Climate change and the human right to adequate food

Contribution of the Special Rapporteur on the right to food, Mr Olivier De Schutter, to the meeting convened by the Friedrich-Ebert-Stiftung with the Committee on Economic, Social and Cultural Rights

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Climate change will have a severe impact on the ability of certain regions and communities to feed themselves, and thus on the availability of food. The acidification of oceans, a result of greater carbon dioxide concentration in the atmosphere, is already destroying coral reefs, leading to a decrease in fish stocks. The rise in sea levels is causing the salinization of water in certain coastal areas, making water sources improper for irrigation purposes. The change in average temperatures is threatening the ability of entire regions, particularly of regions living from rainfed agriculture, to maintain actual levels of agricultural production. In Sub-Saharan Africa, as well as in Eastern Asia and South Asia, climate change will affect rains. It will increase the frequency of droughts and average temperature. Less fresh water will be available for agricultural production. The UNDP reports an estimate according to which by 2080, the number of additional people at risk of hunger could reach 600 million, as a direct result of climate change.[1] In Sub-Saharan Africa, arid and semi-arid areas are projected to increase by 60-90 million hectares, and the Intergovernmental Panel on Climate Change has estimated that in Southern Africa yields from rainfed agriculture could be reduced by up to 50 percent between 2000 and 2020.[2] Losses in agricultural production in a number of developing countries, particularly in Sub-Saharan Africa, could be partially compensated by gains in other regions, but the overall result would be a decrease of at least 3 percent in productive capacity by the 2080s, and up to 16 percent if the anticipated carbon fertilization effects[3] fail to materialize. William Cline considers that 'a prudent range for impact on global agricultural capacity by the 2080s (...) [could] lie in the range of reductions of 10 to 25 percent'.[4] The losses would be particularly important in Africa and Latin America, with 17 percent and 13 percent average losses respectively if the carbon fertilization effects materialize, and 28 percent and 24 percent respectively in the absence of carbon materialization effects.[5] As summarized by the Stern Review of 2006: 'In tropical regions, even small amounts of warming will lead to declines in yield. In higher latitudes, crop yields may increase initially for moderate increases in temperature but then fall. Higher temperatures will lead to substantial declines in cereal production around the world, particularly if the carbon fertilization effect is smaller than previously thought, as some recent studies suggest'.[6]

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[1] UNDP, *Human Development Report 2007/2008. Fighting Climate Change: Human solidarity in a divided world*, 2007, p. 90 (citing Rachel Warren, Nigel Arnell, Robert Nicholls, Peter Levy and Jeff Price, 'Understanding the Regional Impacts of Climate Change', Research Report prepared for the Stern Review on the Economic of Climate Change, Research Working Paper No. 90, Tyndall Centre for Climate Change, Norwich).

[2] IPCC, *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, eds), Cambridge Univ. Press, Cambridge and New York, chapter 9.

[3] These consist in the incorporation of carbon dioxide in the process of photosynthesis, which uses solar energy to combine water and carbon dioxide to produce carbohydrates, with oxygen as a by-product (defintion adapted from William R. Cline, *Global Warming and Agriculture. Impact Estimates by Country*, Center for Global Development and the Peterson Institute for International Economics, 2007, at 24).

[4] William R. Cline, *Global Warming and Agriculture. Impact Estimates by Country*, Center for Global Development and the Peterson Institute for International Economics, 2007, at p. 96.

[5] Ibid. See also, confirming these views, David B. Lobell, Marshall B. Burke, Claudia Tebaldi, Michael D. Mastrandrea, Walter P. Falcon, and Rosamond L. Naylor, 'Prioritizing Climate Change Adaptation Needs for Food Security in 2030', *Science*, 1 February 2008, vol. 319, pp. 607-610 (showing, on the basis of an analysis of climate risks for crops in 12 food-insecure regions, that South Asia and Southern Africa are two regions that, without sufficient adaptation measures, will likely suffer negative impacts on several crops that are important to large food-insecure human populations).

[6] *Stern Review Report on the Economics of Climate Change*, by Nicholas Stern, prepublication at www.hm-treasury.gov.uk, published in Cambridge, Cambridge Univ. Press, 2007, p. 67.

While it will clearly be a victim of climate change, agriculture is also a major contributor to greenhouse gas emissions. It is estimated that 33 percent of man-made greenhouse gas emissions stem from agriculture, if one includes both the methane and nitrous oxide produced, respectively, by cattle and rice paddies and by the use of synthetic fertilizers (14 percent), and the carbon dioxide production resulting from shifts in land use – deforestration for pastures or crop cultivation (19 percent). **For human rights monitoring bodies whose mandate includes the right to adequate food, it is therefore relevant to inquire about the efforts countries are putting into the shift towards more sustainable types of agriculture**.

It is important in this respect to emphasize that low tillage and low external input agriculture practiced on small farms, relying on intercropping rather than on monocultures, and using biopesticides and manure, compost or leguminous plants instead of chemicals to fight against the attacks of nature or to fertilize soils, in fact has the potential of significantly raising yields. In what remains one of the most impressive cross-country comparison to date, Jules Pretty and his team have surveyed 286 projects using resource-conserving technologies in 57 developing countries, covering a total area of 37 million hectares. The average crop yield increase was 79%.[7] These results are peer-reviewed, and they were published in the Philosophical Transactions of the Royal Society, the oldest scientific institution on Earth.[8] In addition, spectacular increases in incomes of small farmers can result from the use of such techniques. The planting of nitrogen-fixing legumes or trees can limit dependence on chemical fertilizers, for instance, and reliance on locally produced inputs may be more sustainable, for most marginal farmers, than the use of high-value external inputs. **Therefore, sustainable types of agriculture can achieve three objectives at the same time : mitigate climate change by limiting the greenhouse gas emissions resulting from food production ; increase incomes of the poorest and most marginal farmers, who form today a majority of the hungry ; and contribute to food availability by increased levels of production resulting from a well informed use of available agro-ecological techniques of production** (for details, see Special Rapporteur on the right to food, Contribution for the 17th session of the UN Commission on Sustainable Development (CSD-17) "The right to food and a sustainable global food system", 4-15 May 2009, New York, 4 May 2009, available on : http://www.srfood.org/index.php/en/areas-of-work/governance).

While States should do more to mitigate climate change, it is also important that, in the measures they adopt to ensure such mitigation, they comply with their human rights obligations. The following issues have been identified in this regard :

1. Agrofuels. A number of States have chosen to encourage the shift to 'renewable' sources of energy, and thus to limit their reliance on fossil fuels to meet their energy needs. In particular, in the area of liquid fuels for transport, they rely increasingly on ethanol or biodiesel produced from biomass. **The cultivation of energy crops for this purpose may have certain negative impacts on the right to adequate food, however, which calls for a careful monitoring of this development** (see for details 'Building resilience: a human rights framework for world food and nutrition security', report of the Special Rapporteur on the right to food to the Human Rights Council presented in accordance with resolution S-7/1, adopted by the Human Rights Council on 22 May 2008 at its Special Session on the global food crisis (A/HRC/9/23, 8 September 2008), paras. 25-34 and Annex II). Specifically, the impact on the right to adequate food of the development of bioethanol and biodiesel for transportation occurs at three levels.

First, in combination with other factors (particularly with speculation by commodity index investment funds and restrictions to exports), the pace of this development may lead to the increase of the prices of certain agricultural commodities on international markets, worsening the situation of poor net-food importing countries, as was seen in 2007-2008.

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[7] Jules Pretty et al., 'Resource Conserving Agriculture Increases Yields in Developing Countries', *Environmental Science & Technology*, vol. 40 (2006).
[8] Jules Pretty, 'Agricultural Sustainability : concepts, principles and evidence', *Phil. Trans. R. Soc.,* 12 February 2008, vol. 363 no. 1491, pp. 447-465.

Second, a number of negative impacts on the right to food can be expected from the methods of production of agrofuels, in the locations where such production takes place. In particular, the increased demand for crops for fuel may raise the price of cropland, making access to land even less affordable than it is presently as smallholders will be pit against large producers for the acquisition of land. It could lead to the eviction of landusers whose titles to the land are insecure, or to the displacement of populations, particularly of indigenous peoples, in order to allow for the development of large plantation-form agricultural exploitations for the production of agrofuels.[9] One 2007 study estimated that as many as 60 million indigenous people will be driven from their lands, under customary ownership, to clear the way for biofuels plantations, if current investment plans are realized.[10] These predictions are corroborated by recent developments, and particularly by the race towards the acquisition of large areas of farmland, by both private and public investors. For instance, it appears from a recent inventory by the World Bank (which listed 389 large-scale acquisitions or long-term leases of land in 80 countries) that while the bulk (37%) of the so-called investment projects are meant to produce food (crops and livestock), biofuels come in second place (35%). These large-scale land deals pose a number of human rights challenges, prompting the Special Rapporteur on the right to food to identify a set of Minimum Principles and Measures to Address the Human Rights Challenge of this development (see A/HRC/13/33/Add.2).

Third, when produced in developing countries in order to satisfy the growth of demand in industrialized countries, agrofuels may lead to a distorted development, benefiting only a minority, and worsening the lot of many others. One characteristic of the demand for agrofuels is that it is potentially almost infinite. Whereas increased demand for crops for food or in order to feed livestock reaches a natural limit - the demand is saturated at a certain level -, once crops are turned into bioethanol or biodiesel, the level of demand can be such that a very large proportion of crops can be used for that purpose, without a risk of saturation of markets before long. The impacts can therefore be particularly important in certain agriculture-based countries, if the market for agrofuels further develops as a result, in particular, of subsidies and mandate quotas. Thus, if the production of agrofuels is to develop in the future, it will be particularly important to monitor the impact on the non-growers of these crops in the producing countries: for even if the crop-growers themselves benefit from producing crops for fuel which they export to foreign markets, the impacts could be negative on those other segments of the local population, whose food security might suffer, for instance as a result of the increased price of land or a diminished availability of food.

The World Bank noted a year ago that policies that subsidize production, impose high tariffs, and mandate consumption of agrofuels, 'have led to rapid expansion of biofuels production from food crops, such as maize and vegetable oils, and have contributed to higher food prices as well as to environmental degradation'.[11] Yet, apart from certain voluntary schemes, no progress has been made since on disciplining agrofuels despite these well-documented impacts, and the reduced opportunities such policies result in for lower-cost developing-country producers to expand production and exports.

Instead, unilateral measures were taken. The EU and Switzerland, for instance, have developed sustainability criteria, based on environmental and social concerns, for the use and import of agrofuels. Certain voluntary schemes are also being put in place. These measures are welcome, but they fail to adequately address the potential impacts of the development of agrofuels production on food security. Such impacts occur both through the prices of food and through the structure of revenues in the agricultural sector of developing countries. Developing countries in principle have a strong

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[9] See International Institute for Environment and Development (IIED) and the Food and Agriculture Organization (FAO), *Fuelling Exclusion? The Biofuel Boom and Poor People's Access to Land*, by Lorenzo Cotula, Nat Dyer and Sonja Vermeulen, www.iied.org/pubs/pdfs/12551IIED.pdf; Rachel Smolker and others, The Real Cost of Agrofuels: Impacts on food, forests, peoples and the climate, Global Forest Coalition and Global Justice Ecology Project, 2008.

[10] See Victoria Tauli-Corpuz and Parshuram Tamang, Oil Palm and Other Commercial Tree Plantations, Monocropping: Impacts on Indigenous Peoples' Land Tenure and Resource Management Systems and Livelihoods, Permanent Forum on Indigenous Issues, sixth session, New York, 14-25 May 2007, doc. E/C.19/2007/CRP.6 (7 May 2007).

[11] World Bank, *Global Economic Prospects. Commodities at the Crossroads*, 2009 (based on evidence available until 30 November 2008), p. 97.

comparative advantage in the production of agrofuels. As a rule however, crops for fuel are produced by large agricultural producers, or by multinational companies owning or renting land in developing countries, and smallscale farmers are not involved in such production. Unless affirmative action is taken to ensure that smallholders are included in the production of agrofuels in a way that is beneficial to them, the development of agrofuels can only lead to increased inequalities within developing countries. As stated in the Preliminary Conclusions of the International Conference on Biofuels : Biofuels as a Driving Force of Sustainable Development (São Paulo, 17 to 21 November 2008), 'there is a need for a "positive discrimination" for family agriculture, in order to encourage the increased inclusion of smallholder farmers in the market. In this regard, capacity building, technical assistance and access to land and credit should be promoted'.

2. The Clean Development Mechanism. Under the Clean Development Mechanism provided for in Article 12 of the Kyoto Protocol to the UNFCCC, Annex I (industrialized) countries that have committed to reducing greenhouse gas emissions receive additional emission credits if they help to implement emission-reducing projects in developing countries. However, the planting of forests in order to benefit from the CDM may result in evictions against which the local populations concerned may be insufficiently protected. For instance, in Uganda, the Dutch FACE (Forests Absorbing Carbon-dioxide Emissions) Foundation assists with the planting of 25,000 ha of trees to absorb carbon dioxide and hereby offset emissions from a new 600 MW coal-fired power station in the Netherlands, then selling the offsets to GreenSeat, a Dutch carbon-offset business with western clients, mainly airline companies. This project has recently generated controversy, however, as indigenous people known as the Benet have reportedly been displaced to clear the way to tree-planting projects.

Against this background, a reaffirmation of the principles listed in the General Comment No. 7 (1997) of the Committee on Economic, Social and Cultural Rights on the right to adequate housing (article 11.1): forced evictions (E/1998/22, annex IV), and in the Basic Principles and Guidelines on Development-based Evictions and Displacement presented in 2007 by the former Special Rapporteur on the right to adequate housing (A/HRC/4/18, annex I), would be welcome. These guidelines provide a practical tool to assist States and agencies in developing policies, legislation, procedures and preventive measures to ensure that forced evictions do not take place, and to provide effective remedies to those whose human rights have been violated, should prevention fail. It would be useful to show how they are operational, in particular, when projects are implemented under the CDM. The Minimum Principles and Measures to Address the Human Rights Challenge of this development (see A/HRC/13/33/Add.2), already referred to above, could be a source of inspiration in a process of clarifying the requirements of the International Covenant on Economic, Social and Cultural Rights in this context.

3. The REDD scheme. In the form in which it was included in the Kyoto Protocol of 1997, the CDM rewarded only the planting of trees (afforestration or reforestration) : for reasons that have to do, primarily, with problems of calculation and verification, it did not allow avoided reforestration to count for the obtention of certified emission reduction credits (CERs). This was compensated in part when, at the 12th Conference of parties to the UNFCCC (COP-12) convened in Bali in December 2007, the governments agreed on financial incentives to preserve forests, under the REDD scheme (Reduced Emissions from Deforestration and Forest Degradation). REDD however entails risks for forest dwelling communities who have only weakly recognized customary rights over the forests they depend on for their livelihoods, if the State or other actors are tempted to appropriate the benefits from carbon sequestration. Because it attaches a price to forest conservation, REDD may lead existing forest-dwelling communities to be priced out from this market. And the implementation of the REDD scheme may lead forests to be protected against the use by traditional users : as a result of forests being fenced off, these users could be unable to have access to the forest on which they hunt, fish, or gather the food the rely upon. COP-13 recognized these dangers when it insisted that 'the needs of local and indigenous communities' be taken into account into the implementation of REDD.

The dangers associated with the implementation of REDD for forest-dwellers could be avoided by putting in place appropriate safeguards. For instance, participatory rights for forest dwelling

communities could be guaranteed; the strengthening and legal recognition of customary tenure, as required under Articles 25-27 of the Declaration on the rights of indigenous peoples, could be defined as a pre-condition for a developing country to enter into a REDD mechanism; and REDD projects could be monitored at international level, either by human rights mechanisms, or by one new mechanism, specifically established for that purpose.

The annotations above are of course preliminary and do not pretend to cover the full range of issues that are located at the intersection of the human right to adequate food and the adoption by States of measures to mitigate climate change and to adapt to its unavoidable impacts. The Special Rapporteur is at the disposal of the Committee on Economic, Social and Cultural Rights to explore these issues in greater depth in the future.

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Olivier De Schutter *was appointed the UN Special Rapporteur on the right to food in March 2008 by the United Nations Human Rights Council. He is independent from any government or organization, and he reports to the Human Rights Council and to the UN General Assembly. For more on the work of the Special Rapporteur on the right to food, visit www.srfood.org or www2.ohchr.org/english/issues/food/index.htm.*