Submission to Decision FCCC/SB/2018/L1 on

The Koronivia Joint Work on Agriculture

Topic 2(a) - Modalities for implementation of the outcomes of the five in-session workshops on issues related to agriculture and other future topics that may arise from this work.

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As a group of research and higher education institutions and programs - **hereinafter designated by 'the Group'**-, observers and non-observers to the UNFCCC, we welcome the decision 4/CP23 on the Koronivia Joint Work on Agriculture (KJWA), and the subsequent submissions by Parties, observers and group of non-observers to the UNFCCC, as well as the decision FCCC/SB/2018/L1 taken at SBSTA/SBI 48.

The Group welcomes the opportunity to submit its views for the workshop taking place at SBSTA/SBI 49 in December 2018 on topic 2(a) - Modalities for implementation of the outcomes of the five in-session workshops on issues related to agriculture and other future topics that may arise from this work.

The present submission will expand upon the following items:

(1) Current activities of the scientific community in the area of agriculture and climate change
(2) Current organization of the scientific community in the area of agriculture and climate change
(3) Proposals of the Group for integrating scientific knowledge and expertise in the KJWA process
(4) Views of the Group on additional future topics that could be taken in consideration for the KJWA
(5) Future contributions of the Group to the subsequent KJWA workshops on topics (2b, 2c, 2d, 2e and 2f)
- at SBSTA/SBI 50 in June 2019:
(2b) Methods and approaches for assessing adaptation, adaptation co-benefits and resilience

(2c) Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management
- at SBSTA/SBI 51 in November 2019:
(2d) Improved nutrient use and manure management towards sustainable and resilient agricultural systems
- at SBSTA/SBI 52 in June 2020:
(2e) Improved livestock management systems, including agropastoral production systems and others
(2f) Socioeconomic and food security dimensions of climate change in the agricultural sector.

(1) Current activities of the scientific community in the area of agriculture and climate change

The Group would like to stress the importance of knowledge-based actions, programs and public policies in the area of climate change and agriculture. The scientific community is currently very active in the generation of knowledge and expertise to inform action in this field. The scientific community is therefore deeply committed to accompany action, and its contribution to and participation in the KJWA will be key for the success of this very important process.

(2) Current organization of the scientific community in the area of agriculture and climate change

In the area of climate change and agriculture the international research cooperation is partly organized and structured to support public policies and initiatives of all actors at scale, as well as to pilot and monitor regional and national efforts to enhance carbon sequestration in soils in the course of ongoing soil and land restoration initiatives. In addition to its contributions to IPCC, the scientific community is engaged in numerous initiatives with respect to KJWA related topics, in particular for the production of scientific knowledge to support action to strengthen food security, mitigate and adapt to climate change. Major initiatives contributing to enhancing the structure of the scientific community to tackle these connected challenges as well as improving the coordination of research efforts and strategic research agendas are listed below.

The Global Research Alliance on Agricultural Greenhouse Gases (GRA), launched in December 2009, brings countries together to find ways to grow more food without increasing greenhouse gas emissions (GHG). The Alliance gathers today 51 member countries from all regions of the world. The Alliance is founded on the voluntary, collaborative efforts of countries. Its membership and governance arrangements are underpinned by a Charter, signed by all participating countries. Alliance members will work with farmers and farmer organisations, the private sector, international and regional research institutions, foundations and non-governmental organizations to improve the sharing of research results, technologies and good practices. Four Research Groups have been set up to deepen and broaden mitigation research efforts across the agricultural sub-sectors of: Paddy Rice, Croplands, Livestock, and Integrative activities. Flagship projects have been established for livestock, soil carbon, greenhouse gas inventories, paddy rice mitigation and nitrous oxide emissions. For instance, the Soil Carbon Sequestration (SCS) Flagship of the Global Research Alliance aims to investigate the soil organic carbon (SOC) potential for arable and grasslands systems and aims to produce scientific knowledge to improve guidelines for national action plans in the framework of the UNFCCC. (**https://globalresearchalliance.org**)

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) brings together some of the world's best researchers in the agricultural, climate, environmental and social sciences to catalyze positive change towards climate-smart agriculture (CSA) food systems and landscapes. With CSA, we aim to help farmers sustainably increase agricultural productivity and food security, adapt to and build resilience to climate change, and reduce and/or remove greenhouse gas emissions, where possible. Led by the International Center for Tropical Agriculture (CIAT), CCAFS is a collaboration among the 15 CGIAR Research Centers and numerous partners, including organizations that set the agenda for rural development globally and nationally and small-scale farmers and their representative organizations. CCAFS is carried out with support from the CGIAR Trust Fund and through bilateral funding agreements. CCAFS' activities are clustered around four Flagship Programs: Priorities and Policies for CSA, Climate-Smart Technologies and Practices, Low Emissions Development, and Climate Services and Safety Nets. CCAFS research sites align with CGIAR's overall strategy, with approximately 42% of investments focused on Africa, 39% on Asia and 19% on poverty hotspots in Latin America. (**https://ccafs.cgiar.org/**)

The CGIAR Research Program on Water, Land and Ecosystems (WLE) includes a Restoring Degraded Landscapes (RDL) flagship program. In RDL CGIAR scientists work with governments, investors and farmers in order to explore how to restore degraded agricultural lands and protect all agricultural land from degradation. RDL is looking into options to mitigate climate change by turning soils into a carbon sink through carbon sequestration, which also helps increase the capacity of soils to provide ecosystem services, such as soil fertility and water retention, thereby improving and sustaining crop production in the long run. In addition, RDL aims to enhance ecosystem services and their related benefits, such as increasing food and energy production, maintaining sources of clean water, reducing emissions of greenhouse gases, and improving livelihoods. The RDL flagship program operates globally with emphasis in East Africa and Latin America. Three WLE centers, namely the International Center for Tropical Agriculture (CIAT), Bioversity International, and the World Agroforestry Center (ICRAF), are official technical partners of the African AFR100 Initiative and the Latin America 20x20 Initiative. WLE-RDL unites world-class scientists in the field of agronomy, soil science, infrared spectroscopy, digital soil mapping, remote sensing and geographic information systems. Developing robust methodologies to estimate viable carbon sequestration potentials – regionally as well as globally – is one of the tasks that this flagship program is concerned with. Further, RDL develops and promotes agronomic management practices that lead to soil carbon sequestration, and assesses and addresses socio-economic trade-offs that constrain smallholder farmers in developing countries turning soils into a carbon sink. (**https://wle.cgiar.org/**).

The United Nations Convention to Combat Desertification Science-Policy Interface (UNCCD-SPI) was established in 2013 (at COP 11). Its mandate has been renewed and refined at subsequent meetings of the UNCCD Conference of Parties (COP). In 2017 (COP 13), the SPI was renewed and will be reviewed again in 2023 (COP 16). The SPI works to translate current science into policy-relevant recommendations resulting from assessment and synthesis of current science. This includes collaboration with and leveraging the products of other scientific panels and bodies. The SPI produces peer-reviewed technical reports as well as science-policy briefs designed to support policy development. The SPI conducts peer-review of other scientific assessments and science-based communications. The SPI also communicates with the larger scientific community about the scientific knowledge requirements of the UNCCD and associated policy implications, encouraging relevant and salient research. In order to provide a scientifically-sound basis to understand and implement land degradation neutrality (LDN), a scientific conceptual framework has been developed and endorsed at COP13. It is meant to inform the development of practical guidance for LDN achievement and to monitor progress towards the LDN target. As part of its biennium workplan (2018-2019) SPI will "Provide advice on the design and implementation of LDN-related policies and initiatives that bring about multiple environmental and development benefits and synergies with other Rio conventions, in particular for climate change adaptation and mitigation actions." SPI has been involved in

promoting SOC stock in close collaboration with FAO-IPTS, GSP, IPCC and WMO[1]. (**https://knowledge.unccd.int/science-policy-interface**)

The 4 per 1000: Soils for Food Security and Climate initiative was launched at COP21 as part of the Lima-Paris Action Plan. Its overarching goal is to assist contributing countries and non-state organizations to develop evidence-based projects, actions and programs, to promote and encourage actions towards strengthening food security, reducing greenhouse gas emissions and adapting to climate change through preserving and increasing soil organic carbon (SOC) stocks. The Initiative target of an annual increase of SOC by 4/1000 (0.4%) is an aspirational goal.
The Initiative consists in an action plan and an international research and scientific cooperation program. Its governance comprises: a Consortium of members, the decision making body, which includes States and provinces, international and regional organizations, development banks, research/education institutes and universities, farmers' organizations, civil society and non-profit foundations; a Forum of partners, which also includes private companies and for-profit organizations; a Scientific and Technical Committee (STC) and an Executive Secretariat. Currently 281 partners have joined the Forum, and 149 members are part of the Consortium[2] and 37 additional partners and members have submitted their application to join the Initiative [3].
The Initiative aims to support the use of agricultural and forestry practices increasing or retaining soil organic carbon (SOC), adapted to local situations. For that purpose, the STC has developed a methodology and procedure for the assessment of 4 per 1000 projects[4]. The Initiative also promotes the development of new SOC sequestration techniques. Implementing the Initiative requires inclusive and participatory actions and programs for better management of SOC by multiple partners, capacity building and engagement of local communities, and policy makers. The Initiative has developed a a vast collaborative platform, and plans to develop a digital resource center. This innovative and participatory collaborative platform was set in place to facilitate, promote and strengthen exchanges among members and in particular between: i) those who use and master practices to disseminate and those who want to use them, ii) project holders and those who wish to finance such actions, and iii) decision-makers wishing to set up incentive policies and those wishing to act at the field level.
The STC has defined a set of research priorities[5] grouped in four pillars: (i) Estimating the SOC storage potential and the associated social, economic and environmental implications; (ii) Identifying management practices; (iii) Defining the enabling environment; (iv) Monitoring, reporting and verification. Aligning scientific programs worldwide conducting activities related to "4 per 1000" goals can help to better address these research priorities. **(www.4p1000.org)**

The Food, Agriculture, Biodiversity, Land-Use and Energy (FABLE) Consortium was initiated in 2017 to help advance integrated strategies towards sustainable food and land-use systems, applying systems analyses perspectives to addressing synergies and trade-offs between multiple socio-economic and environmental objectives. The FABLE Secretariat is hosted by the International Institute of Applied Systems Analysis (IIASA) and UN Sustainable Development Solutions Network (SDSN), the EAT Foundation is a member of the Secretariat. The FABLE Consortium brings together knowledge institutions from developed and developing countries with the aim (i) to promote more ambitious, integrated national strategies, and (ii) to ensure alignment with the global objectives

1 See GSOC meeting http://www.fao.org/about/meetings/soil-organic-carbon-symposium/fr/
2 https://www.4p1000.org/they-committed-themselves.
3 These applications will be submitted to validation at the next Consortium meeting in Katowice on December 13th.
4 https://www.4p1000.org/sites/default/files/content/consortium_3-3_-_4p1000_reference_criteria_and_indicators_for_project_assessment_from_stc.pdf
5 https://www.4p1000.org/sites/default/files/content/consortium_3-4_-_4p1000_research_priorities_from_stc_0.pdf

under Agenda 2030 and the Paris Agreement. Every country team undertakes their own analyses within the context of the global consortium. The FABLE Consortium is developing activities focused on training, technical support, and sharing of lessons for the use of Excel-based tools and sophisticated geospatial economic models. By building an interactive, learning environment, the ambition of FABLE is focused on improving the collective understanding of the solution space for sustainable food and land-use systems, helping to identifying development pathways, which account for national and global level ambitions and concerns. (**http://www.iiasa.ac.at/web/home/research/researchPrograms/EcosystemsServicesandManagement/event/170403-fable.html**)

The Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI) was launched by the Council of the EU in 2010. It gathers 24 countries (20 EU Member States, 3 Associated Countries, 1 non-EU country) that have developed a common Strategic Research Agenda to tackle jointly the challenges of sustainable agricultural development, food security and climate change mitigation and adaptation in the agricultural sector. The Initiative's main objective is to increase the coherence and complementarity of national research programming in its thematic remit. In view of meeting these challenges and related international commitments (e.g., SDGs 2 and 13, Paris Agreement), the longer-term goal is to gather and generate European scientific evidence to inform national and EU (agriculture/ food security/ climate change) policies, and support new practices and innovations amongst end-users. Since 2012, FACCE-JPI has launched 11 joint research actions generating 95 new transnational research projects. In addition, 3 actions focus on the alignment of already funded national research, with a view to generate critical mass and facilitate sharing of data and modelling practices (e.g., MACSUR Knowledge Hub). Three new instruments of this kind are planned to be launched in 2019-20, including the proposed European Joint Programme Cofund on Agricultural Soil Management. Between 2012-17, half of FACCE-JPI joint actions have been developed in cooperation with international partners (e.g., Belmont Forum; Global Research Alliance on Agricultural GHGs; Canada; New Zealand). (**https://www.faccejpi.com**)

Coordination of International Research Cooperation on Soil CArbon Sequestration (CIRCASA), a Coordination and Support Action funded under the EU Horizon 2020 program, was launched in 2017. CIRCASA aims to strengthen the international research community in the field of soil carbon sequestration in agricultural soils at European Union and global levels, and to improve our understanding of agricultural soil carbon sequestration and its potential for climate change mitigation and adaptation and for increasing food production. In order to better structure international research cooperation, CIRCASA is preparing a Strategic Research Agenda co-designed with stakeholders, on soil carbon sequestration in agriculture, including trans-disciplinary and operational knowledge. It will take several further steps to prepare and launch an International Research Consortium. An online collaborative platform will structure and integrate existing knowledge into a comprehensive knowledge system on soil carbon in agriculture, delivering a scientific resource of global and local significance. CIRCASA has 22 partners across Europe and the world, and benefits from collaborations with members of the 4 per 1000 initiative (including 35 member countries), the GRA (51 member countries), and the FACCE-JPI (24 member countries). In addition, CIRCASA benefits from the contribution of the Climate Change Agriculture and Food Security program (CCAFS) and the Water, Land and Ecosystems (WLE) program of the CGIAR, and collaborate with the Intergovernmental Technical Panel on Soils (ITPS) of the Global Soil Partnership (GSP). (**www.circasa-project.eu**)

(3) Proposals of the Group for integrating scientific knowledge and expertise in the KJWA process

To conduct action of adaptation and mitigation of climate change in agriculture, as well as to strengthen food security, solutions must be based on robust scientific and technical knowledge. Therefore, the participation of relevant scientific and technical experts, e.g. from international institutions working in the field of agriculture, universities and research institutes in the KJWA should be ensured. In order to be most useful to policy makers and actors, scientific and technical knowledge must be presented in a synthetic form for rapid access and comprehension, while also presenting the information in context to demonstrate direct policy relevance.

Therefore, for each KJWA workshop, **experts could produce meta-analyses, review of meta-analyses and local case studies**. They may also **propose recommendations or options for making progress**, which could be taken up in the report of the UNFCCC Secretariat and be discussed at the subsequent SBSTA/SBI session. Before the workshops, experts could also submit their views and provide an overview of information, including on the following inputs: submissions, IPCC reports, reports on former KJWA workshops, expert presentations and recommendations.

To improve the efficiency of the science/society interface, scientists are already engaged in dialogues with several actors (NGOs, local entities, private companies, funders). The Forum of the 4 per 1000 Initiative is an example of this collaborative space. It is also the case in the European H2020 CIRCASA project, where actors are invited to specify their research needs through regional dialogues and surveys, contributing to the co-design of a Strategic Research Agenda with stakeholders.

In order to better inform the actions taken by Parties to the UNFCCC, the GRA is currently contributing to support countries for the methodologies they develop for national inventories of GHG emissions in agriculture.

In order to improve the efficiency of the science/policy interface, it would be extremely useful to **organize a procedure under the UNFCCC framework** to (a) collect information on the research needs of Parties as well as on processes and modalities structuring national interfaces between scientific expertise and decision-makers, and (b) allowing to convey this information to scientific institutions and initiatives. This could help them to organize themselves to provide the relevant expertise to Parties in a more appropriate and timely manner. **In particular, contextualized analysis could be produced to assist Parties to update their Nationally Determined Contributions by 2020.**

(4) Views of the Group on additional future topics that could be taken in consideration for the KJWA

We note that the KJWA will take into consideration the vulnerabilities in agriculture to climate change and approaches to address food security. We agree that these crosscutting topics as well as the specific topics proposed for the different workshops are extremely relevant. Most of them are taken into account by the research and cooperation initiatives presented in Section (2) above. In addition, we also consider that the **links between food security and the specific topics dealt with in each workshop should be addressed explicitly**. For the last workshop on socioeconomic and food security dimensions of climate change in the agricultural sector, further dimensions related to poverty, gender and health should also be considered.

More generally, we propose that for each workshop, complementarities and synergies between actions for food security, adaptation to and mitigation of climate change are considered as essential.

Links between these three goals are currently addressed by scientists at the global scale. We also consider that it is important to link the topics of the different workshops. Indeed they refer to different Sustainable Development Goals (SDGs), including but not restricted to SDG 2 (zero hunger), SDG 13 (climate action) and SDG 15 (land conservation and restoration), that cannot be pursued separately. For that purpose, we suggest that each workshop includes a sequence addressing its specific topics, followed by another session where these topics could be considered in relation with other relevant topics. For both sessions, food security should also be considered**.** To accompany action and implement knowledge-based solutions in the field, it is crucial that the solutions proposed are adapted to each local context. Therefore**, it is critical that both global and local case studies are part of each workshop.**

(5) Future contributions of the Group to the subsequent KJWA workshops on topics (2b, 2c, 2d, 2e and 2f)

In addition to the present collective contribution for the first KJWA workshop, members of the Group may also submit separate contributions. They are also currently preparing specific contributions for the forthcoming workshops on topics (2b, 2c, 2d, 2e and 2f).