Joint submission by Conservation International, Environmental Defense Fund, Woods Hole Research Center, National Wildlife Federation, Forest Trends, and Center for Carbon Removal on matters relating to agriculture (Decision 4/CP.23)

The views in this submission represent the consensus of Conservation International, Environmental Defense Fund, Woods Hole Research Center, National Wildlife Federation, Forest Trends, and Center for Carbon Removal, which have worked together in a coalition for many years to promote the sensible use of mitigation opportunities in the land sector. Each signatory group to this submission is a non-profit, non-governmental, accredited UNFCCC observer organization, with relevant expertise and longstanding interests in the successful outcomes of the UNFCCC.

We commend Parties on their decision to establish the Koronivia Joint Work on Agriculture (Decision 4/CP. 23) and we welcome the invitation for Parties and observers to submit views on elements to be included in this work. We respectfully share the views herein for the consideration of the Koronivia Joint Work (KJW).

Overarching considerations for the Koronivia Joint Work on Agriculture (KJW)

As Parties consider the topics for the KJW, we encourage them to focus their efforts on the creation of a new set of methodologies and tools for implementation of activities that can build confidence among Parties and accelerate deployment of programs that support the following objectives:

1. Resiliency of farming systems and farmers,
2. Increased production and improved livelihoods, and
3. Reduced emissions of greenhouse gases (GHGs) and increased sequestration.

In the interest of building trust among the Parties, we suggest that Parties should prioritize those topics and issues for which there is broader agreement, tackling these issues first. Toward this end, we would support an approach that leads to a set of "foundational" decisions by 2019, which would facilitate the implementation of such decisions before 2020 and could allow incorporation of KJW outcomes into any NDC revisions that Parties might choose to make before 2020.

Due to their potential to build trust and unlock other issues, we suggest that the KJW should also prioritize the exploration of **detailed safeguards** as one of the first topics taken up, even if this issue does not become one of the "foundational" early decisions finalized by 2019. The Cancun Safeguards for REDD+ can serve as an example of a more detailed set of social and environmental protections that will help build trust in the dialogue. The safeguards should ensure good governance in the implementation of domestic activities. This can be achieved, in part, through the inclusion of relevant stakeholders in these activities and future KJW discussions and negotiations.

Implementation of activities related to agriculture should be subject to the same **transparency** requirements as other activities (under Article 13 of the Paris Agreement) and should be supported by the same means of implementation as other activities (relevant to Articles 9, 10, and 11 of the Paris Agreement). As such, topics that may arise within the KJW, such as activities at a subnational scale; the progression toward higher levels of ambition; the monitoring, reporting, and verification of outcomes; the provision and appropriate use of finance; and the potential transfer of mitigation outcomes, among others – may be relevant to negotiations related to those Articles, and vice versa.

To encourage the full inclusion of the agriculture sector into Parties' NDCs for 2025-2030, we urge Parties to proceed in a manner that would allow them to complete their work on a comprehensive set of topics (yet to be determined) no later than 2023. For guidance on the scope of this work, Parties may look to the Warsaw Framework on REDD+ (and precursor decisions on REDD+) as an example of a package of decisions that worked in a coherent and comprehensive manner to address a particular set of important activities.

Technical issues

In addition to overarching views about the work of the KJW, we also submit the following views about specific issues identified in paragraph 2 of Decision 4/CP.23.

Paragraph 2b. "Methods and approaches for assessing adaptation, adaptation co-benefits and resilience"

In preparing further work on methods and approaches for assessing adaptation, we urge the KJW to consider opportunities for information on this topic to directly support national agricultural planning processes, as well as to identify the technical, financial, and capacity-

building support needed to advance these efforts and modalities for facilitating delivery of such support internationally and at national scale. The KJW should engage experts and coordinate actions with other forums and international organizations relevant to agricultural development so as to enhance the overall support for adaptation and food security benefits.

To ensure the greatest possible degree of food security in the context of climate change and efforts to address it, agriculture requires holistic consideration of technical, social, economic, and ecological aspects. As a result, the sector requires, and is already implementing, a variety of adaptation strategies, including technical solutions, ecosystem-based approaches, responses that engage social and cultural knowledge, and economic innovations. Approaches to assessing adaptation in the sector should consider all of these aspects.

Assessing adaptation in the agricultural sector may, for example, address the technical goal of maintaining or improving agricultural outputs in a changing climate, but it should also consider i) the health and continued provision of ecosystem services that underlie agricultural production, and ii) the resilience of social systems, such as smallholder farming, which encompasses the largest number of agricultural producers globally.

Paragraph 2c. "Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management"

Agricultural production from crop and range lands provides the basis for much of the world's food security, and this issue is singled out as paramount in importance in both the Paris Agreement and the Framework Convention on Climate Change. Efforts to improve the health and fertility of soils may benefit adaptation, resiliency, and yields, and thus help to uphold the food security goals of these agreements. Cropland and rangeland management practices that benefit all three of these dimensions – adaptation, resiliency, and yields – should be encouraged and supported. While the parameters for delivering concurrent benefits from some of these management practices have been identified and are ready for implementation in some contexts, more technical work needs to be done to fully explore this potential across the range of agricultural contexts found among the Parties. Building on and informed by similar work happening under other multilateral, domestic, and private sector initiatives, the potential for delivering these concurrent benefits should be a key topic addressed by the KJW.

Historically, soils were a vast reservoir of carbon. Over generations, significant amounts of carbon have been emitted as CO_2 through conversion of land uses (especially forests and wetlands) and the ongoing management of croplands and grasslands for agricultural production. As a result, restoring the health of soils can also provide a significant opportunity to sequester carbon and contribute to climate mitigation (Sanderman et al. 2017). However, some soil management practices can trigger direct increases in much more potent greenhouse gases, such as methane (CH_4) and nitrous oxide (N_2O), or indirect emissions of CO_2 and other gases due to land-use change. Other negative environmental impacts, such as on water quality and biodiversity, should also be considered before promoting specific soil management practices.

Accounting for contributions from soil management activities toward NDCs must be done with care. First, as noted above, soil management has the potential to generate emissions of several different GHGs, so any approach developed for tracking progress toward NDCs must comprehensively and consistently account for both emissions and sequestration of all relevant gases independently. Such an approach must also use consistent global warming potentials, and include indirect emissions, with provisions for countries to use a stepwise approach, according to their capacities. Second, approaches to account for mitigation outcomes must be able to address the indirect effects of changes in management on GHGs (if any). Third, methods and approaches must be developed to ensure that contributions are counted once and only once, particularly for policies like demand-side measures, which may affect trade in agricultural products and, consequently, changes in emissions and removals along the entire supply chain. Fourth, accounting procedures must be sufficiently comprehensive to capture the effects of policy changes in other sectors, such as the case in which agricultural products, residues, or land uses are diverted toward the production of feedstocks for biomass energy production (see more on bioenergy below). Such cross-sectoral effects may be reflected in national inventories, as they relate to soil carbon and agricultural GHG fluxes, but they may not be properly attributed and accounted for in measures to track progress toward NDCs, unless further guidance is provided. Thus, the work of the KJW on these issues may be especially relevant to negotiations that relate to Article 4, Article 6, Article 13, and Article 14, among others.

Lastly, rice cultivation deserves consideration in this scope of work due to its significant importance to global diets and contribution of almost half of all crop-related GHG emissions and the highest climate impact of any crop per unit calorie. There is broad global support to take action on management techniques for rice farming, and significant recent analyses to support methodological guidance. Actions at the UNFCCC level to support resiliency, increased yields, and reduced GHG emission in rice cultivation are needed.

Paragraph 2d. "Improved nutrient use and manure management towards sustainable and resilient agricultural systems"

The efficient use and management of nutrients is critical for productivity and food security. At the same time, the production and use of synthetic fertilizers in agriculture is responsible for a significant percentage of global GHG emissions from both industrialized and non-industrialized agricultural systems. Improving efficiency in the use of nutrients has the potential to yield significant livelihood benefits and environmental co-benefits, while also leading to a reduction in gross emissions from agriculture. A robust body of existing scientific work points toward specific management practices that improve efficiency of nutrient use in a wide variety of regional and agronomic contexts, and the private sector is already actively engaging farmers in collaborative ways in many countries to promote more efficient nutrient use. However, in many countries these efforts are counteracted by policies that effectively subsidize the overuse of nutrients. We encourage the KJW to explore this topic and prioritize the implementation of more efficient nutrient use by all Parties, in part by sharing lessons learned in systems that have already achieved improvements in efficiency.

Paragraph 2e. "Improved livestock management systems"

We urge the KJW to prepare further work on improved livestock management systems, toward identifying the necessary technical and financial support for effective national planning processes. Globally, the livestock sector provides a substantial source of income and livelihood, particularly in developing nations and for those living below the poverty line, and it is an important contributor to local and global food security, providing more than one-third of global protein needs and almost twenty percent of all calories consumed worldwide. Yet, the sector also accounts for nearly 15% of all anthropogenic greenhouse gas emissions, in addition to its local impacts on water use, water quality, and biodiversity. The livestock sector has been the leading driver of land-use change, and currently, more than one quarter of the global land area is used for livestock production, accounting for some seventy percent of all agricultural land. Furthermore, projections show a sharp increase in global demand for animal protein through 2050. The expected growth in production and trade brings significant social and environmental risks, but it will create the potential for new opportunities to implement low-emissions practices. These issues should not be overlooked by the KJW.

Fortunately, livestock production is not a homogenous sector. The diversity of production schemes around the world – ranging from high-intensity concentrated animal feeding operations to low-intensity pastoral grazing – present valuable real-world opportunities for testing, assessing, sharing lessons, and implementing low-emissions approaches that work. Such work is already underway in many places, with the aim of developing strategies to improve nutrition and livelihoods, while alleviating environmental impacts and reducing emissions. The Global Research Alliance on Agricultural Greenhouse Gases is one important network for sharing this work.

One area that shows promise is the incorporation of moderate intensification alongside efforts to reduce overall emissions. Such an approach can increase productive capacity on existing livestock operations, resulting in higher overall yields, while making it easier for producers to carry out concurrent practices that reduce the overall emissions of the operation. This can be accomplished through improved pasture and herd management, using better grass mixtures that are more nutritious and more easily digested, utilizing fencing to create paddocks for rotational grazing or barriers to fragile lands and waterways, and improved breeding techniques. However, intensification activities must also take into account potential rebound effects, such as land-use change, as market forces can drive continued expansion if left unchecked. Given the heterogeneity and complexity of the sector, the KJW should prepare recommendations for a range of systems, and it should identify the technical and financial support necessary to facilitate adoption.

Paragraph 2f. "Socioeconomic and food security dimensions of climate change in the agricultural sector"

We welcome Parties' agreement to examine the socio-economic and food security dimensions of climate change on the agriculture sector. This is a significant step forward in how agriculture has been considered previously (largely focused on biophysical aspects of food production), reflecting the important role of agriculture to poverty reduction, the particularly significant role of women in food production in developing countries, and to the well-being of rural communities in many countries. As such, it will be critical to engage expertise and coordinate actions with other international forums and organizations focused on agricultural development and food security.

As the primary decision-makers in accessing, building capacity around, and adopting new practices or technologies, farmers, including women and marginalized food producers, must be included in decision making at the national and subnational levels. Any new guidance should speak to research, practices, and policy processes that foster cross-sectoral planning and action, and it should facilitate the engagement of farmers in those processes. Such an approach helps to ensure that the people most directly affected can articulate their local context, needs, and priorities. In turn, this enables the effective development of strategies and identification of solutions to simultaneously meet social, food security, and climate goals.

Other issues

In addition to these topics, we urge consideration of the following issue not explicitly listed in Paragraph 2 of the decision.

Bioenergy/biomass feedstock supply

Bioenergy – or energy derived from biological feedstocks – including biofuels, biodiesel, and bioethanol, is considered by many Parties to be a renewable energy source, as plant and animal feedstocks are perceived to be easily regenerated. Globally, there are several types of policy instruments used to manage the production and use of bioenergy. For example, in the United States, there is an ethanol blend mandate, known as the Renewable Fuel Standard (RFS), which specifies the minimum volume of 'renewable' transportation fuel to be blended with conventional petroleum. Under the European Union's Renewable Energy Directive (EU RED), the EU must fulfill at least 20% of its total energy needs with renewables by 2020, and all EU countries must ensure that at least 10% of their transport fuels come from renewable sources. In both schemes, fuels derived from biomass must meet specific criteria to qualify as renewable.

Typically, to be considered renewable, bioenergy must have a lower carbon footprint than the conventional energy source (e.g. petroleum, coal, natural gas) that it replaces. The selection of feedstock is of critical importance in determining whether a given source of bioenergy will fulfill this requirement and whether production of the feedstock has unintended environmental, social, and food security impacts, including by contributing to indirect land-use change (ILUC). For instance, in the United States, the RFS has increased demand for corn production, leading to the conversion of more than 7 million acres of native prairie, rangeland, wetlands, and forests

into cropland (Lark et al. 2015), greatly reducing or eliminating the integrity of these ecosystems, their ability to serve as sinks and reservoirs, and the associated biodiversity and hydrological services they provide. Similarly, the EU RED has driven large-scale deforestation across the Southeastern United States, a globally significant biodiversity hotspot (Noss et al. 2015), via demand for imported wood pellets for use in coal-burning power plants. The EU wood pellet market is incentivizing conversion of natural forest to plantations and degradation of sensitive ecosystems. Demand for biodiesel feedstock under both policies is responsible for driving indirect land-use change throughout the tropics, particularly for soy in South America and oil palm in Southeast Asia. Additionally, increased global demand for bioenergy has led to considerable interest in non-native and potentially invasive species for cultivation, which can have severe unintended consequences.

While bioenergy can play an important role in reducing global emissions, it is essential that Parties implement instruments and policies that include proper safeguards against perverse social and environmental outcomes, including ILUC and associated food security impacts. The use of true wastes and residues, coupled with credible sustainability certification, such as that by the Roundtable on Sustainable Biomaterials, can help to ensure that relevant safeguards are being met. Relatedly, Parties should individually and collectively ensure that emissions from biomass are accounted once, and only once. It is preferable that this accounting take place in the energy sector rather than the land sector and in the country where the energy is generated (i.e. where biomass is burned), rather than where biomass is harvested or energy is consumed, to avoid creating perverse incentives. Reporting requirements are necessary to prevent countries from undercounting transfer of carbon stocks in harvested wood products (HWPs) across national borders, which are subsequently used in energy production.

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