

# **KORONIVIA JOINT WORK ON AGRICULTURE: PROPOSALS ON METHODS AND APPROACHES FOR ASSESSING ADAPTATION, ADAPTATION CO-BENEFITS AND RESILIENCE**

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## **ABSTRACT**

The United Nations Framework Convention on Climate Change's (UNFCCC) COP23 Decision on Agriculture enshrines the Koronivia Joint Work on Agriculture (KJWA) (decision 4/CP.23). Through decision 4/CP.23, the UNFCCC requested both the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) to jointly address matters related to the KJWA between the UNFCCC Conference of Parties (COPs) 24 and 26. The deliberations will take place as organised around workshops and expert meetings whose agenda is outlined in the KJWA. The first set of submissions from the UNFCCC Parties and observers were due by 31 March 2018 in preparation for the 48<sup>th</sup> Session of the SBSTA/SBI that took place mid 2018 in Bonn (SB 48). This paper quarantines itself to teasing out emerging proposals from the submissions by UNFCCC Parties and observers on topic 2(b) of the KJWA. Topic 2(b) focuses on methods and approaches for assessing adaptation, adaptation co-benefits and resilience. The topic is part of SBSTA/SBI 50 that will take place in May 2019 and as such limited submissions are publicly available. Using the document and critical discourse analysis methods, the findings are that, while methods and approaches are emerging under topic 2(b), these are dominated by agroecology, organic, agroecosystems and ecosystems-based approaches. It is also emerging that monitoring and evaluation is a key element, while there is a need to address both the hardware and software of climate adaptation and resilience in the agriculture sector that will bring up methodologies surrounding community participation.

*Keywords:* climate adaptation, agreement on agriculture, UNFCCC, methodologies, Koronivia

## **INTRODUCTION AND BACKGROUND**

Agriculture remains the backbone of many economies, especially those from Africa and other developing and least developed countries. Given the vulnerability of the agriculture sector to climate change, any UNFCCC negotiations on agriculture should prioritise climate adaptation and resilience methodologies. From the KJWA (United Nations Framework Convention on Climate Change 2018: 1), the UNFCCC Parties and observers will address the following six key issues as per an already determined programme covering the period 2018 to 2020 (COPs 24-26):

- i. 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;
- ii. Methods and approaches for assessing adaptation, adaptation co-benefits and resilience;
- iii. Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management;

- iv. Improved nutrient use and manure management towards sustainable and resilient agricultural systems;
- v. Improved livestock management systems; and
- vi. Socioeconomic and food security dimensions of climate change in the agricultural sector.

For all the raised matters to be addressed adequately, the UNFCCC set out a programme of activities around the six issues as portrayed in Table 1. Initially, UNFCCC Parties and observers were requested to submit their views on aspects that had to be included in the work of the SBSTA and the SBI. The UNFCCC's SBSTA and the SBI are to jointly address matters pertaining to agriculture, including organising workshops and expert meetings, working with constituted bodies under the UNFCCC and taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security.

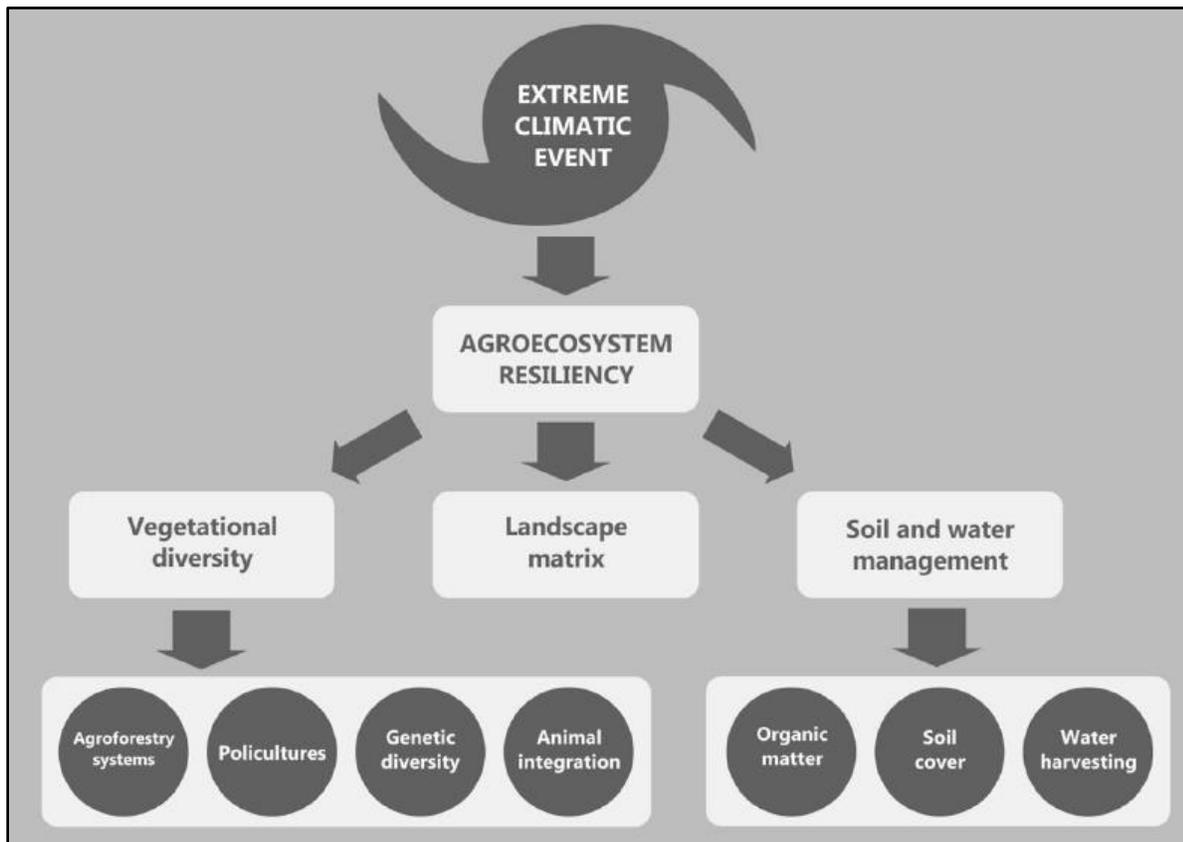
Table 1: KJWA Parties and observers submissions timetable (2018-2020)

<i>Issue and Decision</i>	<i>Title</i>	<i>Deadline/ Session</i>
Koronivia road map under the Koronivia joint work on agriculture (decision 4/CP.23)	Parties and observers to submit their views on elements to be included in the work of the SBSTA and the SBI to jointly address issues related to agriculture, including through workshops and expert meetings, working with constituted bodies under the Convention and taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food.	30/03/2018, SB 48
	Views from Parties and observers 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	21/10/2018, SB 49
	Submissions from Parties and observers on: Topic 2(b) - Methods and approaches for assessing adaptation, adaptation co-benefits and resilience, and Topic 2(c) - Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management.	05/05/2019, SB 50
	Submissions from Parties and observers on topic 2(d) - Improved nutrient use and manure management towards sustainable and resilient agricultural systems.	29/09/2019, SB 51
	Submissions from Parties and observers on: Topic 2(e) - Improved livestock management systems, including agro-pastoral production systems and others, and Topic 2(f) - Socioeconomic and food security dimensions of climate change in the agricultural sector	19/04/2020, SB 52
	Submissions from Parties and observers on future topics not listed in decision 4/CP.23 and views on the progress of the Koronivia joint work on agriculture in order to report to the Conference of the Parties as per decision 4/CP.23, paragraph 4	27/09/2020, SB 53

Source: Author, based on <http://www4.unfccc.int/sites/SubmissionPortal/Pages/Home.aspx> (Accessed 17 July 2018)

From the literature, there are a number of methods aimed at promoting climate resilience and adaptation in agriculture, particularly by small-scale farmers. One such commonly cited methods is agroecology (Altieri et al. 2015). The authors maintain that understanding the agroecological features underlying the resilience of traditional agroecosystems remains an urgent matter in finalising the KJWA in the future. Such systems provide a solid foundation for designing adapted agricultural systems. To this end, observations of agricultural performance after extreme weather events associated with climatic change like hurricanes and droughts in the Americas for the periods 1995-2015 showed that resiliency to climate disasters is closely linked to farms with increased levels of biodiversity. In addition, field studies suggest that agro-ecosystems are more resilient in a matrix that include adapted local germplasm deployed in diversified cropping systems managed with organic farming and water conservation-harvesting techniques. In fact, research conducted after the Hurricane Mitch in Central America in 1998 revealed that farmers that employed diversification practices like cover crops, intercropping and agro-forestry suffered less damage compared to their conventional monoculture counterparts. The same results were found more than a month after Hurricane Ike that struck Cuba in 2008 (Climate Action Network 2018). The Climate Action Network reported that the diversified farmers experienced losses of about 50% compared to between 90% and 100% for those practicing monocultures. Furthermore, farmers practicing agroecological farming recovered quicker after the hurricane. Details regarding elements of agroecological resiliency to extreme climate events is presented in Figure 1.

Figure 1: Farm landscape based on agroecological resilience to extreme climate events



Source: Altieri and Koohafkan in Altieri et al (2015: 15)

Agroecology-based farming practices have been associated with providing platforms for more resilient livelihoods among smallholders in Western Guatemala (Calderón et al. 2018). From an established set of sustainability attributes characterizing 20 small-scale farming families, the study focused on exploring food security and climate resilience-related conditions. The differences between agroecology-based and semi-conventional farmers revealed that shares of commercialized produce, gross agricultural income, and plant diversity were significantly higher and more resilient from agroecology-based farmers than those practicing semi-conventional farming. However, some challenges experienced in the adoption of agroecological farming practices included limited public infrastructure and the lack of supporting policies. Roesch-McNally et al. (2018), consider barriers to implementing climate resilient agricultural strategies with a focus on crop diversification in the USA Corn Belt. The findings in resilience were similar to those identified herein earlier. The authors established that the cropping system diversity could help build greater agroecosystem resilience. This is done through the suppression of insect, weed, and disease pressures. At the same time, the practice further mitigates against extreme and variable weather from the changing climate.

From the Philippines, Heckelman et al. (2018: 225) researched on cultivating climate resilience in organic and conventional rice systems. The authors applied the Food and Agriculture Organization's (FAO) Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP) tool to measure 13 agroecosystem indicators of climate resilience. This led to the assessment of the degree to which household, farm, and community mechanisms and outcomes affect adaptation capacity. The findings were that organic rice farming systems were more climate resilient than their conventional counterparts. To this end, the authors recommended that there should be increased policy support for the development of organic rice systems as these systems assist in developing adaptive mechanism that augment food security and improve climate resilience in the country. FAO has come up with seven steps for developing an monitoring and evaluation (M&E) systems for adaptation in the agriculture sector (Food and Agriculture Organisation 2018a: 2). The seven steps are presented in Box 1.

Box 1: FAO's seven steps in developing an M&E systems for adaptation in the agriculture sector

- Step 1: Understanding the policy context
- Step 2: Developing a shared understanding of the adaptation challenge, goals and the theory of change behind integrating adaptation in the agriculture sectors
- Step 3: Defining the purpose and focus of the monitoring and evaluation framework
- Step 4: Developing a monitoring and evaluation framework for adaptation in the agriculture sectors
- Step 5: Identifying indicators to track adaptation in the agriculture sectors
- Step 6: Identifying the sources and type of data and information required for each indicator
- Step 7: Operationalising monitoring and evaluation for decision-making on adaptation in the agriculture sectors

Source: FAO (2018a: 2)

The FAO (2018a: 2) is supporting a number of countries in developing M&E frameworks and systems for adaptation in the agriculture sub-sectors sectors.<sup>1</sup> Some of the countries included are Colombia, Uruguay and Viet Nam where FAO is in the process of reviewing and developing sex-disaggregated indicators to track adaptation in the agriculture sectors. In Kenya, FAO effort is targeted at developing an M&E System to monitor the implementation of the Kenya Climate Smart Agriculture Framework Programme, while in Uganda the Performance Monitoring Framework for the National Adaptation plan for the Agriculture sectors is now in place. This FAO M&E programme further support the refinement of country-based Nationally Determined Contributions (NDCs) under the Paris Agreement (United Nations Framework Convention on Climate Change, 2015) and the United Nations Sustainable Development Goals (SDGs) embedded in the 2030 Agenda for Sustainable Development. Two SDGs are of critical importance in this respect namely: SDG 13 dealing with taking “urgent action to combat climate change and its impacts” and SDG 2 addressing ending “hunger, achieve food security and improved nutrition and promote sustainable agriculture” (United Nations 2015: 14)

## **METHODOLOGY**

This paper sets out an objective to tease out the emerging thinking around topic 2(b) of the KJWA. As highlighted earlier, topic 2(b) of the KJWA focuses on methods and approaches for assessing adaptation, adaptation co-benefits and resilience to climate change in the agriculture sector. The question drawn up seeking further clarity to the set objective is: what direction are the incoming and preliminary submissions by the UNFCCC parties and observers on topic 2(b) of the KJWA? As the UNFCCC Parties and observers continue engaging with the KJWA to COP26 in 2020, many submissions will be made as per the laid out programme with the submissions for topic 2(b) due in May 2019. However, a number of submissions have already started streaming in and these are analysed to understand preliminary direction of arguments under topic 2(b). The main method used is document and critical discourse analysis. This method makes use of publicly available grey literature from UNFCCC Party and observer submissions, as well as academic publications addressing the issues under investigation. The use of document and critical discourse analysis is not new in the climate governance and UNFCCC work (see for example, Nhamo and Nhamo 2017; Muchuru and Nhamo 2018a&b) and this will not be any different.

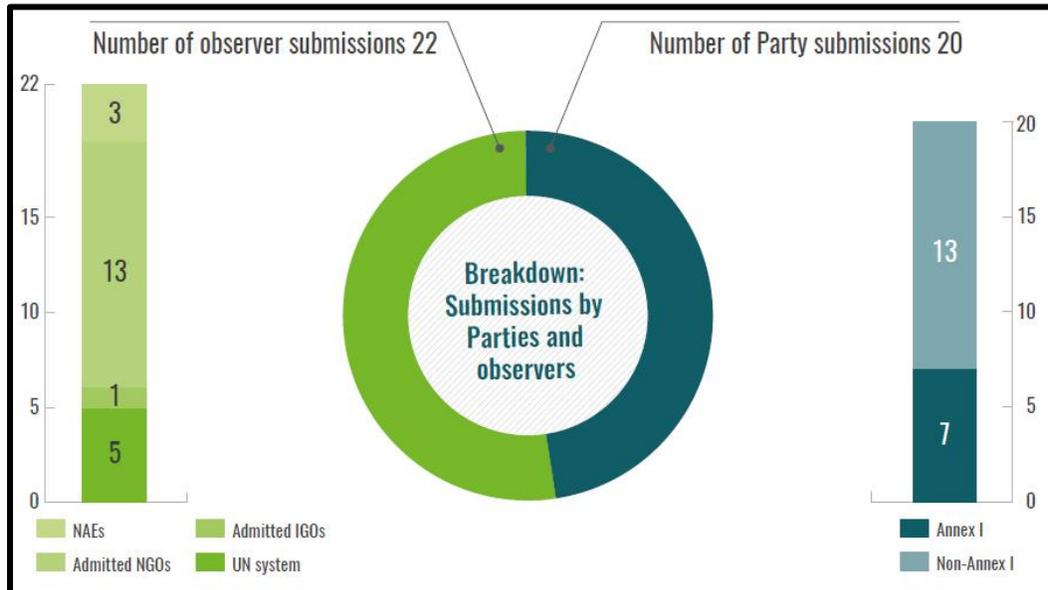
## **PRESENTATION OF DATA AND DISCUSSION OF FINDINGS**

Following the initial round of UNFCCC Party and observer submissions that were due for SB 48 on 30 March 2018 a pattern, pointing to more of submissions from the non-annex 1 Parties has emerged. The submission were called on views on elements to be included in the work of the SBSTA and the SBI to jointly address issues related to agriculture, including through workshops and expert meetings, working with constituted bodies under the Convention and taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food. The summaries concerning the number of submissions as well as the spread across the globe are presented in Figures 2 and 3. It must be noted that although the submissions requested were not specifically for topic 2(b) some Parties and observers have already gone ahead and presented their views.

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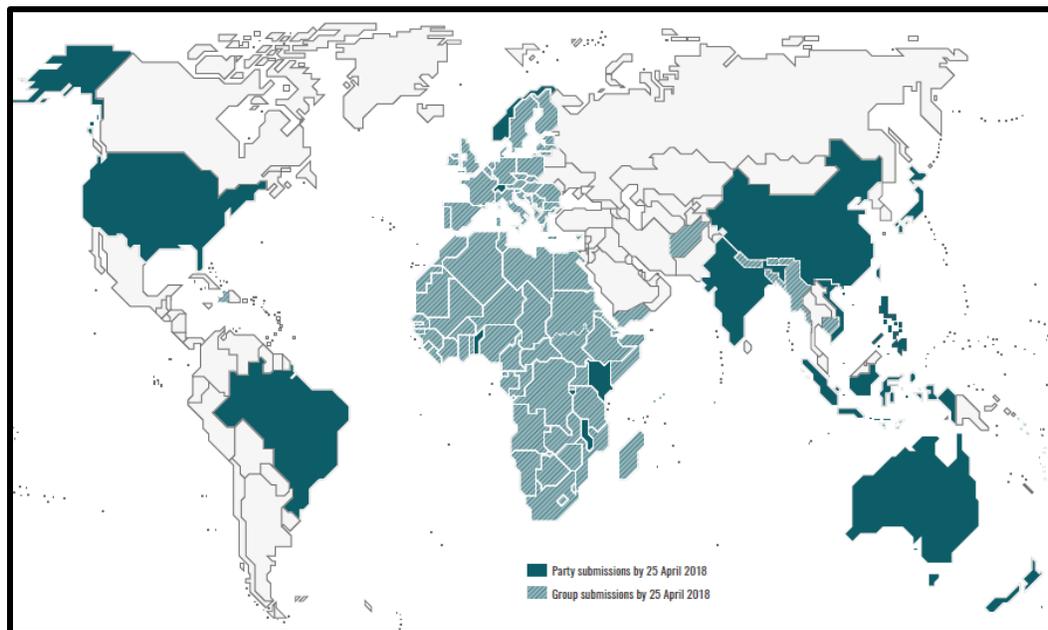
<sup>1</sup> FAO considers the following as agriculture sub-sectors: crops and horticulture, livestock, fisheries and forestry.

Figure 2: KJWA submissions by parties and observers (n = 42)



Source: Food and Agriculture Organisation (2018b: 3)

Figure 3: KJWA submissions Spread by Parties



Source Food and Agriculture Organisation (2018b: 3)

From the SB48 Parties and observer submissions, a number of issues emerged and are emerging. The Africa Group of Negotiators (AGN) submission was presented by Egypt and came in the following main parts: Introduction, Agriculture and climate change in Africa, Policy Environment, and then the modalities around the guided framework from the KJWA. In its

introduction, the AGN indicate that by 2050, Africa will host about 2.4 billion people compared to the current 1.2 billion (Africa Group of Negotiators 2018: 1). This will bring stress in terms of food security, with implications on food and nutrition security. Agriculture’s forward and backward linkages are noted with the manufacturing and industry sector highlighted. The focus on an estimated 530 million smallholder farmers on the continent of which more than 50% are being women comes out too. All this comes against a background that Africa’s agriculture is predominantly rain-fed, making it vulnerable to climate variability and change as confirmed by the Intergovernmental Panel on Climate Change (IPCCC). The majority of African farmers are said to be having low adaptive capacity. However, Africa’s greenhouse gas (GHG) emission from agriculture and agriculture role as carbon sink is viewed as offering potential for adaptation co-benefits.

As for the policy environment, the AGN makes reference to Africa Agenda 2063 whose first aspiration of the seven (A Prosperous Africa based on Inclusive Growth and Sustainable Development) enshrines goals dealing “focus is on modern agriculture for increased productivity and production and environmentally sustainable climate resilient economies and communities, respectively” (Africa Group of Negotiators 2018: 2). Africa’s Agenda 2063 further makes it clear that the continent will prioritise adaptation in climate change and during the UNFCCC negotiations. There is also mentioning of the Malabo Declaration, which is one of the major instruments for implementing the Comprehensive African Agricultural Development Programme (CAADP) within Agenda 2063. The African continent remains an agro-based economy. Therefore, addressing methods and approaches for assessing adaptation, adaptation co-benefits and resilience remains a priority.

The AGN further acknowledges efforts made by many countries on the continent to put in place an enabling policy environment to address climate change through national and regional climate change policies, action plans and strategies, the integration of climate change into national development plans, agricultural plans, and the NDCs under the Paris Agreement. As for details concerning topic 2(b) of the KJWA, the submissions from the identified Parties and observers including the AGN from the 2013-2016 five in-session workshops are summarised in Table 2.

Table 2: Summary of KJWA submissions on topic 2(b)

<i>Negotiating Group</i>	<i>Topic 2(b) Issues Raised (Methods and Approaches for Assessing Adaptation, Adaptation co-benefits and Resilience)</i>	<i>Approach</i>
African Group of Negotiators (2018)	<ul style="list-style-type: none"> <li>• Understand the different methods, tools and approaches of assessing adaptation, adaptation co-benefits and resilience</li> <li>• Identify appropriate methods and approaches of assessing adaptation, adaptation co-benefits and resilience</li> </ul>	Organize in-session workshop and expert meeting
Least Developed Countries Group (2018)	<ul style="list-style-type: none"> <li>• Conduct national studies on the status of agricultural vulnerability to climate change</li> <li>• Discuss/Reflect on past studies on this topic in in-session workshops</li> <li>• Request for country submissions on the topic</li> <li>• Identify relevant constituted bodies to support the implementation of the issue in the KJWA</li> </ul>	Organize in-session workshop and expert meeting

	<ul style="list-style-type: none"> <li>• Request the constituted bodies to provide the necessary support</li> <li>• Compile country submissions</li> <li>• Discuss on gaps and decide on modalities to implement this issue in workshops/expert group meetings</li> <li>• Take measures to implement the decisions</li> </ul>	
Climate Action Network (2018) <sup>2</sup>	<ul style="list-style-type: none"> <li>• Promote agro-ecological agriculture techniques that reduce and/or avoid the use of synthetic chemical fertilizers and pesticides and enhance agro-biodiversity for adaptation.</li> <li>• Agro-ecological techniques improve soils through the use of composting and manure that increases the water-carrying capacity of soils leading to greater resilience to both droughts and floods.</li> <li>• Agro-ecological approaches prioritize local knowledge and resources thereby increasing resilience and productivity.</li> <li>• Agro-ecology involves mixed cropping.</li> <li>• In measuring adaptation, one should focus on strengthening adaptive capacity and identifying proxy indicators that can lead to this. However, much focus has been on the “hardware” of adaptation that include infrastructure like embankments, water resources etc. leaving behind the “software” required for adaptation like communities’ understanding of the issues, knowledge of what to do, and the capacity of institutions to deliver strategies locally.</li> </ul>	Reference made to the 2 <sup>nd</sup> FAO Agro-ecology Symposium of 3-5 April 2018.
PAFPNet (2018)	<ul style="list-style-type: none"> <li>• All conservation agriculture approaches that employ methods of agroforestry, mixed gardening and soil conservation should be regarded as actively contributing to adaptation to climate change (climate smart agriculture).</li> <li>• Opportunity cost measures of avoided deforestation or avoided land degradation is another method for assessing co-benefits and resilience.</li> </ul>	From Talanoa Dialogue
Conservation International et al. (2018)	<ul style="list-style-type: none"> <li>• Agriculture requires holistic consideration of technical, social, economic, and ecological aspects.</li> <li>• Approaches to assessing adaptation should consider ecosystem-based approaches, responses that engage social and cultural knowledge, and economic innovations.</li> </ul>	

Source: Author

<sup>2</sup> Climate Action Network (CAN) is the world’s largest network of civil society organizations working together to promote government action to address the climate crisis, with more than 950 members in over 110 countries and is available online at: [www.climatenetwork.org](http://www.climatenetwork.org)

What is of interest from the AGN submission is the list of four additional topics that include financing for agriculture. The matter of finance also comes strongly in the AGN submission's conclusion, which calls for a dedicated financial resources under the Green Climate Fund in order to address vulnerability of the agriculture sector to climate change and ensure food security (AGN, 2018: 5).

## **CONCLUSIONS**

A number of issues emerge from this write-up regarding topic 2(b) of the Koronivia Joint Work on Agriculture. The Climate Action Network maintains that some of the indicators from methodologies should include elements that reflect how the local communities understand and act on extreme weather events impacts from climate change like floods, droughts, extreme heat and cold as well as wild fires. The methodologies involving agro-ecological interventions; community participation in capacity building, design and implementation of strategies; involvement of women as key stakeholders in capacity building, design and delivery of strategies; and lastly, building of adaptive capacity that covers knowledge at all spatial scales and national institutions should be worked on. From PAFNet's perspective, additional methods include all conservation agriculture approaches that employ methods of agroforestry, mixed gardening, organic farming and soil conservation (which in their view is climate smart agriculture) and opportunity cost measures aimed at avoiding deforestation and/or land degradation that result in assessing co-benefits and resilience. The suggestions by Conservation International and partners allude to the fact that the methodologies require holistic consideration of technical, social, economic, and ecological aspects. In addition, the approaches to assessing adaptation must further enshrine ecosystem-based approaches, responses that engage social and cultural knowledge as well as economic innovations. While assessing adaptation may address the technical goal of maintaining and/or improving agricultural outputs against extreme weather events, this should also consider the health and continued provision of ecosystem services that underlie agricultural production the resilience of social systems like smallholder farming. From the Africa Group of Negotiators view, climate change adaptation remains fundamental as presented in Africa's Agenda 2063. Lastly, more methodologies and approaches for assessing adaptation, adaptation co-benefits and resilience under the Koronivia Joint Work on Agriculture will surface, particularly in the lead to May 2019 when the deadline looms.

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