this scenario. This can further incentivise land grabbing, leading to continued expansion of large-scale monocultures at the expense of smallholders, traditional crops and biodiversity.

Another false solution of grave concern is the use of agrofuels as substitutes for conventional oil, which is currently being promoted to de-carbonise the transport sector. This has led to major social and environmental impacts, most notably on agriculture and food security, with only marginal or even negative impacts on climate mitigation. The growing demand for agrofuels has had negative effects on local food security due to pressures on land and competition between food and fuel crops. Agrofuel policies have also led to the indexing of food prices to oil prices, contributing to increased food price volatility. The contribution to GHG emissions of the Indirect Land Use Change (ILUC) for agrofuels production (via deforestation and conversion of land for fuel crops, for example), is very significant, and strongly undermines agrofuel mitigation potentials.[32]

As such, there is little evidence that the majority of agrofuel policies and programmes are aiding either climate change mitigation or food security.[33] Hence, mitigation policies need to integrate assessments of the potential detrimental impact that could undermine food production or encourage land grabbing, so as not to further incentivise false solutions.

Food for thought:

- Reject the use of flexibility mechanisms that shift responsibility for mitigation to developing countries.
- Ensure that potential solutions are indeed accessible to small-scale food producers and will not create more of a burden, such as increased debt.
- Abolish agrofuel blending mandates and any subsidies for production (such as public investment or fiscal facilities) and focus on ways to reduce energy consumption, rather than maintaining them at the current unsustainable level.
- Establish strong social and environmental safeguards to govern private investments in agricultural adaptation and mitigation projects.

We urge parties to the UNFCCC to:

- Consider adaptation as the priority focus of climate policy dealing with agriculture. Mitigation options considered should aim at reducing emissions where they are most important, i.e. industrial agriculture first and foremost.
- Thoroughly assess mitigation options considered by all parties, and aim at being sustainable, equitable and fair. The potential impacts of mitigation options on food security must be assessed and subsequently addressed.
- Reject the inclusion of agriculture in carbon markets. Proposals for mitigation measures must include indicators to effectively monitor the emissions reductions, the effectiveness and the sustainability of different approaches.
- Consider the work undertaken by the Intergovernmental Panel on Climate Change (IPCC) towards the fifth assessment report (AR5), providing a review of climate science as the guideline of political decision on climate and a tool to revise countries' pledges.

- Integrate an approach to agriculture in the UNFCCC throughout global, national and local levels. The SBSTA should provide information to parties on how consistency can be guaranteed between actions planned in National Adaptation Programme of Actions (NAPAs) and Nationally Appropriate Mitigation Actions (NAMAs) and policy proposals on agriculture.

We urge the CFS to:

- Ensure that adaptation and mitigation programmes, policies and strategies are assessed, *ex-ante* and *ex-post* for their possible impacts on the right to adequate food.
- Encourage governments and donors to support the development and dissemination of projects that strengthen adaptation with sustainable practices increasing carbon sequestration and integrating disaster risk reduction where appropriate.
- Challenge false solutions, such as agrofuels, by exposing the impacts of such policies on food security.
- Strongly reject the promotion of genetically modified seeds in the name of resistance to climate stresses such as drought or salinity in any climate-related policy. Patenting of all forms of life should be strictly banned.

Recommendation 4
Secure access to land, natural resources and the commons

Lack of secure land tenure and access to natural resources is one of the key structural causes of hunger and poverty. Access and conflict over productive resources such as arable land and water will become increasingly strained due to climate change. It is therefore imperative that governments protect the rights of small-scale food producers to their resources as they are the primary stewards of such resources.

Arable land, or the proportion of the earth where food can grow, is being depleted at an alarming rate. Today, less than ten percent of the planet's total land area is arable. During the past 40 years nearly one third of the world's cropland (1.5 billion hectares) has been abandoned because of soil erosion and degradation. This means we are losing about 75 million hectares to land degradation every year.[34] Economic interests are becoming increasingly directed towards this most scarce resource and this is leading to the dispossession of thousands of people the world over. This trend, also known as 'land grabbing', is likely to continue unless measures are put in place to protect the poorest.

Land grabbing can lead to the dispossession and/or the adverse incorporation of people into an unsustainable agro-industrial system. It compromises their livelihoods and their capacities to feed themselves and further intensifies resource degradation.

Drivers of land grabbing include food production for wealthier countries, agrofuel production, large-scale infrastructure projects, carbon credit and other market-based mechanisms, as well as pure speculation on this increasingly scarce resource by banks, pension funds and other financial actors. Rising agricultural commodity prices make the acquisition of land look like an increasingly attractive investment option.

Efforts must be stepped up to secure land for small-scale producers. This will ensure people are not arbitrarily dispossessed of their land, and obtain better deals from incoming investors.

There is also a need to institute redistributive land reform to address the unequal distribution of land which characterises the post-colonial context of so many of the world's poorest people.

Food for thought:

- Secure land tenure and rights of users through the rapid implementation of the 'Voluntary Guidelines for the Responsible Governance of Land, Fisheries and Forests.'[35]
- Introduce a two-year moratorium on large-scale land investments made by foreign and transnational companies, until the final conclusion and implementation of the CFS principles on Responsible Agricultural Investment (RAI).
- Recognise customary rights.
- Provide land redistribution and compensation where necessary.
- Integrate the principle of free, prior and informed consent and robust compensation regimes into national legislation through appropriate legal frameworks which ensure legal support for local populations, as well as protection of those defending land rights.
- Integrate the nexus of sustainable models (such as agroecology) into discussions regarding the CFS principles on Responsible Agricultural Investment.

We urge parties to the UNFCCC to:

- Further work on the interactions between climate change and land grabbing, so as to ensure that mitigation and energy policies do not further contribute to this phenomenon. Policies such as agrofuel targets and subsidies, which divert food to energy use and promote land concentration, must be abolished.

We urge the CFS to:

- Support the implementation of the Voluntary Guidelines for the Responsible Governance of Tenure of Land, Fisheries and Forests as its foremost priority.
- Support the development of integrated land use policies for food security, adaptation and mitigation.
- Reduce land use change for agriculture through support for agroforestry for instance.

Recommendation 5
Align finance, trade and agriculture policies to realise the right to adequate food

It is anticipated that climate change will have dire impacts on food production, and, as a result, on food prices. Historically, the availability of cheap food on the international market was one of the factors that contributed to reduced investment and support to local agriculture in developing countries. This is generally put forward as one of the reasons for the food crisis of 2007–2008, as countries found themselves vulnerable to price fluctuations and unable to procure locally for their needs. For developing countries, market liberalisation has meant a significant increase in dependence on food imports, making the rise in prices a matter of grave concern. Trade policies were negotiated in an era of overproduction and this now needs to be revisited. One of the main lessons to be learned from the food crisis is that the world market is not a reliable source for stable and affordable food supply any more. In times of increased prices and volatility, imports cannot be the cornerstone of any sustainable food security strategy.[36]

In a 2011 discussion paper from UNCTAD,[37] a "significant shift from conventional, industrial, monoculture-based and high external input-dependent production towards sustainable production systems that considerably improve the productivity of small-scale food producers" was recommended. Increasing food production in this way needs to be accompanied by a more supportive trade and macroeconomic framework if improved livelihoods and higher incomes for small-scale food producers are to be realised.

Despite this fact, food trade is expected to increase under climate change, with most developing countries becoming more dependent on food imports and fluctuations in market prices and thus increasing vulnerability to related shocks.

Food for thought:

- Better incorporate food security and climate change concerns into market policies and trade agreements during international negotiations.
- Revaluate trade rules to reflect concerns about the right to adequate food rather than prioritising the concerns of exporters to access markets.
- Create space in trade negotiations for food-insecure countries to respond to international price fluctuations, including the implementation of price stabilisation measures, import quotas and tariffs and even export restrictions if needed.
- Grant low-income, food-deficient countries special consideration when negotiating trade rules.
- Make multilateral, bilateral and national agricultural trade policies subject to *ex-ante* and *ex-post* socio-economic and environmental impact assessments.
- Enable governments in developing countries to move ahead with effective trade measures, including use of special safeguards in order to support small-scale food producers' participation in local and regional markets.
- Implement new and innovative financial systems as promising sources of public climate finance, such as a Financial Transaction Tax (FTT), in order to support adaptation and mitigation initiatives.
- Introduce tighter rules on speculation in financial markets, including the establishment of position limits for 'non-bonafide' actors.

We urge the CFS to:

- Further elaborate discussions on the role of trade on food security, paying special attention to the new challenges posed by climate change.

Recommendation 6
Change consumption patterns and reduce food waste and post-harvest loss

Today, while nearly one billion people experience hunger, another one billion are considered obese and overweight.[38] Obesity causes 3.8 million deaths worldwide before the age of sixty,[39] and in the coming years, the number of deaths from obesity-related conditions is expected to climb to 5.1 million by 2030. In countries such as the United States, this means that the current generation of children could have shorter life expectancies than their parents due to their dietary lifestyles.[40]

As a planet, we are consuming more food, due in part to population growth, but also because average food consumption is increasing. In particular, those who can afford it are eating higher proportions of meat, dairy products and processed foods which are less efficient at being converted to calories than whole grains, fruits and vegetables. Ironically, economic growth is contributing to this change. Nutrition is improving in India, China and elsewhere, but a growing part of these populations are also over-consuming and consuming more processed foods, leading to a dietary transition which is having serious impacts on public health. Obesity is also related to the quality of the food being consumed.

To support this dietary transition, we are witnessing an increased diversion of grain crops from human food to animal feed, as demand for meat and dairy products has steadily risen since the 1960s.[41] About one third of world crop production (covering 3.7 billion hectares) is used to feed animals.[42]

On average, it takes around 6kg of plant protein to produce just 1kg of animal protein.[43] Land needed by local/indigenous populations for their own food production is being taken over to raise animal feed. The division between feed cultivation and livestock production is also a growing problem. A fundamental aspect of sustainable agricultural systems is that nutrients are circulated; for instance, manure from livestock is used to fertilize the fields. When animal production and feed cultivation are geographically separated, nutrients cannot be recycled and are therefore lost in the local nutrient cycle.

Furthermore, more than one third of the food produced on this planet for human consumption is wasted.[44] This amounts to approximately 1.3 billion tonnes of lost food

per year.[45] In developing countries, waste occurs mainly on-farm, due to limitations in post-harvest methods, preservation techniques, packaging and distribution systems. In developed countries, waste most often results from consumer behaviour and inefficient processes in the supply chain. This presents a tremendous opportunity when we consider that all of the hungry people in the world could be lifted out of undernourishment on less than 25 percent of the food that is wasted in the United States and Europe alone.[46] According to the FAO, ten percent of rich countries' greenhouse gas emissions come from growing food that is never eaten.

In a world challenged by climate change, a rising population, and a global economic crisis, we need to be smarter, more efficient, and fairer about the way we produce, distribute and consume our food. Large corporations are taking over more and more of the food system, using production methods that deplete resources in the long term.

Food and land are seen as tradable commodities, with their value set by investors interested in profit. The food industry inflicts more than two dollars of environmental and resource damage for every one dollar of profit. On net sales of US$12.8 trillion, it causes US$200 billion worth of environmental problems, which is 224 percent more than its profit earnings.[47] In sum, current production techniques offer minimal gains while the human and environmental costs are severe. These are systemic problems in how we produce, distribute and consume food, and problems which need to be challenged.

Food for thought:

- Invest in consumer awareness and encourage a shift towards healthier and more sustainable dietary choices as part of adaptation. This includes more consumption of diverse fruit and vegetables and less consumption of livestock products.
- Invest in consumer awareness on the food waste issue, particularly in developed countries.
- Introduce mechanisms and innovations that will produce more efficient food systems with less waste along the chain, including the re-use of urban organic waste (free from pollutants) back into agricultural land, as well as the reutilisation of animal manure for biogas, for instance.
- Identify and support food production processes and distribution practices which are more resource efficient and have fewer environmental externalities, encouraging and enforcing restrictions on the private sector to produce and distribute in ways that result in fewer GHG emissions.
- Establish shorter food chains and local economies through farmers' markets, community-supported agriculture and local food councils, for example.
- Support better post-harvest measures in developing countries where food is wasted on farm.
- Strengthen consumer organisations.
- Procure locally for social programmes when possible.

We urge parties to the UNFCCC to:

- Provide parties, via the SBSTA, with information on the mitigation potential of measures limiting the expansion of the wasteful agri-food chain, and offer support to more efficient post-harvest measures in developing countries.

Conclusion

Under the 'business as usual' scenario, increases in agricultural production will fundamentally mean increases in greenhouse gas emissions; but there are ways, via agroecological models, to delink food production from increased emissions. Building resilience in production systems and the livelihood strategies of the poor is essential if communities are to adapt to both climatic and economic changes. To this end, there is a need to curb the expansion of the industrial agri-food model and support agroecological models of production which are accessible to small-scale food producers, support the regenerative capacities of the earth and do not contribute to further GHG emissions.

A shift in the way we conceive and practice agriculture is urgently needed. Part and parcel of this is the recognition of the role of inclusive governance in ensuring all parties uphold a vision for sustainable agriculture. Public consultations and participation in adaptation and mitigation programmes and projects, as well as open, transparent, and inclusive decision making are critical if we are to realise the right to adequate food in a climate-constrained world.

The fragmentation of policies by sector cannot respond to the new challenges posed by climate change. Coherent policies, grounded in human rights, must be the cornerstone for all decision making.

Agroecology in Practice

AS-PTA (Agroecology and Family Farming) has worked with small farmers' communities since 1983, promoting agroecology as a strategy to overcome food insecurity and poverty. In its local development programme in the semi-arid region of the Brazilian Northeast, AS-PTA cooperate with regional farmers' organisations, involving up to 14 municipal level unions and hundreds of community-level associations in one of the largest NGO-led initiatives in Brazil. Through participatory methods, the organisation has identified the main production and marketing constraints faced by these communities, analysing their root causes and proposing and piloting solutions.

One of the most important issues in this region is water scarcity for human and animal consumption, as well as agricultural production. The potential of rain water harvesting, including innovative techniques such as subterranean dams and micro-irrigation projects, has been identified as an important response to the dry spells that frequently affect the region. The propagation of local seed varieties which are more resilient to drought, as well as natural vegetation management for animal rearing, are also important complementary strategies.

Evaluations of AS-PTA's projects have demonstrated improved income generation through improved production and better access to local markets, as well as significant increases in the nutritional well-being of households involved. Most importantly, AS-PTA has seen that participants in the programme have become much less vulnerable to drought conditions since they began implementing agroecological methods.

AS-PTA is part of a national network for agroecological development and disseminates its methods and techniques to other civil society partners. This network (ANA) also advocates at the local and national levels for public policies which promote rural sustainable development and improve conditions for the family farmers who are responsible for 70 percent of the production of the food consumed in Brazil.

www.aspta.org.br

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