Note

Socio-economic Impacts of Climate Change on EAC Agriculture

Can UNFCCC negotiators support farmers and agro-processors?

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Summary

Negotiations on climate change in agriculture are important for EAC countries, where the agriculture sector is facing rapid changes in rainfall patterns, threats to food production and increasing vulnerability of smallholder farmers. As proposed by the UNFCCC, investing in climate change actions need to move faster in order to reverse this trend. This note analyses possible policy interventions required for EAS Member States in this regard, which would enable them to adopt measures that can mitigate their exposure to climate change and also help transform their agricultural sector to achieve food security.

Main impacts of climate change on EAC agriculture

Arguably, climate change is amongst one of the most significant challenges facing African countries today, and this is primarily due to their geographic exposure, low-income levels, huge reliance on climate-sensitive sectors such as agriculture, and weak adaptation capacity to climate change (Ochieng et al, 2016).

Increasing temperature projections for East Africa show that the median near surface temperature during the period of 2080-2099 will increase from 3 to 4°C. In Burundi, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) model shows that the increase in temperature for the entire country will be between the range of 1-1.5°C. In Tanzania, according to meteorological data, monthly temperatures are already rising and by 2100, will have risen by 2.2°C (Liwenga, 2014).

In East Africa, the agriculture sector is one of the important sectors as around 80 percent of its rural population is dependent on it for their livelihood (Adhikari et al, 2015). In Burundi and Tanzania, agriculture accounts for more than 50 percent of Gross Domestic Product (GDP). However, in Kenya, it makes up less than 30 percent as the country's structural transformation is not built exclusively upon an agriculture-based economy. In the region, the principal food crops are maize, rice, potatoes, bananas, cassava, beans, vegetables, sugar, wheat, sorghum, millet and pulses (EAC, 2017); and is dominated by smallholder farmers who make up to 90 percent of agricultural production (Adhikari et al, 2015).

Regardless of this, climate change has been a danger to the production of food and accordingly worsening the levels of food security and nutrition across African states. The East African Community (EAC) region has been particularly susceptible to climate change and is already feeling the negative impacts of climate change through extreme weather conditions; continuous droughts; floods; an increase in pest/pathogens; landslides; and rising sea levels, which all impend food security and the different efforts to eliminate poverty (Mukhala et al, 2017).

One negative aspect of climate change on farmers deals with the fall armyworm, which is an insect that causes significant damages to crops in its larva stage. It prefers to feed on maize but can also consume more than 80 different species of plants, which include rice, sorghum, millet, sugarcane, vegetable crops and cotton (Food and Agriculture Organization, 2018). As a result, it's negative/damaging effects have spread to farms in Burundi, Rwanda, Uganda, Kenya, amongst other African states. In Kenya, 103,876 hectares of maize has been lost in Trans Nzoia County, which is considered to be the country's food basket and consequently, set to cause serious shortages in the supply of maize. In Rwanda, the pest has infested maize and sorghum crops across a full quarter of the country's cropped land. In Uganda, it has damaged over 40 percent of crops, and in northern and south-eastern Tanzania, it has damaged over 20,000 hectares of maize (Alliance for a Green Revolution in Africa (AGRA), 2017).

With regard to agro-processing, the negative effects of climate change are also inhibiting the functionality of the industry in the EAC. Aflatoxins are mutating pathogens that are created by the formation of two types of fungi, namely, aspergillus flavus/aspergillus parasiticus, and there exists a parallel connection between high cancer levels and diets high in aflatoxins. These pathogens upset soil composition, therefore, affecting stated

popular crops from the EAC region. As a consequence, this renders their processing unsafe for human and animal consumption (Lamb et al, 2015).

Countries in the EAC have already reported deaths amongst their population due to the consumption of aflatoxin-contaminated foods. Hence in 2004, 125 Kenyans died because of consuming foods, which were infected with aflatoxins. Six years later in 2010, the government also issued a public safety alert after discovering that the levels of aflatoxins in maize produce in eastern Kenya and the coastal region were above safe levels (The Standard, 2017).

Consequently, and due to the negative effects of aflatoxins; the marketability, nutritional worth, quality and safety of agro-processed produce from EAC countries has been greatly reduced (Partnership for Aflatoxin Control in Africa (PACA),2017).

Needs from EAC farmers and agro-processors

Most farmers and agro-processors do not have access to finance, access to suitable technology, lack knowledge/capacities, lack market instruments, lack climate-resilient production infrastructures/mechanisms, lack knowledge on pest control or water management… In the past few decades, these have collectively added onto the increasingly negative impact of climate change on their business and products.

As a result, many EAC stakeholders are now calling for: more water/soil conservation; land husbandry: reduction of carbon footprints from their products: know-how on new production technology; education on irrigation systems; facilitation of rain fed crops and diversification of crops; easy facilitation of their access to finance, fertilizers, drought-resistant crops, farming equipment's etc.; an increase in the development of soil fertility management; and an increase in the use of manure/compost, which are all essential in mitigating and/or adapting to the impacts of climate change in the EAC. While it may also be an opportunity to increase in green jobs, and the availability of EAC products in international markets (CUTS International, Geneva, 2016).

For instance, an entrepreneur on land husbandry in Bugesera District confirmed that "soil conservation and land husbandry not only reduce erosion and loss of their crops but also creates green jobs". Two other women traders of vegetables inside and outside of the country, confirmed that "the usage of fertiliser enriched compost will reduce the carbon footprint of their products and will make their products marketable at the international level". Lastly, a maize grower in Kayonza District, which is one of the water-stressed parts of Rwanda, also affirmed that irrigation and water management are necessary for their business, as it could increase the levels of their production (CUTS International, Geneva, 2016b:4.).

Along these lines, EAC governments together with the private/public sector and civil society actors (state and non-state actors) need to harmonize their efforts in order to support climate change initiatives on agriculture, which will include the provision of financial and technical assistance to farmers and agro-processors (CUTS International, Geneva, 2016c). These governments and suitable ministries also need to be able to provide guidance and knowledge transfer regarding new ways of production and trading, that are more climate-aware. Consequently, governments will need to partner with universities in order to build their research capacities and ensure that stakeholder

standpoints are always affirmed at climate change negotiations (CUTS International, Geneva, 2016a).

Interlinkages of Climate Change and Agriculture: A Look at UNFCCC Debates

The UNFCCC came into force on 21st March 1994, and its main objective is "to achieve, in accordance with the relevant provisions of the Convention, the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner".

It's article 4 (commitments) states that "all Parties (…) shall: (c)promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors; (e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods" (United Nations, 1992:4,5).

However, the agriculture sector, which is highly carbon concentrated and responsible for 25 percent of global greenhouse gas emissions (GHG) and is also greatly exposed to the negative impacts of climate change, has for long been ignored at previous UNFCCC Conference of Parties (COPs), despite its fundamental role in climate change adaptation plans.

Nonetheless at COP 21: 2015, Paris, France, although the Paris Agreement did not mention agriculture directly, it did acknowledge "the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change", which are important to agriculture. And article 2 of the agreement aims to strengthen the global response to the threat of climate change, (...) in a manner that does not threaten food production" (United Nations, 2015: 21, 22).

This was followed by COP 22: 2016, Marrakech, Morocco, where the position of agriculture was raised in climate change negotiations as 95 percent of all countries entered agriculture in their Intended Nationally Determined Contribution (INDCs), which were projected as climate change adaptation and mitigation goals. Here, the impetus for climate change talks started growing strong and many countries began to finally recognize the vital role of agriculture in tackling the causes and effects of climate change.

Finally at COP 23: 2017, Bonn, Germany, UNFCCC Members agreed to address agriculture in the negotiation; a standpoint, which put an end to the long-established impasse that delayed the advancement on agriculture for years. With this agreement, both the, Subsidiary Body for Scientific and Technological Advise (SBSTA) and the Subsidiary Body for Implementation (SBI) were obliged to tackle key issues of climate change and agriculture in the near future. Through the historic

Koronivia Joint Work on Agriculture, the Bodies are to develop and realise new adaptation and mitigation approaches within the agriculture sector, which will aid in decreasing agricultural emissions, as well as develop the sectors' resistance to the negative effects of climate change (Relief web, 2017).

The Koronivia decision was based mainly on the outcomes of five SBSTA workshops held between 2014 and 2017, on the issue of agriculture. "It invites Parties and observers to submit […] their views on elements to be included in the work *of the UNFCCC Bodies* […] *on different topics including* Socioeconomic and food security dimensions of climate change in the agricultural sector".

Socio-economic and food security dimensions of climate in the agricultural sector: what has already been said at UNFCCC?

The previous work of the SBSTA workshops on the topic of "the socio-economic and food security dimensions of climate change in the agriculture sector" (between others) has already established an arena where Parties could exchange information/best practises pertaining to agriculture in climate change negotiations and produced valuable insights on implementation, adaptation and mitigation to the effects of climate change.

Below are a snapshot of the Members' discussion on this specific topic (See Appendix for more in-depth details from SBSTA workshops on Koronivia Agenda Item "Socioeconomic and food security dimensions of climate change in the agricultural sector).

As expressed in the United Nations Sustainable Development Goals and the Paris Agreement, many participating parties consider food security to be of utmost importance to them. (FCCC/SBSTA/2016/INF.5). Parties also recognized that climate change is a massive threat to such goals and developing country Parties further accentuated the important role of agriculture in their poverty reduction, sustainable development and livelihoods (FCCC/SBSTA/2014/INF.2).

Accordingly, South Africa stated that a large proportion of its population have been notably affected by the irregularity of rainfall and are thereby plagued by low resilience to such extreme weather events. As a result, climate change has worsened their socioeconomic stand, thus, affecting their food security and local livelihoods. (FCCC/SBSTA/2016/INF.5).

On the other hand, Parties affirmed the vital role of sharing experiences, which is a fundamental instrument in achieving climate change adaptation and food security. Furthermore, many developing countries highlighted the importance of implementation, noting, in particular, the essential role of finances […] (FCCC/SBSTA/2016/INF.5).

Aside from financial support, developing countries also noted that support mechanisms should include: "(1) research, development and transfer of technology; (2) financing and budget tracking; (3) assistance with the implementation of pilot projects and scaling up successful strategies to the national level; and (4) capacity-building with a strong emphasis on monitoring, reporting and verification, climate policy integration, improving human resources, methodologies and metrics". (FCCC/SBSTA/2016/INF.6:12).

A representative from the Climate Action Network, a worldwide network of non-governmental organizations also advised Parties to

engage in sustainable farming methods and ensure that ecosystems are protected, and small-scale farmers are supported. Such actions, therefore, encompass the development of pest controls and the use of seed varieties, which are adaptable to environmental changes (FCCC/SBSTA/2015/INF.7).

In regard to the work of the SBSTA, Canada stated that its key role should be in the development and sharing of good scientific and technical information, which will inform parties on which decisions to take in order to ensure food security and promote synergies between agricultural productivity and climate change adaptation/mitigation (FCCC/SBSTA/2015/INF.6). All parties, therefore, agreed that the SBSTA should be the major body to facilitate in the provision of technological support to Parties. (FCCC/SBSTA/2016/INF.5).

Taking Forward the Work Already Undertaken in UNFCCC Workshops

Like other negotiating processes, a major conclusion that has emerged from the UNFCCC negotiations is that countries continue to be diverse and, therefore, tend to have different negotiating interests. In the UNFCCC process, this diversity encompasses different elements such as their economic, social/environmental positions; their financial capability to counter to climate change impacts; and a lack of scientific understanding/knowledge on global warming (Alessi and Van Dar Gaast, 2016). As a result, the nature of the climate change negotiation process and any future implementation of its outcomes presents varying degrees of challenges in all of the above areas, in particular when it relates to agriculture and to developing countries and Least Developed Countries (LDCs).

Having that in mind, firstly, the UNFCCC can support in the provision of financial resources and support to developing countries and LDCs, which will enable them to, amongst others, address agricultural climate adaptation and promote co-benefits in order to achieve food security and resilience goals; and establish appropriate mechanisms for research, development, and the transfer of technology, implement pilot projects, and build the capacity to monitor, report and verify climate policy integration (FCCC/SBSTA/2016/INF.6).

Secondly, since some Parties have already jointly implemented their NAPs with other countries within a global programme, which is coordinated by the FAO and the United Nations Development Programme (UNDP), it is expected that the continuation of this practice will assist developing countries and LDCs in weighing their vulnerabilities/risks and help in identifying the technologies/practices that can help in managing their climatic risks and adaptation to climate change (FCCC/SBSTA/2016/INF.6).

Thirdly, in view of the differences in agricultural systems, it is important to explore and take advantage of the knowledge of countries such as the EU, in building synergies between all processes for the effective implementation of countries' intended nationally determined contributions (INDCs) in order to address adaptation, mitigation and capacity-building needs. In this situation, the SBSTA can also play an essential role in ensuring that the specificities of the agricultural sector are properly addressed under all convention processes (FCCC/SBSTA/2016/INF.5).

Fourthly, it is important to technically assist

developing countries and LDCs, for instance in developing models for improving data, which will be needed for the assessment of climate change impacts on food security (FCCC/SBSTA/2015/2015/INF.7). Similarly, the capacity of climate forecasts and early warning information systems needs to be strengthened in order to provide suitable inventory that can be used to successfully warn stakeholders of any impending disasters on food security. (FCCC/SBSTA/2015/INF.6).

What should EAC members promote in the UNFCCC negotiations on agriculture?

It is important to repeat that a critical challenge, which is faced by African countries is their low capability in adapting to the future effects of climate change and their low response to its ongoing negative impacts. This should be demonstrated by clear data and case studies.

Moreover, it should be recognised that successful adaptations will significantly depend on their governments but also on relevant stakeholders' involvement, which include national, regional, multilateral /international organisations; public/private sectors; and civil societies. A constructive and inclusive dialogue and collaboration should be allowed by UNFCCC.

Consequently, an effective approach would be to carefully consider all the principal activities undertaken by the UNFCCC, which relate to finance, technology and capacity building in order to ensure a focused and constructive engagement on all the fronts of the negotiation process, so that any decision/action can fully address/reflect the capacity, priorities and development needs of EAC members.

Conclusion

Negotiations on climate change in agriculture are of utmost importance and as such, agreements are vital especially for the Members of the EAC, as their agriculture sector is currently facing enormous negative impacts of climate change such as rapid changes in rainfall patterns; temperatures that threaten food production; and an increase in the vulnerability of smallholder farmers. As proposed by the UNFCCC, investing in climate change actions need to move faster in order to support sustainable development and the sustainable livelihoods of small-scale farmers. Members of the EAC, therefore, need to ensure policy space, which would enable them to adopt measures that can mitigate their exposure to climate change and also help transform their agricultural sector to achieve food security, conserve/ restore biodiversity and encourage the use of natural resources (United Nations, 2017).

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Appendix: Detailed information from SBSTA workshops on Koronivia Agenda Item "Socio economic and food security dimensions of climate change in the agricultural sector".

Koronivia Agenda Items	Workshop Information	Relevant discussion points related to the Koronivia Agenda item	Types of Information
(**f) Socio economic and food security dimensions of climate change in the agriculture sector.**	SBSTA 46, Marrakech, 7–14 November 2016. (Workshop on the identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience, considering the differences in agro ecological zones and farming systems, such as different grassland and cropland practices and systems).	- Parties considered it important to take into account all the diversities inherent to agricultural systems in the context of the identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, while emphasizing the importance of agriculture to ensuring food security and resilience, sustainable rural development, economic development, poverty eradication and livelihoods. - All Parties recognize that the adverse effects of climate change pose a major threat to the productivity of agricultural systems. Developing country Parties, in particular, stressed the importance of increasing the adaptive capacity and productivity of the agriculture sector in a sustainable manner under the adverse impacts of climate change, while taking into account agricultural diversity and the close relationship of agriculture with food security and poverty eradication in those countries. - Some Parties implement their NAPs jointly with other countries within the framework of a global programme coordinated by FAO and the United Nations Development Programme (UNDP) that focuses on increasing the countries' capacity to assess vulnerabilities and risks and to identify and assess technologies and practices that can help in managing climatic risks and adapting to climate change. One Party highlighted that it is also the role of NAPs to collect actions targeting food security while considering the different agro ecological regions and sustainable farming systems. - A group of developing country Parties noted that financial resources and support should be made available to developing countries to address agricultural climate change adaptation and promote co-benefits in order to ensure the achievement of food security and resilience goals. In particular, the support mechanisms should include: (1) research, development and transfer of technology; (2) financing and budget tracking; (3) assistance with the implementation of pilot projects and scaling up successful strategies to the national level; and (4) capacity-building with a strong emphasis on monitoring, reporting and verification, climate policy integration, improving human resources, methodologies and metrics. (FCCC/SBSTA/2016/INF.6)	-Substantial issues / Issue focus. -Support to be provided (technical, financial, capacity building, etc.) -Specific needs to be addressed. -
	SBSTA 45, Marrakech, 7–14 November 2016. (Workshop on the identification of adaptation measures, taking into account the diversity of the agricultural systems, indigenous	- South Africa explained that its national circumstances are characterized by low resilience to extreme weather events, with a large proportion of its population significantly affected by rainfall variability. As a result, climate change exacerbates existing socioeconomic challenges, inequalities and vulnerabilities, thus, affecting food security and local livelihoods. - The EU expressed the view that synergies between all processes for the effective implementation of countries' intended nationally determined contributions (INDCs) should be explored, addressing the needs that Parties have expressed in relation to adaptation, mitigation and related capacity-building, etc. The SBSTA agenda item on issues relating to agriculture could serve as the connective hub to ensure that those needs are properly	-Institutional/ role of members & UNFCCC. -Substantial issues / Issue focus (country example). -Support to be provided (technical, financial, capacity building, etc.)

	knowledge systems and the differences in scale as well as possible co-benefits and sharing experiences in research and development and on-the-ground activities, including socioeconomic, environmental and gender aspects).	addressed, taking into account linkages with food security, synergies between adaptation and mitigation, and socioeconomic co-benefits. In addition, the EU highlighted the need for a participatory approach to the determination of the financial and technical feasibility of the basket of options when identifying priorities. - Parties identified that climate change is as an important threat, in particular because of its impacts on food security and local livelihoods. Many Parties consider food security to be their top-priority concern, as also expressed in the United Nations Sustainable Development Goals and the Paris Agreement. This applies particularly to countries in which agriculture is highly vulnerable because of unfavourable socioeconomic conditions and an already high- risk natural environment, often characterized by high season-to-season climate variability, extreme weather events and periods of severe water stress. - Many developing countries highlighted the importance of means of implementation, noting, in particular, that mobilizing climate finance and the use of current and new technologies and practices, especially targeting small-scale farmers and women, will become important instruments of adaptation and ensuring food security. Other elements to support the identification of adaptation measures were mentioned, including capacity- building and technology transfer and, especially, specific packages of carefully aligned technology components for the adaptation of particular crops in particular conditions. - Many Parties mentioned that a key objective of the work of the SBSTA on agriculture should be the sharing and development of sound scientific and technical information to help Parties to make informed decisions on approaches and actions in agriculture that could increase food security and promote, within a sustainable development framework, synergies between agricultural productivity, adaptation and mitigation objectives. Furthermore, given its specific mandate under the Convention, the SBSTA should be the key body to facilitate the provision of technological support to Parties. Several Parties added that the SBSTA could also play a role in ensuring that the specificities of the agriculture sector are properly addressed under all Convention processes, including the linkages with food security, socioeconomic benefits and synergies between adaptation and mitigation. Developing countries added that these linkages continue to be the key priority for the SBSTA in its work, in the light of the particular vulnerabilities of the agriculture sector and its relationship with food security, poverty eradication and the livelihoods of millions of farmers. - Several Parties reflected on the potential role of the Convention in facilitating the identification of adaptation measures in agriculture, taking into account the diversity of the agricultural systems, indigenous knowledge systems and differences in scale as well as possible co-benefits of adaptation measures. Parties noted, in particular, the importance of sharing experience in research and development and in the implementation of on-the-ground activities, including their socioeconomic, environmental and gender aspects. (FCCC/SBSTA/2016/INF.5)	
	SBSTA 43, Paris, 30 November - 11 December 2015. (Report on the workshop on the assessment of risk and vulnerability of agricultural systems to different climate change scenarios at regional, national and local levels, including but not limited to pests and disease).	- Many Parties highlighted the diversity of the agricultural systems, including those relating to different stakeholders (e.g. rural and poor people, smallholders, women and youth), and different spatial (e.g. regional, national and local levels; macro to micro specificities) and temporal (e.g. short, medium and long-term perspectives) scales. Parties considered it important to take into account all the diversities inherent in agricultural systems in the work on risk and vulnerability assessment and emphasized the importance of agriculture in ensuring progress, food security, sustainable rural development, economic development, poverty eradication and livelihoods. - Several Parties emphasized the importance of involving risk and vulnerability assessments in identifying adaptation measures suited to local circumstances and productive systems. Such measures included, inter alia,	-Substantial issues / Issue focus (country example). -Support to be provided (technical, financial, capacity building, etc). -Specific needs to be addressed.

		the development of improved seed varieties adapted to new agro-climatic conditions, thermal/water stress and exposure to different pests. Parties also noted the importance of the improvement of the adaptive planning capacity of farmers in order to ensure stabilized and increased yields and thus contribute to food security. - A representative of the Climate Action Network, a worldwide network of non- governmental organizations, noted the significant threats to agriculture and food security, and urged Parties to promote sustainable farming approaches and take immediate action in order to build resilience and create equitable food systems ensuring that small scale farmers are supported, and ecosystems are protected. The representative also called for ambitious emission reductions together with adaptation actions and provision of support. - Several Parties highlighted the potential role of the Convention to assist Parties in downscaling climate scenarios and in developing multi-layered risk and vulnerability maps for different climatic events in order to enhance resilience by strengthening risk management approaches. These Parties also noted the importance of assisting developing country Parties in improving the data needed to run models that predict climate change impacts on yields of important crops, animal production, water availability and soil erosion among others (i.e. integrated assessment of climate change impacts on food security). (FCCC/SBSTA/2015/INF.7)	
	SBSTA 43, Paris, 30 November - 11 December 2015. (Report on the workshop on the development of early warning systems and contingency plans in relation to extreme weather events and their effects such as desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion).	- In Canada's view, a key objective of the work of the SBSTA should be the development and sharing of sound scientific and technical information that would help Parties to make informed decisions on approaches in agriculture that increase food security and promote synergies between agricultural productivity and adaptation and mitigation objectives in the context of sustainable development. - Many Parties highlighted diversity of agricultural systems and emphasized the importance of agriculture in ensuring progress, food security, sustainable rural development, economic development, poverty eradication, and livelihoods. Parties considered it important to take into account all the diversities inherent in agricultural systems in the context of the development of EWS and contingency plans. - Parties highlighted the importance of the Convention in enhancing the existing regional EWS and promoting their use by: strengthening the capacity of regional forums/networks for seasonal climate forecasts; removing barriers to the use and uptake of early warning information from regional systems by downscaling and appropriate packaging of regional information for action at local levels; collecting and establishing accessible regional climate databases; and implementing regional systems for the inventory and documentation of early warning systems for food security. (FCCC/SBSTA/2015/INF.6)	-Institutional/ role of members & UNFCCC. -Specific needs to be addressed.

	SBSTA 40, Bonn, 4–15 June 2014. (Report on the workshop on the current state of scientific knowledge on how to enhance the adaptation of agriculture to climate change impacts while promoting rural development, sustainable development and productivity of agricultural systems and food security in all countries, particularly in developing countries, taking into account the diversity of the agricultural systems and the differences in scale as well as possible adaptation co-benefits).	- In countries where the agriculture sector plays an important economic role, changing climatic conditions may also have socio-economic implications, such as reduction of the gross domestic product and an increased need for food imports. The need to enhance agricultural production for a growing population was highlighted. - It is important to identify actions which will support the food production capacity and allow for its increase, taking into consideration human population growth. Such actions should strengthen the capacity of different agricultural production systems to adapt to the negative impacts of climate change, by building resilience and reducing vulnerabilities. The view was expressed that these actions should not constitute distortions to agricultural trade and production. - Japan by elaborating on the existing practices and approaches, presented national experiences with the development and cultivation of climate change resilient varieties of rice and cultivation techniques, which proved their effectiveness in increasing productivity under climate change conditions. This included the introduction of an alternate wetting/drying technology used by farmers to reduce their water use in irrigated fields. The panellist also elaborated on the multilateral and bilateral collaboration with developing countries in which Japan is involved with a view to assisting them in making effective use of new rice varieties and cultivation techniques as a measure to adapt to climate change, while improving the productivity and resilience of agriculture and ensuring food security. - Parties highlighted the important role of agriculture in national economies and the central role of the agriculture sector in ensuring food security. Developing country Parties further emphasized the important role of agriculture in poverty reduction, sustainable development and livelihoods. Parties also highlighted the importance of considering the interests of small and marginal farmers and indigenous communities, and the role of women in agriculture. They also noted experiences with the application of scientific knowledge for enhancing adaptation in agriculture while promoting productivity and taking into account co-benefits - It was also noted that when there is no possibility for effective adaptation, or climate variability overtakes the ability of farming systems to cope, there is a need to address loss and damage and develop a methodology for loss and damage in the agriculture sector. It was also mentioned that the limits of adaptation are linked to the importance of mitigation, bearing in mind the need to safeguard food security and the rights of small and marginal farmers. (FCCC/SBSTA/2014/INF.2)	-Substantial issues / Issue focus (country example). -Support to be provided (technical, financial, capacity building, etc.)

CUTS International, Geneva

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This note is authored by Terungwa Freda Agah. CUTS' notes are to inform, educate and provoke debate on specific issues. Readers are encouraged to quote or reproduce material from this paper for their own use, provided due acknowledgement of the source is made.

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PROMOTING AGRICULTURE, CLIMATE AND TRADE LINKAGES IN THE EAST AFRICAN COMMUNITY – PHASE 2
The PACT EAC2 project builds capacities of East African stakeholders for climate-aware, trade-driven and food security-enhancing agro-processing in their region. Web: www.cuts-geneva.org/pacteac2

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The PACT EAC2 project is undertaken with funding support from the Swedish International Development Cooperation Agency (Sida).