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Written statement* submitted by the Friends World Committee for Consultation, a non-governmental organization in general consultative status

The Secretary-General has received the following written statement which is circulated in accordance with Economic and Social Council resolution 1996/31.

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A rights-based approach to ensuring the sustainability of food availability, accessibility and adequacy in the context of climate change

Introduction

Friends World Committee for Consultation (Quakers) welcomes the inclusion of a full-day panel discussion on human rights and climate in the work programme for the 28th session of the Human Rights Council, and supports the decision to dedicate half of this time to a discussion on the relationship between climate change and the Right to Food. The following statement is informed by our ongoing work on food and sustainability and climate change, and focuses on the role of biodiversity in supporting resilience to climate change impacts among small-scale farmers.

States parties to the International Covenant on Economic, Social and Cultural Rights (ICESCR) recognize the right to adequate food pursuant to article 11, and have undertaken a variety of measures to incorporate this right into constitutions, judicial systems, institutions, policies and programs and to ensure its progressive realization.[1] The growing justiciability of right to food violations provides individuals with a means of pursuing recourse in times of emergency.[2] A rights-based approach is now being called upon to facilitate the realization of food security in an era of climate change, where States must provide more proactive rather than retroactive affirmation of the right to food. Ensuring the *sustainability* of food availability, accessibility and adequacy for future generations demands heightened awareness of the threats facing agricultural production systems today and the types of measures needed to actively facilitate adaptation in the coming years. The Committee on Economic, Social and Cultural Rights (CESCR) has affirmed that it is no longer sufficient for the right to adequate food to be affirmed based on prevailing social, economic, cultural, climatic, ecological and other conditions.[3] Therefore, States' obligations now extend to the protection of the means for achieving food security under future and unknown scenarios.

Agricultural biodiversity (agrobiodiversity), cultural diversity and the diversity of management practices employed within traditional farming systems provide small-scale farmers with the ability to cope with external stresses and fluctuations, be they environmental or market related. FWCC recognizes the contributions of small-scale farmers, in their roles as experimenters, innovators and custodians of agrobiodiversity, as integral to the pursuit of global food security, particularly in the context of climate change. Using a rights-based approach to protect and foster their adaptive capacity will provide a framework for spurring innovation, promoting conservation and raising the status of small-scale farmers from 'most vulnerable' to 'most valuable' - effectively re-orientating investment in agriculture towards the needs of those on the frontline of climate change and food production.

Threats facing production

Industrial agriculture is a major contributor to climate change, biodiversity loss and the degradation of land and freshwater ecosystems,[4] and is pushing us beyond critical planetary boundaries.[5] Both the expansion of agricultural land into new areas and the intensification of production have negative environmental impacts. Agriculture accounts for

[1] O. de Schutter (2010). Countries tackling hunger with a right to food approach. Briefing note 1.
[2] ibid. See cases in India, Nepal, Brazil, Argentina, Colombia, Switzerland, Paraguay and South Africa.
[3] CESCR General Comment No. 12: The Right to Adequate Food (Art. 11). para 7.
[4] J.A. Foley et al (2011) Solutions for a cultivated planet, Nature 478: 337-342.
[5] J. Rockstrom et al (2009). A safe operating space for humanity. Nature 461, 472-475.

between 30 and 35 percent of global greenhouse gas (GHG) emissions[6] and almost one quarter of anthropogenic GHG emissions.[7]

Implications in terms of food production and food security are two-fold. First, climate change and environmental degradation is threatening the viability of production around the world.[8] Second, the expansion of the industrial agriculture model is contributing to the erosion of genetic diversity, associated traditional knowledge and traditional farming practices, effectively disarming both small-scale farmers and other "modern" crop breeders in their efforts to adapt to climate change.

The impacts of climate change on agriculture vary significantly by region and the model used. There is no consensus on whether net productivity gains may be achieved in some regions, such as in the temperate zone where growing seasons may be lengthened, or if increased sensitivity to disturbances will be felt everywhere, reducing crop production across the board.[9] The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), while affirming that climate change will affect both crop yields and soil organic carbon levels, highlights the immense degree of uncertainty surrounding the net impacts of climate changes on agriculture on account of the large number of contributing variables.[10] The Food and Agriculture Organization of the United Nations (FAO) asserts that in each of the IPCC's projected climate change scenarios the geographic distributions of crop species will be affected faster than they are able to migrate.[11] Changes in crops' phenological cycles, migration patterns and population distributions have already been documented,[12] and these changes will affect whole food chains.

Crop breeders trying to keep pace with climate change are faced with more, and compounding, unknowns. Predicting which traits will be required is difficult given the unpredictability of climate change[13], and current understandings of the genetic base of traits relevant for adaptation are incomplete.[14] The development of a single new variety takes on average ten years, during which time breeders cannot practically evaluate their material under future growing conditions.[15]

The best defence against unpredictability is diversity. The vast majority of genetic and species diversity is maintained on-farm in the form of diverse portfolios of landrace varieties and crop wild relatives (CWR) adapted to local conditions. However, the shift away from traditional production systems and the cultivation of landrace varieties[16] has resulted in a loss of 75 percent of plant genetic diversity,[17] and is most reported in the case of cereals where modern breeding efforts are most concentrated.[18] Wale et al (2011) explain that farmers have financial incentives to replace diverse sets of landrace varieties with monocultures of uniform, high-yielding varieties, and abandon traditional

[6] R. DeFries and C. Rosenzweig (2010). Toward a whole landscape approach for sustainable land use in the tropics. Proceedings of the National Academy of Sciences, USA, 107:19627-19632.
[7] P. Smith et al (2014). Agriculture, Forestry and Other Land Use (AFOLU). Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
[8] O. de Schutter (2014). Final report: The transformative potential of the right to food. United Nations Human Rights Council: Geneva. A/HRC/25/57.
[9] D.B. Lobell, W. Schlenker and J. Costa-Roberts (2011). "Climate trends and global crop production since 1980", Science, 333(6042): 616–620.
[10] supra note 7.
[11] FAO (2010). Second report on the state of the world's plant genetic resources for food and agriculture. Rome.
[12] Secretariat of the Convention on Biological Diversity (2010) Global Biodiversity Outlook 3.
[13] See E.C. Brummer et al (2011). Plant breeding for harmony between agriculture and the environment. *Frontiers in Ecology and the Environment*, 9(10): 561–568.
[14] See for example L. Cattivelli et al (2008). Drought tolerance improvement in crop plants: An integrated view from breeding to genomics. *Field Crops Research*, 105(1-2): 1–14.
[15] M.A. Semenov and N.G. Halford (2009). Identifying target traits and molecular mechanisms for wheat breeding under and changing climate. *Journal of Experimental Botany*, 60: 2791-2804.
[16] Reports documented in FAO (2010), supra note 11.
[17] D. Nierenberg and B. Halweil (2005). Cultivating Food Security, New York, W. W. Norton & Co.
[18] supra note 11.

agricultural systems.[19] Repercussions will be felt in terms of nutrition, resilience against environmental stress[20] and loss of traditional knowledge.

Modern varieties can offer immense public benefit. Paradoxically, however, breeding new varieties adapted to predicted climate change scenarios is predicated on the availability of genetic variation within and between crop species, while their dissemination contributes to the erosion of this diversity. This is the case even when improved stress tolerance is achieved in climate change-affected areas. Particularly when the adoption of modern varieties is accompanied by higher input costs, indebtedness and monoculture practices, farmers are left more vulnerable to environmental change and market fluctuations than they were at the onset.[21] This runs counter to the goal of fostering of adaptive capacity.

Measures that support and foster adaptation and mitigation

As an alternative to the industrial agricultural model, agroecology has been promoted as a means of mitigating the environmental impacts of food production while at the same time enhancing famers' capacities to adapt to environmental feedback. This approach encompasses a wide variety of measures for increasing resource efficiency and lowering the use of external inputs such as agroforestry, intercropping, water harvesting in drylands areas, integrated nutrient management, integrated livestock management and the maintenance of on-farm diversity.[22]

Agroecology and modern breeding are complementary,[23] to the extent that the needs and priorities of small-scale farmers are reflected in breeding targets, farmers participate in the selection of parent material to ensure that improved varieties are adapted to local conditions, neglected and under-utilized crops are included in breeding programs, and access to improved varieties are available without restriction. While some displacement of traditional varieties may occur, modern varieties incorporate the genetic diversity found within locally-adapted material. Participatory plant breeding reinforces and contributes to traditional knowledge. Diverse farm management practices are not replaced with a uniform, production-oriented model but rather supported with investment in extension services and research programs.

FWCC recognizes agroecology as a means of supporting small-scale farmers in their roles as experimenters, innovators and custodians of agrobiodiversity. Farmers experiment with new varieties in home gardens, innovate by integrating new and traditional farming practices to address current challenges and adapting modern varieties to suit local conditions. Informal seed systems in particular allow farmers' economic independence and resilience when faced with new pests, diseases or environmental fluctuations.[24]

We also recognize agroecology as means of re-orientating investment in agriculture to more accurately reflect the needs and priorities of small-scale farmers. Far from being passive recipients of technological solutions,[25] small-scale farmers are the first to feel the effects of climate change and the first to respond in creative ways. Collaborations between researchers and farmers that co-create knowledge and complement and build upon innovation at the farm level have immense potential to improve both climate change mitigation and adaptation.[26]

[19] E. Wale, A.G. Drucker and K.K. Zander (eds) (2011). The economics of managing crop diversity on-farm: Case studies from the genetic resources policy initiative. Routledge.
[20] Heal et al. (2004). "Genetic diversity and interdependent crop choices in agriculture", Resource and Energy Economics, 26(2): 175-184.
[21] O. de Schutter (2009). Seed policies and the right to food: enhancing agrobiodiversity and encouraging innovation. A/64/170
[22] O. de Schutter (2010). Report submitted by the Special Rapporteur on the right to food. A/HRC/16/49
[23] supra note 8.
[24] supra note 21.
[25] T. Chopra (2014). "Persistent narratives, persistent failures: Why GM crops do not - and will not - feed the world," *Mapping the state of play on the global food landscape*, Waterloo, September 26-27, 2014.
[26] L. Levidow, M. Pimbert and G. Vanloqueren (2014). Agroecological Research: Conforming or Transforming the Dominant Agro-Food Regime? *Agroecology and Sustainable Food Systems*, 38(10): 1127-1155.

Recommendations

FWCC believes that States' obligations to realize the right to food should entail a recognition of the value of agrobiodiversity, cultural diversity and diverse farm management practices in helping small-scale farmers adapt to changing growing conditions. Having a rights-based legal framework and national strategies in place will facilitate the implementation of proactive measures to secure food availability, accessibility and adequacy in the long term.

We therefore call on the Council to:

- Recognise that agrobiodiversity is a critical component of small-scale farmers' ability to adapt to climate change impacts, and therefore a factor in ensuring resilience among rural populations; and
- Encourage the design of appropriate strategies that would support and promote small-scale farmers working in agrobiodiverse situations.
- Urge States to:
    - *Respect* the right to food by refraining from acting in ways that contribute to the erosion of genetic diversity in an evolutionary context and loss of traditional knowledge and traditional agricultural practices as they evolve and respond to increasingly unpredictable change;
    - *Protect* the right to food by ensuring that third parties do not contribute to the undermining of small-scale farmers working in in agriculturally biodiverse situations and the loss of diversity within crops, amongst crops and agro-ecological landscapes;
    - *Fulfil* the right to food by establishing political, economic, and social systems that proactively support and foster adaptive capacity before food.