27 March 2012

English only

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Subsidiary Body for Scientific and Technological Advice
Thirty-sixth session
Bonn, 14–25 May 2012

Item 9 of the provisional agenda
Issues relating to agriculture

Views on issues relating to agriculture

Submissions from Parties

1. The Conference of the Parties, at its seventeenth session, invited Parties and admitted observer organizations to submit to the secretariat, by 5 March 2012, their views on issues relating to agriculture. It requested the secretariat to compile the submissions from Parties into a miscellaneous document for consideration by the Subsidiary Body for Scientific and Technological Advice at its thirty-sixth session (decision 2/CP.17, paras. 76–77).

2. The secretariat has received 20 such submissions from Parties.[1] In accordance with the procedure for miscellaneous documents, these submissions are attached and reproduced* in the language in which they were received and without formal editing.

3. The five submissions received from intergovernmental organizations[2] and the 24 submissions received from 22 non-governmental organizations[3] have been posted on the UNFCCC website.

[1] Available at <http://unfccc.int/5901.php>.

* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

[2] <http://unfccc.int/3714.php>.

[3] <http://unfccc.int/3689.php>.

Contents

* This submission is supported by Croatia, Serbia, the former Yugoslav Republic of Macedonia and Turkey.

Paper no. 1: Burundi

BURUNDI SUBMISSION ON ISSUES RELATED TO AGRICULTURE AND CLIMATE CHANGE FOR CONSIDERATION BY SBSTA AT ITS 36™ SESSION.

1. Introduction

Burundi economy is heavily dependent on agriculture which contributes over 50 per cent of the GDP, employs 90 per cent of the workforce, and provides more than 95 per cent of the food supply and over 80 of export earnings.

The agricultural sector is highly sensitive to climate. Indeed, the country records excessive crop losses due to climate change (drought and torrential rains). These losses affect the welfare of the people of Burundi and adversely impact food security.

Faced with such issue, Burundi has tried to take mitigation and adaptation actions despite the limited technical, financial and technological resources at her disposal. And the road ahead is still long.

2. Adaptation Priority Actions

- ✓ Monitoring of climate change so as to adapt the agricultural calendar
- ✓ Diversification of crops and varieties that are climate change resilient
- ✓ Integrated control of crop pests and enemies caused by climate change
- ✓ Promotion of conservation agriculture
- ✓ Promotion of agroforestry
- ✓ Improved livestock feed
- ✓ Construction of hydro-agricultural works in seed centres, marshes and plains
- ✓ Establishment of hill reservoirs and rain water harvesting
- ✓ Protection and management of watersheds
- ✓ Development of improved and short season varieties, which are resilient to climate vagaries (particularly drought) and livestock (large and small livestock) of improved breeds
- ✓ Promotion of integrated fish-farming
- ✓ Establishment of storage and conservation infrastructure for agri-food products
- ✓ Restock and improve national livestock

3. Mitigation Priority Actions

- ✓ Establishing a national system for MRV

- ✓ Promotion of zero grazing animal husbandry
- ✓ Production of improved livestock feed
- ✓ Enhancement of manure management through the practice of composting
- ✓ Development of short season rice varieties
- ✓ Management of watersheds for the preservation of hydrological cycles
- ✓ Promotion of bio-fertilizers and organic manure
- ✓ Promotion of the sugar cane variety endowed with natural defoliation

4. Technology Transfer

- ✓ Promote and disseminate agricultural innovations
- ✓ Etablishing a framework for producers-researchers consultation
- ✓ Enhancement of manure management systems through biogas technology
- ✓ Research on the sugar cane variety endowed with natural defoliation

5. Capacity building

- ✓ Enhancement of the Geographical Information System (GIS)
- ✓ Operationalization of the Sectoral Chamber for agri-business
- ✓ Decentralization of agricultural research in line with agricultural regionalization
- ✓ Establishment of a system for risk reduction and disaster management related to climate change
- ✓ Capacity building for national research
- Establish a research program on the physical and biological behaviour of crops and livestock in relation to climate change;
- Research on short season crop varieties and animal species;

- ✓ Rehabilitation and modernization of research centres
- Capacity building in agribusiness and biotechnology particularly in food preservation;
- Enhancement of research on indigenous and exotic animal species resilient to climate change;
- ✓ Enhancement of climate and early warning information systems
- Strengthen the agro-meteorological system
- ✓ Build capacity to develop, implement and monitor agricultural NAMAs
- ✓ Enhance capacity and tools needed for accurate and comprehensive accounting of GHGs

6. Funding

- ✓ Establish a Compensation Fund for losses and damages caused by climate change in the agricultural sector;

- ✓ Facilitate/streamline procedures for accessing the climate change adaptation and mitigation Fund;
- ✓ Promote a framework for cooperation between the Global Environment Fund (GEF) and national financial institutions
- ✓ Determine an allocation to each country taking into account the degree of vulnerability;
- ✓ Funding the development and implementation of policies, strategies and plans for adaptation and mitigation (eg.: NAMA) ;

Paper no. 2: China

China's Submission on Issues Related to Agriculture

The Conference of the Parties at its seventeenth session held in Durban invited Parties and accredited observer organizations to submit to the secretariat, by 5 March 2012, their views on the issues referred to in paragraph 75 of the Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. China welcomes this opportunity and would like to submit the following views:

1. Agriculture plays a vital role in achieving food security, poverty reduction and sustainable development. Food security is of great importance for developing country Parties. The negotiations on agriculture should be in accordance with the principles and provisions of the Convention, in particular the principle of common but differentiated responsibilities and in line with the mandate of 1b(iv) of Bali Action Plan to enhance the implementation of Article 4.1(c) of the Convention, and emphasize how to fulfill the objective of "ensure that food production is not threatened" as described in the Article 2 of the Convention.

2. Mitigation and adaptation deserve equal attention in the agriculture. For developing country Parties, their agriculture is particularly vulnerable to the impacts of climate change due to the weakness in infrastructure, lag in technology and low adaptation capacity to climate change. As a result, climate change has already had serious impact on the food production in developing countries. Therefore, adaptation is more important than mitigation in agriculture for developing country Parties. The priority of the discussion on agricultural sector should focus on how developed country Parties provide the supports of finance, technology transfer and capacity building to developing country Parties to help implement their adaptation actions, assuring their food security and achieving their sustainable development.

3. SBSTA should start a dialogue on issues such as how to facilitate the technical transfer, strengthen developing countries' independent innovation capacities to help developing country Parities to implement adaptation actions in agricultural sector and improve their abilities on sustainable development in agriculture.

4. Parties could have discussions and exchange views on the need and way to establish a work program on enhanced adaptation actions in agricultural sector and fulfilling the objective of "ensure that food production is not threatened".

5. Greenhouse gas emissions are unavoidable in agricultural production. For developing countries, the emissions from the agricultural sector are the necessary for their basic survival. SBSTA should discuss how to enhance developing countries' capacity on technology research and development and scientific evaluation methods for controlling emission from the agricultural sector, and enable farms and peasants in developing countries to access to the climate–friendly technologies. The discussion about this issue should be in accordance with the principles and provisions of the Convention, in particular the principle of common but differentiated responsibilities, and not lead to any mitigation commitments for developing country Parties.

Paper no. 3: Costa Rica

On Paragraph 75 of Decision [-/CP.17] Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention

Mandate

The Conference of the Parties (COP), during its seventeenth session, requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to consider issues related to agriculture at its thirty-sixth session (May 14-25th 2012), with the aim of exchanging views and the Conference of the Parties adopting a decision on this matter at its eighteenth session; and invited Parties and accredited observer organizations to submit their views on this issues to the secretariat, by March 5th 2012.

The Government of Costa Rica is grateful for the opportunity that the Secretary of the UNFCCC and the Conference of the Parties have given us, in order to contribute to the process of discussion on such important issues as food security and our country's competitiveness.

Agriculture: reduction of emissions and their impact as a strategy for adaptation

As part of an escalating process in mitigation actions, Costa Rica believes agriculture should be a key sector within the working plan of the Adaptation Committee, which could lead to agriculture becoming a priority sector of its technical assistance.

Costa Rica encourages the Adaptation Committee to organize a meeting within the next few months in order to explore adaptation options in the sector and to create a group of experts which takes into consideration scientific organizations which have experience in the tropics.

Priority areas for Costa Rica

- Adaptation and mitigation in agriculture: synergies and trade-offs

- Research and technology transfer: focusing on a more efficient use of natural resources (hydric and energetic), systematization of information and outreach to producers.

- Financing for adaptation & mitigation of the agricultural sectors in developing nations and for the elaboration and implementation of NAMAS and NAPAS.

- Capacity-building: strong emphasis on MRV, human resources, methodologies and metrics.

Costa Rica wishes to propose the establishment of a work programme in the context of the SBSTA, at COP18, that incorporates the topics mentioned above.

Paper no. 4: Denmark and the European Commission on behalf of the European Union and its member States

This submission is supported by Croatia, the Former Yugoslav Republic of Macedonia, Serbia and Turkey

General remarks

The EU welcomes this opportunity to address issues related to agriculture for the exchange of views in the Subsidiary Body for Scientific and Technological Advice (SBSTA) at its thirty-sixth session and for future work on agriculture under UNFCCC.

Agriculture has to address new global challenges: increasing the global food supply in a sustainable way in order to feed the expected 9 billion people in 2050 and at the same time inter alia facing the adverse impacts of climate change which will threaten food production systems. These challenges require the sector to adapt to climate change. In parallel to the need to address adaptation, mitigation potential exists in the sector at global level if sustainable practices that are more efficient in terms of greenhouse gas emissions or carbon sequestration replace business as usual. Therefore the EU considers that agriculture, as the basis for food production, food security, livelihoods and rural development, needs to be adequately considered in relation to climate change under the UNFCCC.

Actions on adaptation and mitigation in agriculture are already being implemented worldwide, and the EU is contributing significantly to these, both internally and in cooperation with developed and developing country partners. The EU believes that there is a need to go further on the issues highlighted below under the UNFCCC framework.

Agriculture under the UNFCCC to date

The EU recognises that some work on agriculture has been carried out to date under the UNFCCC. Mitigation options in agriculture were previously considered under the SBSTA agenda item "Scientific, technical and socio-economic aspects of mitigation of climate change". A workshop was held during SBSTA 24 in 2006. A technical paper "Challenges and opportunities for mitigation in the agricultural sector" was published in November 2008, at the request of several Parties and a further intersessional workshop was held during the Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA) 5 in 2009 to discuss this paper. Discussions under the AWG-LCA began in 2009 under the agenda item "Cooperative sectoral approaches and sector-specific actions", paragraph 1 (b) (iv), under the section "Enhanced action on mitigation" of the Bali Action Plan, with recognition that adaptation is of critical importance for the sector. These discussions reflected significant interest in further work on agriculture under the UNFCCC.

Relevance of further work on agriculture under the UNFCCC

Agriculture is an important sector in global climate change efforts as it is particularly vulnerable to the effects of climate change and at the same time represents a significant part of the global

emissions. Including further work on agriculture under the UNFCCC should contribute to reaching the objective of the Convention, which includes ensuring that food production is not threatened (Article 2). Climate finance could contribute to mobilizing the investments needed in the sector.

It is necessary to increase agricultural production and its efficiency in the context of decreasing availability and declining quality of natural resources, often exacerbated by climate change. Production must increase in a sustainable way, taking into account in an integrated vision all the environmental challenges (e.g. deforestation, biodiversity, soil, air, water), while safeguarding livelihoods for people in rural areas.

The wide diversity of agricultural systems worldwide, as well as specific national and regional development priorities, objectives and circumstances mean that a one size fits all approach does not apply for agriculture in relation to climate change.

Further addressing and improving understanding of the scientific, technical and socio-economic issues around adaptation, mitigation and the synergies and trade-offs between them can enhance the contribution of the sector to many critical objectives, including sustainable development, poverty alleviation, preservation of biodiversity and ecosystem services as well as contributing to achieving the 2°C objective.

Of particular importance in the agricultural sector is the critical link between adaptation and mitigation actions. Many mitigation actions (e.g. improved protection and enhancement of soil organic matter, restoring degraded land, improving efficiency and productivity of agricultural systems in a sustainable manner) can at the same time build resilience to climate change impacts. Certain trade-offs may be necessary, but these should be minimized or avoided wherever possible. There is a need to advance a common and scientific understanding of the best ways to address vulnerabilities, impacts, adaptation needs and the contribution of agriculture to mitigation while contributing to safeguarding food security and livelihoods.

Climate related agricultural initiatives are being implemented across a range of countries and food production systems. A significant body of work by international organisations is contributing to understanding the links between agriculture and climate change. Scientific knowledge and experiences already exist and can be more widely adopted into agricultural practices. There is a need to further enhance cooperation between Parties in sharing knowledge in order to learn from past and current experiences, further identify climate relevant technologies, practices and processes, and enhance understanding of their deployment and effects. It is also necessary to enhance research and development cooperation, and to further catalyse relevant activities of international organisations and relevant stakeholders. There is also a great opportunity for synergistic work between all three Rio Conventions in agriculture, and common approaches should be encouraged and promoted at all levels.

Issues related to agriculture for consideration under SBSTA

It is appropriate to reinforce the work mentioned above under the UNFCCC with the objective to assist Parties in their efforts to, on a voluntary basis, implement measures to increase adaptation

capacities, reduce emissions, or enhance and protect soil organic matter. SBSTA provides the forum to progress this. There is potentially significant value added to both climate objectives and the core task of the agriculture sector which is to produce food in a sustainable manner.

The EU supports a COP decision to launch a SBSTA work programme on adaptation and mitigation in agriculture with the content and scope to be agreed by Parties. In the EU's view, the issues related to agriculture that SBSTA should consider at its thirty-sixth session and beyond include:

- The state of scientific knowledge on the impacts of climate change on agriculture and food security and associated vulnerabilities;
- The state of scientific knowledge on the measurement and estimation of greenhouse gas emissions and removals in the agriculture sector;
- Scientific, technical, environmental and socio-economic aspects of adaptation and mitigation in agriculture and their synergies and trade-offs, including identification of barriers for the implementation of adaptation and mitigation actions, and approaches to overcoming these;
- The identification of efficient and sustainable agricultural technologies, practices, processes and know-how for adaptation and mitigation;
- The identification of ways and means of promoting and supporting their development, implementation and/or transfer to farm level;
- Approaches to enhance international cooperation in research and development related to climate change, as well as ways and means to support capacity-building, information sharing, education and training of all relevant stakeholders, and particularly farmers, on adaptation and mitigation in agriculture.

This work should build upon existing knowledge, tools and processes on:

- Reducing Emissions from Deforestation and Forest Degradation (REDD+), including the SBSTA work programme on how to address the drivers of deforestation and forest degradation;
- Land Use, Land Use Change and Forestry (LULUCF), including on-going and future SBSTA work programmes on this issue;
- Adaptation, including the Nairobi Work Programme, National Adaptation Programmes of Action, National Adaptation Plans;
- Mitigation;
- Measurement, reporting and verification;
- Technologies, including the Technology Mechanism;

- Capacity building;
- Finance, including the Green Climate Fund, the Adaptation Fund, the LDC Fund;
- And other relevant processes ongoing or foreseen outside the UNFCCC framework, including work by Parties, international organisations and other Conventions.

Paper no. 5: Gambia on behalf of the least developed countries

Background

In Durban the COP requested the Subsidiary Body for Scientific and Technological Advice to consider issues related to agriculture at its thirty-sixth session, with the aim of exchanging views and to enable the Conference of Parties adopting a decision on this matter at its eighteenth session in Doha, Qatar. The COP also invited Parties and accredited observer organizations to submit to the Secretariat, by 5 March 2012, their views on the issues referred to above. It is in this respect that pursuant to paragraphs 75 and 76 of COP17 LCA Outcome, the LDCs are making a submission on its views on agriculture for consideration at the SBSTA-36 in Bonn, Germany.

The LDCs are the most vulnerable group of countries to the adverse impacts of climate change and they have the least capacity to deal with such challenges. Poverty is rampant in all LDCs and poverty eradication still remains the key development priority of their governments. As such, technical and financial support to the LDCs is key for them to adapt to additional challenges brought by climate change. Parties need to give special attention to the need of the LDCs as stipulated in Article 4.9 of the Convention.

The LDCs welcome the COP decision on agriculture to refer the issue to SBSTA as it will give an avenue to broaden discussions that will include issues related to adaptation in agriculture and not only mitigation as was the case in LCA discussions under Cooperative sectoral approaches and sector-specific actions. Any decision on agriculture should enhance the implementation of Article 4, paragraph 1(e), of the Convention. The LDCs look forward to the SBSTA to work with the Nairobi Work Programme to provide scientific and technological advice on agriculture as outlined in Article 9 of the Convention.

Agriculture is important to all LDCs. In most LDCs, well over 80% of the economically- active population, particularly small holder farmers and pastoralists rely on agriculture for livelihoods, employment, and income-generation. In addition, the sector contributes significantly to GDP in most LDCs. However, agricultural production has been declining in the recent past affecting food security and livelihoods. The challenges arising from climate change will worsen the situation. Agriculture is not perceived in terms of its contribution to the growth process through increased productivity, but mainly in the context of sustaining food security. Climate change is threatening food production systems and therefore the livelihoods and food security of hundreds of millions of people who depend on agriculture in the group.

Agriculture is the sector most vulnerable to climate change due to its high dependence on climate and weather. As a result, **adaptation in the agriculture sector is very key to the LDCs as evidenced in the NAPA submissions**. At least 80% of all projects identified in the NAPAs are in the agriculture sector. Issues of food security are very key to the LDCs in particular its availability, access, utilisation, and reduction of post harvests losses. Food production in LDCs is mainly from subsistence and marginal farmers, and as such respecting their rights to arable land is very important.

Almost all economies of the LDCs are agriculture- based. As such, LDCs will pay particular attention to issues related to trade of agriculture products and any efforts by Annex 1 countries to adopt protectionist measures under the guise of mitigation and which negatively impact LDC trade in agriculture. In this view, the LDCs urge all parties to abide by the COP decision adopted in Cancun in particular paragraph 90 of the Cancun agreements which reaffirms that "the Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them

better to address the problems of climate change; measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade." Furthermore, nothing in the discussions should lead to a curtailing of policy space for LDCs to take measures in their full right to improve their domestic food security.

Issues of Interest to LDCs under SBSTA discussion on Agriculture.

1. Assess the state of knowledge and information: There is a lot of existing high-quality scientific and technical, traditional knowledge and information on adaptation in agriculture in the context of climate change. It would be useful for SBSTA, through its Nairobi Work Programme, to look at what already exists and provide a scientific and technical platform to accelerate on-the-ground participatory implementation as well as to identify the gaps where additional analysis is required.

2. Cooperation on research and development: Promoting the cooperation on new research and sharing existing knowledge between farmers´ communities, countries and regions would benefit adaptation activities. This could include technology development and transfer, identifying and sharing best practices on adaptation, enhancing access to information, and education and training.

3. Modelling in Agriculture sector. There is a need for more information on the anticipated impacts of climate change at the national and sub-national levels related to agriculture. As such, modelling and downscaling of the global and regional models to local situations in LDCs is very important. Many regional climate models lack a level of details necessary to guide adaptation activities locally. Additionally, information is needed to inform adaptation on both short and long term impacts of climate change, such as extreme events and water availability. The LDCs look for SBSTA, through the Nairobi work program, to provide its scientific and technological information on this.

4. SBSTA will have to look at an integrated approach to the issue of agriculture that includes livelihoods, traditional knowledge, the cultural components of agriculture, and considers the entire lifecycle of agricultural inputs, such as soil fertility and water management. Taking into consideration as many aspects as possible through integrated approaches that combine modern science with traditional knowledge, could provide a more solid technical and scientific basis for the development of a more sustainable agriculture.

5. Measurement and methodological issues: SBSTA is expected to provide information on the current state of scientific knowledge on measurement, methodologies, and the estimation of greenhouse gas emissions; however, it must be noted that the LDCs are responsible for few emissions in the agriculture sector, compared to industrialized countries. The OECD countries' agriculture emissions far exceed those of the rest of the world. LDCs, are therefore concerned about the tradeoffs involved in discussions about agriculture under article 4.1 (c) (which stresses mitigation) that involve developing countries and LDCs in particular. Our urgent priority is to address agricultural adaptation challenges and enhancing our knowledge about climate impacts on our agriculture sector and food security. As such, our interest is in expediting the Work Programme on Loss and Damage that can help LDCs to understand and initiate a global response to address the impact of the slow onset of climate change on our agriculture and food systems and provide the support our economies and our food system needs to cope with the livelihood, food security and economic losses we will suffer to cope with both rising temperatures and increased climate related disasters. No SBSTA discussion on agriculture should therefore lead to new commitments by developing countries on mitigation, but rather step up action on how to safeguard our agriculture sector against the worst effects of climate change.

It must also be noted that OECD countries are advancing on an international partnership called the Global Research Alliance on Agricultural Greenhouse Gases that is addressing research and technology associated with agriculture mitigation. The SBSTA should not duplicate this work, but rather assess the initiatives already underway regarding agriculture mitigation by Annex 1 countries and assess what further role the UNFCCC should play in "the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions."

6. Rather, through the Adaptation Framework, coordinated by the Adaptation Committee, Parties should assess the state of development, transfer, efficiency of technology, and practices that enhance adaptation and mitigation to climate change: This could include issues related to mapping of vulnerable communities, assessment of vulnerabilities and practices for adaptation; enhanced access and utilization of technology and information, including best practices, local and traditional technology, capacity building support, and south -south cooperation ; integrated soil fertility and water management and pest and diseases management.

Processes Already in place THAT the UNFCCC SBSTA CAN USE IN ITS WORK ON AGRICULTURE.

SBSTA submissions will provide the basis for exchanging views among Parties in Bonn and are intended to decide how agriculture should be addressed at COP 18 in Qatar . There are a number of avenues to expand the fora for discussion on agriculture within the UNFCCC. . These include:

- Holding workshops and expert meetings: through the Nairobi Work Program to explore agriculture in more detail. The Nairobi Work Program could produce workshop reports which will capture key issues to inform the discussions under article 4.1 (e) under the adaptation framework.
- Request technical papers on given topics by international agencies such as the FAO and academic institutions such as: the impact of slow temperature rise on food production in LDCs and regions such as sub-Saharan Africa; effective low-cost, non-proprietary technologies and traditional knowledge that can help specific countries adapt to climate change; climate impact assessments on agriculture and food security on a country by country basis, starting with LDCs:
- Recommend to COP to request that IPCC prepare briefings or assessments in particular in relation to local future impacts of climate change on agriculture in the LDCs.

- Cooperation with other bodies under the Convention like the CGE, Technology Executive Committee, the Adaptation Committee in particular to seek cooperation with other groups. For example, research and systematic observation (RSO) on specific research issues could be undertaken jointly with SBI.

- Examine existing pilot projects in developing countries that address adaptation to to inform the process and its work programme.

Paper no. 6: Iran (Islamic Republic of)

1-Iran (Islamic Republic of) recognizes the key role of agriculture sector in job creation, reducing poverty and ensuring food security in developing countries.

2- Agriculture sector is one of the most vulnerable sectors to the impacts of climate change. Any Changes in climate parameters such as temperature and rainfall has a direct effect on agricultural production particularly in developing country situated in arid and semi arid region of world. Reduction in agricultural productivity will undermine food security in these countries.

3- Adaptation to adverse effect of climate change in Agriculture sector is prior to other issues for developing countries, so it should be considered in preparing and developing national adaptation plan. Bearing in mind the enormous costs of the implementation of adaptation plans, it is necessary to ensure that sufficient resources will be provided for developing countries.

4- The term of Climate-Smart Agriculture should be clearly defined and formulated. It is suggested to classify the measures and practices based on climatic characteristics of regions and countries.

5- For preparing and development of framework for agriculture, all related sub sectors like soil& water, livestock, fisheries, horticulture, agro forestry and range management should be considered

6- Establishment of special mechanism for the innovation, development and transfer as well as dissemination of agricultural technologies in reducing emissions and adapting to adverse effect of climate change is recommended.

7- Sufficient, predictable, additional and timely financial resources should be provided by Green climate fund and other sources (public & private) for implementation adaptation measures in developing countries.

Paper no. 7: Japan

Japan believes that it is useful to pursue cooperative sectoral approaches in order to ensure fairness and to proceed concrete steps to achieve effective emission reductions, and welcomes the opportunity to submit its views on issues related to agriculture to contribute to the discussion to adopt a decision at 18th session of the Conference of Parties (COP18).

Japan recognizes the importance of agriculture sector in term of climate change mitigation and adaptation. Agriculture sector occupies the 13.5% in the world total green house gas emission according to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Additionally, agriculture is one of main drivers of deforestation.

Agriculture is one of the most vulnerable sectors to the climate change, as well as the most essential sector for addressing issues such as food security, poverty eradication and sustainable rural development.

It is important to improve efficiency and productivity in agriculture sector, ensuring the compatibility with mitigation. Japan would like to point out various factors including biodiversity should be taken into consideration in promoting agriculture.

International cooperation on research and technology development is also fundamental for promoting cooperative approach in agriculture.

Japan recognizes the necessity of enhancing knowledge and technologies for monitoring greenhouse gas emission and carbon sequestrations in mitigation activities of agriculture sector.

It is important to establish a mechanism through which countries can share knowledge, technologies and activities on greenhouse gas emission reduction and carbon sequestration from agriculture. In this regard, accumulating reliable knowledge on emission, mitigation and sequestration is valuable as the basis of the effective mitigation approach, which has been discussed in the Global Research Alliance on Agricultural Greenhouse Gases, a voluntary framework established in 2011 and currently joined by 32 countries.

Additionally, it is important to discuss appropriately a mechanism through which countries can share knowledge, technologies and activities on adaptation. The mechanism should contribute to adapt to the adverse effects of climate change, as well as to promote climate resilient agriculture, sustaining and increasing production and productivity at the same instance with effective resource use.

Regarding financial resources, it is important to consider the linkage between above mentioned mechanisms related to agriculture and various types of climate funds such as the Green Climate Fund and the Adaptation Fund, as well as, further availability of all other financial sources.

Paper no. 8: Malawi

MALAWI SUBMISSION ON ISSUES RELATED TO AGRICULTURE FOR CONSIDERATION BY SBSTA AT ITS 36TH SESSION

This submission is made pursuant to paragraphs 75 and 76 of COP17 LCA Outcome.

Malawi welcomes and appreciates the efforts that were made by the Conference of Parties to adopt a decision on agriculture. Pursuant to Decision 1/CP.17 (Paragraph 76) which invited Parties and accredited observer organizations to submit to the secretariat, by 5 March 2012, views on the issues related to agriculture under the SBSTA with the aim of exchanging views and CoP adopting a decision on the matter at its 18th session, Malawi makes this submission for consideration by the SBSTA.

Agriculture is the most important sector of the Malawi economy. It employs about 80 per cent of the total workforce, contributes over 80 per cent to foreign exchange earnings, accounts for 39 per cent of gross domestic product (GDP) and contributes significantly to national and household food security. The agricultural sector is mainly dominated by smallholder farmers who have been adversely affected by impacts of climate change and weather variability. The smallholders farmers mainly cultivate food crops such as maize (the main starchy staple), cassava, rice, legumes and sweet potatoes to meet subsistence requirements. Smallholder farmers cultivate small and fragmented land holdings under customary land tenure with yields lower than in the estate sector.

For the past couple of decades, Malawi has been adversely affected by prolonged dry spells, shorter rainy seasons, late onset and early cessation of rains, droughts and floods. These have increased in terms of frequency and intensity. As a result, there is reduced agricultural productivity, food security and loss of livelihoods. In this regard, Malawi Government has put climate change, natural resources and environmental management as a priority within priorities in the Malawi Growth and Development Strategy (MGDS II 2012 - 2016), which is the over – arching development strategy. In addition Malawi has prepared the National Adaptation Programmes of Action, which has focus on agriculture as the key sector to address the challenges and vulnerabilities. Furthermore, the Government of Malawi invested into the Green Belt Initiative (GBI) that seeks to transform Malawi from predominantly being a consuming and importing country to a producing and exporting country through irrigation.

Malawi aligns herself with the African Group, and the Least Developed Countries that, agriculture encompasses, but not limited to farming, harvesting, processing and related products and activities from crops, livestock, fisheries and aquaculture.

In cognisant of the above issues, Malawi requests SBSTA to establish a work programme that will consider the following:

1 Compilation and assessment of the present state of scientific knowledge and projected impacts of climate change on agriculture and related ecosystems under different scenarios, in order to identify gaps and needs for implementing effective adaptation strategies.

2 Identification of, diffusion and transfer of appropriate practices and technologies that are easily accessible and utilized by smallholder farmers in Malawi.

3 Promote and facilitate the strengthening of National Institutions and policy frameworks in the development and implementation of education and public awareness programs on climate change and its effect on agriculture.

4 Compilation of data and information related to agriculture from national communications, needs assessments and other relevant reports in order to enhance identification and implementation of adaptation strategies.

5 Identification and application of tools, methods and models in order to develop measurement and guidelines for carbon sequestration, climate forecasting, and upscale the technologies for increased agricultural productivity.

Paper no. 9: New Zealand

Views on issues related to agriculture

March 2012

1. At COP 17, the Conference of the Parties invited Parties to submit their views on issues related to agriculture (decision [-/CP.17] Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, paragraph 76 refers). New Zealand welcomes this opportunity, and looks forward to participating in the exchange of views at SBSTA 36.

Issues related to agriculture – the case for ongoing work in the SBSTA

2. The agriculture sector must face a set of complex challenges in order to feed a growing world population. Climate change makes this all the more challenging. The magnitude, complexity and interconnectedness of these challenges make a clear and compelling case for SBSTA to begin a structured and holistic consideration of issues related to adaptation and mitigation in the agriculture sector.

3. New Zealand wishes to emphasise the ultimate objective of the Convention (Article 2 refers), and in particular the fundamental importance of food production emphasised in the second sentence. In this respect we wish to point to the need to take into account the relationship between agriculture and food security and the synergies and tradeoffs between adaptation and mitigation. Work in SBSTA on issues related to agriculture can facilitate efforts to enhance the resilience and adaptive capacity of agricultural production systems to the physical impacts of climate change, and facilitate efforts to mitigate agricultural greenhouse gas emissions and removals so that the agriculture sector can contribute to global mitigation in a manner consistent with its potential to mitigate, and its need to produce food for a growing population.

4. New Zealand also considers that these efforts on adaptation and mitigation need to be placed within the context of sustainable development, as all countries must be able to satisfy their basic development needs, and in the context of food security. Furthermore, the physical and geographical differences of agricultural systems, different national circumstances, and temporal considerations for adaptation and mitigation need to be taken into account. Sound science should underpin all efforts.

5. Environmental effectiveness and resilience will be significantly enhanced with broad participation. All relevant actors in agriculture need to be engaged in adaptation and mitigation efforts. To this end we stress the importance of focusing efforts to enhance efficiency and productivity of agricultural production systems in a sustainable manner. It is through this frame that the global community has the best opportunity of overcoming a number of economic, risk-related, political, institutional, technical and societal barriers and thereby enabling the sector to more fully realise the opportunities that exist.

6. New Zealand considers that ongoing work in SBSTA on agriculture will:

- Provide an opportunity to share experiences, good practices in, and lessons learned from the development of policies and practices for adaptation and mitigation in agriculture.
- Strengthen synergies between the UNFCCC and other relevant organisations.
- Assist Parties and other actors to make well-informed and science-based decisions on how to maximise synergies between food security, adaptation and mitigation.
- Promote enhanced and coordinated investment in the agriculture sector, including by governments, farmers, the private sector, organisations, foundations, and other funding agencies.

Defining the scope of discussions in SBSTA on issues related to agriculture

7. The Convention, in its Article 9, establishes the subsidiary body for scientific and technological advice (SBSTA) to provide the Conference of the Parties and, as appropriate, its other subsidiary bodies with timely information and advice on scientific and technological matters relating to the Convention. With this in mind, New Zealand considers that work done in SBSTA on issues related to agriculture should include the following aspects:

i. **Assessment of the state of scientific knowledge on the physical impacts of climate change on agriculture.** This could include, inter alia, consideration of: IPCC assessment reports and relevant IPCC special reports; other relevant scientific reports; work conducted in other UNFCCC programmes, e.g. Nairobi Work Programme on impacts, vulnerability and adaptation to climate change; inviting work from, or making recommendations to, other UN bodies or organisations.

ii. **Assessment of the state of scientific knowledge on the measurement and estimation of greenhouse gas emissions and removals in the agriculture sector.** This could include, inter alia, consideration of: relevant scientific literature; national communications and greenhouse gas inventory reports; experiences with measuring and estimating greenhouse gas emissions and removals in the agriculture sector at all scales, in different environments and under different agricultural systems.

iii. **Consideration of the scientific, technical and socio-economic aspects of adaptation and mitigation in agriculture and their synergies.** This could include, inter alia, consideration of: technical and economic mitigation potential in the agriculture sector; identification of technical, institutional, and/or socio-economic barriers to the successful and sustainable adoption of adaptation and mitigation practices; consideration of synergies (win-win) and trade-offs in existing and emerging adaptation and mitigation practices.

iv. **Provision of advice on scientific programmes, international cooperation in research and development related to climate change and agriculture.** This could include, inter alia, consideration of: relevant international/regional research efforts, e.g. Consultative Group of International Agriculture Research (CGIAR), Global Research Alliance on Agricultural Greenhouse Gases, EU Food Security, Agriculture and Climate Change Joint Programming Initiative (FACCE-JPI), other national and sub-national programmes; agriculture sector-(industry/farmer) led initiatives.

v. **Identification of ways and means to support capacity-building, information sharing, education and training of all relevant stakeholders on adaptation and mitigation in agriculture.** This could include, inter alia, consideration of: programmes, including existing UNFCCC programmes, to support capacity building in relevant agriculture research and policy development; educational programmes, e.g. fellowships, exchanges, scholarships, awards; relevant programmes of international organisations, e.g. FAO, OECD, UNDP, etc

vi. **Identification of innovative, efficient and state-of-the art technologies, practices, processes and know-how for adaptation and mitigation in agriculture and advice on the ways and means of promoting their development and/or transfer.** This could include, inter alia, consideration of: specific adaptation and mitigation practices and experience in implementing such practices; mitigation and adaptation benefits of proven agricultural technologies, practices, processes and know-how, i.e. those that have been implemented

effectively by farmers for a sustained period of time, and consideration of the lessons learned in their effective implementation; ways to encourage greater research into and the development of new technologies and innovations related to agriculture.

vii. **Consideration of the ways and means that existing or emerging institutional arrangements under the UNFCCC can support adaptation and mitigation in agriculture.** This could include, inter alia, consideration of: existing processes, mechanisms, instruments and tools under UNFCCC; new or emerging processes, mechanisms, instruments and tools under UNFCCC, e.g. Technology Executive Committee and Technology Mechanism.

viii. **Sharing of information of relevant activities within and outside the UNFCCC process to facilitate efficient planning of work.** This could include, inter alia: sharing of information on meetings, workshops, conferences and events related to agriculture adaptation and mitigation that are in the process of being planned, or have been scheduled by organisations and institutions, including other Rio Conventions, UN agencies and programmes, international and regional organisations, national governments, the research and scientific community, farmers' organisations, the private sector, and civil society. Ensuring that discussions on agriculture in other parts of the UNFCC process are appropriately informed with the most up-to-date scientific knowledge.

Exploring possible modalities of work on issues related to agriculture

8. To progress discussions on issues related to agriculture, the SBSTA could, as appropriate, employ the following modes of work:

- Organise workshops, expert meetings, and consultations on specific topics.
- Invite accredited observer organisations and other relevant experts, practitioners and relevant organisations and initiatives to participate in specific activities, as and when it is deemed necessary or useful to receive their input.
- Prepare reports and technical papers on specific topics of interest.
- Request other relevant and appropriately qualified institutions and organisations to prepare reports and technical papers on specific topics of interest.
- Provide regular progress reports to the COP, e.g. annually.

9. In addition to the above modes of work, SBSTA should look at its existing programme of work and any relevant areas that need to be identified and built upon.

10. New Zealand looks forward to engaging on the above issues with other Parties.

Paper no. 10: Philippines

In line with the provisions of paragraphs 75 and 76 of the Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention during the 17th COP held in Durban South Africa, the Philippines is forwarding the following submission on agriculture to the Subsidiary Body for Scientific and Technological Advice.

Cooperative sectoral approaches must recognize the historical responsibility of developed countries in bringing about climate change, while acknowledging the principle of common but differentiated responsibility in developing and implementing climate action in agriculture.

Climate change is undermining the economic viability and survival of millions of small farmers and agricultural producers in developing countries. Hence, climate action in agriculture in developing countries should focus primarily on adaptation, and in helping small men and women farmers and fishers cope with the negative impacts of changing climate patterns.

Noting this, cooperative sectoral approaches and sector specific actions should recognize that:

- developing countries' comprehensive climate change strategy on agriculture must address the twin challenges of food and water security and climate change;

- this comprehensive strategy builds upon resiliency in agriculture, to shape adaptation strategies;

- adaptation to climate change in agriculture has positive interaction with mitigation and thus, climate actions that addresses both must be pursued.

Further, Parties must ensure that mitigation activities in agriculture do not undermine the livelihood and rights of smallholder farmers and fishers. Mitigation initiatives in agriculture must be pursued in a manner that does not endanger smallholder farmers and fishers' access to land, water and other resources essential to their livelihood and survival.

Parties must acknowledge the close links between climate change, agriculture and food and water security, and must ensure that cooperative sectoral approaches should in no way weaken developing countries' capability to achieve food self-sufficiency.

Paper no. 11: Saudi Arabia

Sectoral Approaches for Enhancing Mitigation Activities

Saudi Arabia welcomes the opportunity to submit its views on enhanced action on mitigation, cooperative sectoral approaches and sector-specific actions, in order to enhance the implementation of the Article 4, paragraph 1(c), of the convention, (SBSTA).

Cooperative sectoral approaches and sector specific actions for enhancing implementation of Article 4, paragraph 1(c), of the convention is an overarching initiative that touches all aspects of lives of all Parties, especially developing countries. It should be noted that the spirit of Article 4 paragraph 1(c) addresses the promotion and cooperation in the development, application and diffusion, including transfer, of technologies, practices and processes that control reduce or prevent emissions. Thus the discussions should focus on how cooperative sectoral approaches can enhance technology transfer to developing countries.

Moreover, this cooperation aims primarily at addressing the objective of the convention, among other set of elements that are included in the Bali Action Plan, namely adaptation, finance, capacity building, and technology transfer. Therefore, sectoral approaches must be addressed under the guiding principles of the convention, which need to be clearly stated in a framework, considering the significant and direct impact it will have on developing countries, more so the potential detrimental impact on sustainable development, poverty eradication, and adaptation in general.

The agricultural Sector approach for reducing anthropogenic emission of greenhouse gases, as stated in Article 4, paragraph 1(c), is inherently sensitive

due to its direct impact on the sustainable development of most developing countries. Issues related to security of food and free trade of food and agricultural products are considered to be the most important to all developing countries, especially those who have severe scarcity of water supply and agricultural lands. Countries that are heavily dependent on import of food products to meet their domestic requirements are the most vulnerable to any policies that could create shortages or distortion to food markets. Therefore, cooperative sectoral approaches and sector-specific actions in the agriculture sector should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade or used to gain competitiveness on agriculture trade.

Moreover, agriculture sector approach should not limit the ability of developing country Parties to pursue economic and social development and poverty eradication, hence, it is essential that cooperative sectoral approaches and sector-specific actions in the agriculture sector are undertaken in a manner that is supportive of an open international economic system with specific focus on reducing the GHG emissions.

As such, Saudi Arabia looks forward to engaging in the intended discussions under SBSTA along with other Parties with the aim of addressing agricultural sector approach on the basis of the aforementioned. In this respect, after establishing the governing principles for agricultural sector approach, adequate exchange of views and knowledge sharing with other relevant international bodies, such as the FAO (Food and Agriculture Organization), IFAD (International Fund for Agriculture Development) and WFP (World Food Programme) can be helpful to better identify the possibilities and opportunities for using agricultural sector to combat climate change.

Paper no. 12: South Africa

Submission to SBSTA by the government of the Republic of South Africa on views related to Agriculture

1. Background

This submission is made pursuant to paragraphs 75 and 76 of COP17 LCA Outcome.

Context

South Africa recognises that there are significant synergies possible between adaptation and mitigation in the agricultural sector. Therefore, an integrated, holistic approach to climate resilience issues needs to be mainstreamed into agriculture, sustainable food production and development priorities. However, it is South Africa's view that adaptation of agriculture sector to climate change remains a priority. Consistent with this view, in the context of UNFCCC, South Africa suggests that there should be three (3) programmes of work on agriculture based on different commitments by different Parties to the Convention. (i) SBSTA work on Agriculture which will focus on Adaptation issues and provide a scientific basis for the work that will be carried out under the Adaptation Framework; (ii) Mitigation under LCA (1b (iv)) which focuses on mitigation actions in the agriculture sector in developed countries, at the conclusion of the LCA in 2012 we would expect to see this work being transferred to the SBSTA; and (iii) SBSTA work on mitigation under REDD+ which considers agriculture as one of the key drivers of deforestation.

Therefore, it is South Africa's view that this submission will indicate issues that will form the technical basis of the work that will be carried out by the Adaptation Framework.

2. Work programme elements

Based on the above, the government of the republic of South Africa proposes that considerations by SBSTA, on issues relating to agriculture, at its 36th session should include the following issues:

2.1 Agricultural Adaptation

a) The SBSTA would consider country-specific and regional case studies that indicate linkages between food security, poverty and climate change prepared by governments, research and scientific organization and the need for them to be considered synergistically.

b) Identify appropriate and relevant research and technology developments that are needed at country and regional scale on pertinent aspects related to climate change and its effect on commercial and small scale agriculture needs. This should include protection, rights and livelihoods of smallholder and subsistence farmers, youth, women and indigenous people in a sustainable manner. This work could be done with the view to make recommendations to the Adaptation Committee.

c) Identify early actions necessary to scale up proven country-specific and regional best practices, as well as build capacity and experience and identify priorities for further action. This could include partnerships and integrating local or indigenous knowledge with scientific knowledge, for example prediction of rainfall and the sustainable use of plant and animal resources.

d) Suggest and recommend activities that promote capacity building and awareness at all levels, including change in behavior, mindset and attitude, of the multiple advantages of an integrated approach to agriculture against the background of climate change.

e) Provide case studies and recommendations on channels of communication between all spheres of government, the scientific community and other stakeholders that need to be established and strengthened to ensure the success of converting scientific research and technology development into information dissemination programmes.

f) Identify possible sources of support and access to those possible sources of funding for developing countries, to promote climate-resilient development and generally to support climate change adaptation, and make recommendations to the Adaptation Framework.

g) Creation of platforms to ensure the management of risks, predictive trends, tools for monitoring and evaluation.

h) Suggest scenarios on how to achieve universal food security for a growing world population, including building resilience of the agriculture sector against impacts on "extreme events", in the context of climate change.

i) Identify and recommend increased efficiencies in agricultural practices.

j) Invitation to research and scientific organizations active in research on agriculture, including the IPCC, other inter-governmental organizations, governmental research institutions, non-government organizations and others, to submit information to the SBSTA for its consideration. Request the Secretariat to compile such information into miscellaneous documents, grouped by theme.

k) Arrangement of workshops by the secretariat to further inform the development of a relevant work programme on agriculture.

Paper no. 13: Sudan

A SUBMISSION ON ISSUES RELATED TO AGRICULTURE FOR CONSIDERATION BY SBSTA AT ITS 36TH SESSION

This submission is made pursuant to paragraphs 75 and 76 of COP17 LCA Outcome.

1.0 Preamble

Africa emphasizes that agriculture is central to the economic and social development of its people. The priority for Africa and its communities in the agriculture sector is to ensure food security, eradicate poverty and enhance socio economic development, environment and livelihood sustainability with special attention to smallholder and marginal farmers and fishers through adapting to the effects of climate change in the sector of agriculture and identification of the potential co-benefits of mitigation. This must be implemented through actions in the immediate, short, medium and long-term.

In Sudan agriculture remains the main sector in the economy providing 90 per cent of the national food requirements and contributing to about 40 percent of Sudan's GDP and 80 per cent of its non-oil merchandize exports as well as livelihood for nearly three quarters of the population and employment for more than half of the labour force. The weak performance of the sector is perpetuated by several factors. The stagnant growth in the irrigated sector is primarily the result of the deferred rehabilitation and modernization of irrigation systems and their management leading to low irrigation efficiency and low productivity. Low growth in the rain-fed sector is traced to the vulnerability of production to climatic variability, declining and erratic yield. .

2.0 The Scope

In this submission, agriculture encompasses, but not limited to farming, harvesting, processing and related products and activities from crops, livestock, fisheries and aquaculture.

3.0 Priority Issues for Agriculture under SBSTA

A. Knowledge Base

1. Compilation and assessment of the present state of knowledge regarding impacts of climate change on agriculture and related ecosystems including *inter alia* agricultural productivity, pests and disease prevalence, land degradation, biodiversity loss, seasonal variability of rainfall patterns, the associated risks, vulnerabilities, adaptation and mitigation technologies and techniques including indigenous technologies and knowledge and their socio-economic impacts with a view to identifying gaps and needs of the African countries and ways to deal with them.

2. Identification of, and transfer of practices and technologies that are appropriate to the African context such that knowledge and information are easily accessible by African countries.

3. Support the strengthening and where needed setting-up national mechanisms for effective dissemination of required practices and technologies.

4. Facilitate the assessment of current and projected impacts of climate change on the agricultural sector under different climate scenarios (temperature) on national, regional and international levels, in particular on the African continent.

5. Compilation of the needs of African countries building on available data and country submissions such as in national communications needs assessments and other relevant reports.

6. Establish guidelines and modalities to facilitate the process of identifying mitigation potential in agriculture, in particular in African countries, taking into account national circumstances.

B. National Research & Development

1. Organize in-session workshops to enhance knowledge and deepen understanding related to research and development (R&D) and scaling up of technologies for increased agricultural productivity.

2. Prepare a technical paper on the issues of sustainable management and use of marine resources.

3. Harmonize methodologies, measurements and guidelines for carbon emission and sequestration in the agricultural sector.

4. Prepare assessments in post harvest technologies and systems to eliminate wastage and inefficiencies and advise on the ways and mechanism of promoting and transferring of such technologies and systems.

5. Facilitate identification and application of tools, methods and models for climate forecasting in order to improve seasonal forecasting, early warning systems and future projection of vulnerability and impacts in agricultural systems.

6. Support setting up of national carbon accounting system.

C. Cooperation for Research and Development (R&D)

1. Establish a 3 year work programme to enhance international cooperation on research and development of climate resilient agricultural systems, practices and technologies based on needs identified by African countries, and establishing

modalities and guidelines to enhance cooperation and dissemination of research outcomes and technology outputs.

D. Capacity Development

1. Assessment of capacity needs and support mechanisms for strengthening institutional and policy frameworks for implementation of adaptation and mitigation actions plans.

E. Other Matters.

1. SBSTA should consider providing information and advice to the COP on how to deal with issues that need to be addressed to realize food security, to eradicate poverty, enhance socio economic development, environment and livelihood sustainability and support effective adaptation and mitigation in agriculture. These issues include; financing agriculture, trade, intellectual property rights and support for early action in agriculture.

2. Africa urges Annex II parties of the Convention, development partners and multilateral organizations to provide support including finance, capacity building, research and technology transfer to African countries to undertake and implement adaptation and mitigation actions in agriculture, in line with articles 4.1 (c), 4.4 and 4.5 of the convention.

Paper no. 14: Swaziland on behalf of the Group of African States

A SUBMISSION ON ISSUES RELATED TO AGRICULTURE FOR CONSIDERATION BY SBSTA AT ITS 36TH SESSION

This submission is made pursuant to paragraphs 75 and 76 of COP17 LCA Outcome.

Preamble

Africa emphasizes that agriculture is central to the economic and social development of its people. The priority for Africa and its communities in the agriculture sector is to ensure food security, eradicate poverty, enhance socio economic development, environment and livelihood sustainability with special attention to smallholder and marginal farmers and fishers through adapting to the effects of climate change in the sector of agriculture and identification of the potential co-benefits of mitigation. This must be implemented through actions in the immediate, short, medium and long-term.

The Scope

In this submission, agriculture encompasses, but not limited to farming, harvesting, processing and related products and activities from crops, livestock, fisheries and aquaculture.

Priority Issues for Agriculture under SBSTA

A. Knowledge Base

1. Compilation and assessment of the present state of knowledge regarding impacts of climate change on agriculture and related ecosystems including inter alia agricultural productivity, pests and disease prevalence, land degradation, biodiversity loss, seasonal variability of rainfall patterns, the associated risks, vulnerabilities, adaptation and mitigation technologies and techniques including indigenous technologies and knowledge and their socio-economic impacts with a view to identifying gaps and needs of the African countries and ways to deal with them.

2. Identification of, and transfer of practices and technologies that are appropriate to the African context such that knowledge and information are easily accessible by African countries.

3. Support the strengthening and where needed setting-up national mechanisms for effective dissemination of required practices and technologies.

4. Facilitate the assessment of current and projected impacts of climate change on the agricultural sector under different climate scenarios (temperature) on national, regional and international levels, in particular on the African continent.

5. Establish guidelines and modalities to facilitate the process of identifying mitigation potential in agriculture, in particular in African countries, taking into account national circumstances.

B. National Research & Development

1. Organize in-session workshops to enhance knowledge and deepen understanding related to Research and Development, scaling up of technologies for increased agricultural productivity.
2. Prepare a technical paper on the issues of sustainable management and use of marine resources.
3. Harmonize methodologies, measurements and guidelines for carbon emission and sequestration in the agricultural sector.
4. Prepare assessments in post harvest technologies and systems to eliminate wastage and inefficiencies and advise on the ways and mechanism of promoting and transferring of such technologies and systems.
5. Facilitate identification and application of tools, methods and models for climate forecasting in order to improve seasonal forecasting, early warning systems and future projection of vulnerability and impacts in agricultural systems
6. Support setting up of national carbon accounting system.

C. Cooperation for R & D

1. Establish a 3 year work programme to enhance international cooperation on research and development of climate resilient agricultural systems, practices and technologies based on needs identified by African countries, and establishing modalities and guidelines to enhance cooperation and dissemination of research outcomes and technology outputs.

D. Capacity Development

1 Assessment of capacity needs and support mechanisms for strengthening institutional and policy frameworks for implementation of adaptation and mitigation actions plans.

E. Other matters.

1. SBSTA should consider giving information and advice to the COP on how to deal with issues that need to be addressed to realize food security, to eradicate poverty, enhance socio economic development, environment and livelihood sustainability and support effective adaptation and mitigation in agriculture. These

issues include; financing agriculture, trade, intellectual property rights and support for early action in agriculture.

2. Africa urges Annex II parties of the Convention, development partners and multilateral organizations to provide support including finance, capacity building, research and technology transfer to African countries to undertake and implement adaptation and mitigation actions in agriculture, in line with articles 4.1 (c), 4.4 and 4.5 of the convention.

Paper no. 15: Switzerland on behalf of the Environmental Integrity Group

On behalf of the Environmental Integrity Group (EIG, composed by Liechtenstein, Mexico, Monaco, the Republic of Korea and Switzerland), Switzerland is pleased to submit our views on the issues related to agriculture, in response to the invitation of the COP (paragraph 76 of decision -/CP.17, outcome of the work of the AWG-LCA) and in the perspective of a decision on this matter by the COP at its eighteenth session.

A Work Programme on Agriculture under the SBSTA

Agriculture is a key sector for food security, for the livelihoods of millions of people in the world, and for the functioning of vital eco-systems. The agricultural sector is severely affected by climate change, and at the same time it is also responsible for a considerable share of greenhouse gas emissions. However, agriculture has also a considerable ability for adaptation, and an important potential for mitigation, and is thus part of the solution to cope with climate change. Due to its particular role, this sector needs a forum under the Convention, where respective challenges and potential for action can be addressed adequately.

The EIG proposes to establish a work programme on issues related to agriculture under the SBSTA. The work programme should aim at:

i) Increasing the capacity of the agricultural sector to cope with the impacts of climate change;

ii) Minimizing greenhouse gas emissions from this sector;

iii) Improving food security, reduce poverty and increase agro-ecosystems services.

The work programme under the SBSTA would serve as a discussion space for the exchange of views and expertise that are of interest to the agricultural sector. It would help the various stakeholders to evaluate the work done – or planned to be done – inside and outside UNFCCC in view of their undertakings to address climate change. It would also be useful in identifying and filling knowledge gaps and improving processes.

Potential areas for action

The work programme may explore, amongst others, the following areas for action:

1. <u>Identify the linkages between agriculture and existing mechanisms and tools under UNFCCC and outside</u>

Shared and improved knowledge on processes, mechanisms, instruments and tools under UNFCCC that support adaptation and mitigation efforts of the agricultural sector is essential to make full use of the provisions of the Convention. The work programme should provide governments and other interested stakeholders with relevant information on potentials and implications of actions and mechanisms for/on adaptation and mitigation when they draw up policies and strategies. More specifically and amongst others, the EIG would like to recommend that entry points for agriculture-related issues and for farmers' organizations in existing mechanisms (such as the GEF, the Green Climate Fund, the Adaptation Fund and Committee, REDD+, market and non-market based mechanisms, etc.) be examined, also taking into account funding opportunities outside UNFCCC, for example from the World Bank (WB), the United Nations Development Programme (UNDP), the Food and Agriculture Organisation (FAO), and bilateral development cooperation funds.

A technical compilation and guide to these entry points could be prepared by the Secretariat with editing support from competent multilateral institutions, such as the FAO. This compilation could empower the relevant stakeholders in their action in the field of agriculture.

2. Identify gaps in scientific knowledge and areas requiring more research

A sound scientific basis is key for a concerted and efficient action. In order to improve the knowledge base for action, the EIG recommends to compile an overview of the state of the art, most important knowledge gaps and research need priorities. Considerable work in this regard has already been done by inter alia FAO, the Global Research Alliance on Agricultural Greenhouse Gases (GRA) and the Consultative Group of International Agricultural Research (CGIAR).

Based on such an overview, the work programme on agriculture under the SBSTA could recommend to the COP actions aimed at closing any knowledge and research gaps.

3. Identify potential for mitigation and adaptation at a regional and farming systems level

The technical adaptation needs and mitigation potentials in agriculture are generally considered to be high. However, there is a large variation between regions and farming systems, even more if the technical potential is amended by socio-economic aspects. Efficient action by stakeholders requires knowledge at regional and farming system-specific potentials and best practices.

The organization of regional workshops, in collaboration with FAO and/or other appropriate organisations, and the synthesis of regional reports on these issues, may be a promising way forward to this end.

4. Improve measuring and reporting of GHG emissions from and adaptation efforts in agriculture

As many of the adaptation and mitigation potentials in agriculture involve biophysical and biochemical processes and numerous interactions between them, measuring and reporting of impacts of respective efforts can be complex. In addition, agricultural structures and practices are highly diverse, and often on a small scale, particularly in developing countries. These socio-economic structures pose an additional challenge for measuring and reporting adaptation and mitigation efforts in agriculture.

The proposed work programme under the SBSTA could identify promising technologies for improved measurement of emissions from and adaptation efforts in agriculture. It could mandate the IPCC, through a COP decision, to develop further the methodologies for reporting. It could encourage the FAO, the International Fund for Agricultural Development (IFAD) and the Organisation for Economic Co-operation and Development (OECD) amongst others, with their first-rate knowledge of agricultural systems, structures and institutional capabilities, to evaluate, in the form of a joint report, the latest developments in view of their usefulness to improve agricultural measuring and reporting.

Scope and priorities

Under the proposed work programme, issues related to agricultural systems (including livestock and agroforestry), and issues along the whole food value chain may be addressed, based on a multi-sectoral approach, and taking into account the multiple functions of agriculture. Such an approach would allow integrated solutions and prevent the swapping of challenges to other areas. Priority should be given to those areas where synergies between adaptation and mitigation can be expected.

Ways of working

We see the proposed work programme as an agenda item under SBSTA that would enable all the Parties to discuss agriculture in all its dimensions, in one single dedicated space. It may work as follows:

- Adopt each year priority areas of action, including objectives, expected results, deliverables and form of action (eg. workshops). The first work programme priorities would be agreed on at the SBSTA 38, based on submissions by Parties;
- Report to the COP, at its annual sessions;
- Strengthen synergies with work being done relating to adaptation, mitigation, REDD+, flexible mechanisms, and LULUCF, inside and outside UNFCCC, i.e. seek for mutually-supportive objectives, and share information on planned activities;
- Open participation, as appropriate, to accredited observer organizations (e.g. FAO, CGIAR, GRA, farmers' organisations).
- Draw from existing competent international bodies and experts, and existing reports (including from other Rio conventions)
- Survey existing research and knowledge outside the UNFCCC while ensuring that its own inputs build upon and are complementary to these efforts.

Justification

A work programme on agriculture under the SBSTA as outlined above would allow to better understand the manifold dimensions of agriculture, how they are affected by climate change, and what can be done to meet the respective challenges in an appropriate way. It would enable all stakeholders involved in agriculture-related activities (governments, farmers and their constituencies, business, research institutions, etc,) to make best use of the mechanisms under the Convention and thereby contribute significantly to combating climate change while improving food security, reducing poverty and sustaining agro-ecosystems services.

Paper no. 16: Uganda

UGANDA SUBMISSION ON ISSUES RELATED TO AGRICULTURE FOR CONSIDERATION BY SBSTA AT ITS 36TH SESSION PERSUANT TO PARAGRAPH 75 AND 76 OF COP 17 LCA OUTCOME

Introduction

Uganda like most of the Least Develop Countries and Africa, takes agriculture as central to the economic and social development of its people. The national priority in modernizing the agriculture sector is to ensure food security, eradicate poverty and enhance socio-economic development, environment and livelihood sustainability with special attention to smallholder and marginal farmers through adapting to the effects of climate change in the sector of agriculture and identification of the potential co-benefits of mitigation. This must be implemented through actions in the immediate, short, medium and long-term.

The Uganda NAPA identifies the country's rain fed Agriculture sector among the most vulnerable sectors to the adverse impacts of climate change. Adaptation to Climate Change in the Agricultural sector should therefore be given precedence as the majority of rural populations derive their livelihoods and incomes from this sector in the country.

Uganda's population growth rate at 3.4% per annum is one of the highest in the Africa region. Ensuring food security for this fast growing population therefore calls for increase in agricultural production and productivity, which will paradoxically entail increase in use of inorganic fertilizers and reclaiming wetlands for food production leading to increased greenhouse emissions.

Four main challenges face the agricultural sector in Uganda: low production and productivity; low value addition to agricultural produce and limited market access; weak implementation of agricultural laws and policies; and weak public agricultural institutions.

As such interventions in the agricultural sector have to address (i) enhancing production and productivity; (ii) improving access to markets and value addition; (iii) creating an enabling environment, and; (iv) institutional strengthening in the sector.

Agriculture is linked and supported by investments in other sectors such as rural roads, agricultural finance and energy. It is a highly integrated sector requiring strong multi-sectoral coordination.

Scientific and technological issues for consideration by SBSTA should therefore include farming operations, livestock, crops and fisheries, as well as activities along their value chains including germplasm, post harvest handling and processing. This should entail recognition of the diversity of agricultural systems characterized by differing climatic and soil conditions and water availability.

Priority issues for Agriculture under SBSTA

1. **Knowledge Base**

Ensuring that current knowledge regarding climate change adaptation and mitigation in the agriculture sector can be adequately utilized for decision making at national, sub-national and farm level, should be a key objective. A recognition that the state of knowledge on climate change and agriculture especially knowledge products and models is much higher at global and regional levels but these have not necessarily been transformed into usable information for decision making at national, sub-national and farm level. As such a compilation, assessment and sharing of knowledge especially regarding agricultural production and productivity, seasonal variability of rainfall, climate adaptation and mitigation technologies as well as land degradation should be enhanced. In addition, steps should be taken to enhance the usability of the available knowledge products for decision making at national, sub-national and farm level especially early warning on drought and extreme weather events.

2. **Assessment of Climate Change impacts and mitigation potential**

Current and projected impacts of climate change on the Agricultural sector in Uganda are not clearly known. It is therefore necessary to undertake assessments to establish the climate change impacts as well as build capacity nationally for continuous monitoring of climate change impacts. Equally, guidelines and tools to establish the mitigation potential in the Agricultural sector should be put in place and national capacity developed for their application/use at national level. The circumstances in a number of Least Developed Countries call for international cooperation and support in realizing the required capacity and application of the guidelines and tools for climate change impact assessment and mitigation potential.

3. **Research**

Capacity needs assessments and capacity development activities for Agricultural Research institutions at national and regional levels should be undertaken to enhance their role in development of climate resilient agricultural systems, practices and technologies. Regional and national Research institutions should be at the forefront in especially in the development and promoting the use and dissemination of knowledge products, guidelines, tools and models for climate change Adaptation and Mitigation in the Agricultural Sector. Programs for international and regional cooperation in research activities and information sharing networks should be supported.

4. **Identification and transfer of practices and technologies**

Agriculture systems are diverse and as such identification and transfer of practices and technologies should be appropriate to the specific conditions and the social economic setting. Sharing of such knowledge should target a wide range of stakeholders but should focus in particular on the land users especially farmers making the best use of South - South and North South cooperation as appropriate. In the case of Uganda where the agricultural sector is dominated by small holder farmers with relatively high illiteracy among them, a versatile agricultural extension service is necessary and has a key role in facilitating the identification and transfer of practices and

technologies. Farmer to farmer mutual learning activities such as identification and promotion of farmer innovators and farmer exchange visits have also proved effective in this regard especially where they are well coordinated by farmers' organizations and have strong links with research institutions.

5. **Climate Change Mitigation**

Emissions in the Agricultural sector are likely to increase in a quest to ensure food security for the increasing population. Climate Change mitigation actions in the Agriculture Sector should therefore be promoted. However the approach to mitigation should be to prioritize mitigation actions that deliver co-benefits of Adaptation in the sector, contribute to efficiency in agricultural production systems, and do not negatively affect food security, livelihoods of rural communities to improve resilience.

A need to establish guidelines and modalities to facilitate the process of identifying mitigation potential in agriculture, in particular LDCs and Africa, taking into account national circumstances.

6. **Capacity Building**

Capacity Building including information sharing, education and training on adaptation and mitigation technologies in the Agricultural sector should be stepped up to equip key actors especially at national, sub-national and farm level with relevant skills to enhance the agricultural sector contribution to climate adaptation and mitigation .

Annex II parties of the Convention, Development Partners and multilateral organizations are urged to provide support including finance, capacity building, research and technology transfer to LDCs and Africa to undertake and implement adaptation and mitigation actions in agriculture, in line with articles 4.1 (c), 4.4 and 4.5 of the convention.

7. **Link with other UNFCCC processes**

Where appropriate Climate Change actions in the Agricultural sector should draw lessons from other related processes such as REDD plus and LULUCF.

8. **Early actions**

Early actions to demonstrate, share knowledge and scale up best practices and approaches in Adaptation and Mitigation in the Agricultural Sector should be undertaken to inform policy and decision making at all levels. All relevant stakeholders particularly farmers, extension workers and researchers should be involved.

9 . Other Matters.

SBSTA should consider providing information and advice to the COP on how to deal with issues that need to be addressed to realize food security, to eradicate poverty, enhance socio economic development, environment and livelihood sustainability and support effective adaptation and

mitigation in agriculture. These issues include; financing agriculture, trade, intellectual property rights and support for early action in agriculture.

Paper no. 17: United Republic of Tanzania

SUBMISSION ON ISSUE RELATED TO AGRICULTURE

1. INTRODUCTION

For Tanzania like in many developing countries particularly LDC agriculture is the backbone of the economy and the livelihood of many rural communities. It contributes over 50% to the GDP and employs over 90% of rural communities.

The impact of climate change on agriculture therefore directly affects the economic sustainability of the country and the very survival of the rural communities.

Enhancing agricultural sector resilience to the climate change impacts is of paramount importance for ensuring food security and economic development.

In addressing climate change impacts and the related adaptation measures, agriculture should be taken as a key sector for sustainable development. Therefore adaptation/mitigation strategies ` should not be taken from a local perspective only but rather should be taken from the national perspective. Look at agriculture as an engine of economic growth and the source of economic sustainability amidst the changing climate. It is a key pillar for sustainable economic development and social security at all levels.

2. KEY ISSUES

The key issues in discussing agriculture in the context of climate change should include the following:

1. Ensuring that agriculture issues are addressed from a national perspective since it is the backbone of many poor countries' economies. It is not a local community issue it is a national issue whereby adaptation is a priority.
2. Improving agriculture productivity through better management of agricultural production cycle. This will require international support (finance, technology, capacity building), in the short term (to address extreme weather events); medium term (to put in place functional systems such as early warning system, systematic observation and information dissemination network); and long term (new research and policy approaches to address the challenges associated with ecosystem shift and global agricultural trade imbalances due to climate change.
3. Contribution of agriculture towards climate change mitigation should be seen from a sustainable development approach. The agricultural sector can contribute to mitigation as a consequence of increased productivity and sustainability. Mitigation opportunities and options should arise from increases support for agricultural sustainability to ensure food security, economic growth and better livelihood for poor countries.
4. The international community should avoid giving international guidelines or making decisions which will undermine national sovereignty in addressing their sustainable development needs in the context of how they should use the

agriculture sector to achieve sustainable development aspirations. Such decisions or guidelines should not limit or confine countries to a given set of standardized procedures that can jeopardize the freedom of countries for the use of indigenous approaches and knowledge to improve their livelihood. There should not be a “one size fits all” approach. The strength of improving agricultural productivity lies within the diversity of approaches amidst the changing climate.

5. Systems should be put in place to ensure that the approaches for increased productivity of the agriculture sector for economic sustainability be the one that also give benefits related to mitigation. Adaptation actions for the agricultural sector (including increased resilience) should be taken as a measure to achieve mitigation needs and such action should aim at improving productivity for ensuring food security, economic growth and better livelihood.

Paper no. 18: United States of America

Draft decision [-/CP.17], Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, invites Parties and accredited observer organizations to submit to the secretariat, by 5 March 2012, their views on the issues related to agriculture as referred to in paragraph 69 of the draft decision. Paragraph 69 reads: "Requests the Subsidiary Body for Scientific and Technological Advice to consider issues related to agriculture at its thirty-sixth session, with the aim of exchanging views and the Conference of the Parties adopting a decision on this matter at its eighteenth session". The United States welcomes the opportunity to submit, pursuant to paragraph 70 of FCCC/AWGLAC/2011/L.4, its views.

A consideration of issues related to agriculture under SBSTA should reflect SBSTA's mandate, as indicated by Article 9 of the Convention. This could include:

1. Providing assessments of the state of the science on the effects of climate change on agricultural production and food security, informed by the latest IPCC assessments;
2. Assessing the adequacy of current climate change data, information, and analysis systems to support decision-making in the agricultural sector;
3. Assessing the effectiveness of mitigation and adaptation measures taken in the agricultural sector;
4. Identifying innovative technologies and know-how in the agricultural sector and providing technical advice on means of promoting the development and transfer of these technologies;
5. Providing technical advice on agriculture research needs and opportunities for international cooperation on research and development;
6. Providing technical advice on human and institutional capacity building needs in the area of agriculture, food security and climate change in developing countries.

The Conference of the Parties, in adopting a decision on agriculture at its eighteenth session, should focus on the following broad topics that fall within SBSTA's mandate:

- Adaptation and mitigation synergies
- Improved efficiency, productivity, and resilience
- Safeguarding food security and livelihoods
- Capacity building
- Research needs
- Technology transfer

In this regard the United States offers its views on the following specific mitigation and adaptation topics as well as some procedural next steps.

Adaptation

Agriculture is highly vulnerable to climate variability, and climate change including higher temperatures, changing rainfall patterns, and more frequent extreme events like droughts and flooding that threaten to reduce yields and increase the occurrence of crop failure. Climatic stresses could have real consequences on food production, affecting the yields of staple food crops, resulting in scarcity and threatening people's livelihoods particularly in developing countries.

The SBSTA could serve as a useful forum for sharing information and providing technical advice on adaptation strategies in the agricultural sector, noting linkages with the Cancun Adaptation Framework and the Nairobi Work Programme (whose work areas are to be reconsidered at SBSTA 38). In addition, the Adaptation Committee will begin meeting this year and the SBSTA's consideration of issues related to agriculture should inform, and be informed by, the work of the Adaptation Committee.

We believe that the SBSTA should welcome input from research organizations, institutions such as the World Bank and FAO, the private sector, and nongovernmental organizations.

Specifically SBSTA should focus on the following adaptation issues:

1. Improving conservation technologies and practices to improve resilience to climate variability and change;
2. Improving availability of and access to information on agronomic yield variables, drought, climate variability, and extreme events;
3. Improving cultivars to adapt to climate variability and change and resulting ecosystem changes/disruptions ;
4. Assessing what needs to become part of technology transfer pipeline and how this information can be effectively communicated adaptation;
5. Promoting the transfer of relevant adaptation technologies and implementation of adaptation practices.

Mitigation

Agriculture currently produces roughly fourteen percent of global annual greenhouse gas emissions. In the coming decades, agriculture will be faced with the twin challenges of not only reducing its contribution to greenhouse gas emissions but meeting a dramatic increase in global food demand.

A wide range of practices exist to reduce greenhouse gas emissions, increase carbon sequestration, develop renewable energy sources, and improve energy efficiency on farms and forest lands. These opportunities take many forms. Some are simple, like shifting cultivation from conventional tillage to reduced- or no-till. Some will involve new and advanced technologies such as precision nutrient management, wind power, and anaerobic digesters. To fully realize the potential for greenhouse gas mitigation from agricultural and forest lands, we will need to go beyond what is available now

to develop new farming methods and energy conversion technologies. We will also need to improve extension and education efforts. A SBSTA forum on agriculture could identify initial priorities and should be linked with other efforts under the Convention to address mitigation, especially efforts to address deforestation and forest degradation, and improve technology transfer.

Specifically, SBSTA should focus on the following mitigation issues:

1. Assessing the effectiveness of technologies and practices on carbon sequestration, CO2 emissions, CH4 emissions, and N2O emissions and nitrogen use and fixation;
2. Identifying GHG measurement and estimation techniques including sampling, use of modeling, and remote sensing ;
3. Linking efforts to reduce emissions from deforestation and land degradation through improved efficiency and productivity improvements;
4. Assessing what needs to become part of technology transfer pipeline and how this information can be effectively communicated on mitigation;
5. Promoting the transfer of relevant mitigation technologies.

Next steps

The United States believes that technical expertise should be brought to bear on agriculture. Specifically, in 2012 between the SBSTA meeting and COP 18, we recommend that an expert technical meeting on adaptation occur. This meeting should coordinate with related work underway through the Adaptation Committee and the Nairobi Work Programme, and could begin with a consideration of the following five areas:

1. Providing a forum for discussion of the state of the science on the effects of climate change on agriculture production and food security, informed by the latest IPCC assessments;
2. Reviewing the adequacy of current climate change data, information, and analysis systems to support decision-making in the agricultural sector;
3. Considering the effectiveness and cost of adaptation measures taken in the agricultural sector;
4. Providing technical advice on agriculture research priorities and needs, opportunities for international cooperation on research and development, and on the ways and means of supporting endogenous capacity building in developing countries. The successful efforts of the Global Research Alliance on Agricultural Greenhouse Gases could serve as a model for enhanced scientific cooperation;
5. Providing technical advice on human and institutional capacity building needs in the area of agriculture, food security and climate change in developing countries.

SBSTA should report to COP 18 on the outcome of this technical meeting. Furthermore, in 2013 we recommend that a workshop on mitigation occur. Finally, we note that it would be helpful for SBSTA to welcome the participation of the IPCC as it addresses agriculture in its Fifth Assessment Report.

Paper no. 19: Uruguay

Uruguay wishes to express that the COP 17 in Durban decision to de-couple agriculture from sectoral approaches by establishing a Subsidiary Body for Scientific and Technological Advice (SBSTA) agenda item is an important step forward to have a broader discussion than mitigation. The views of Uruguay on agriculture for their consideration at the SBSTA-36 are the following:

General framework: The consideration of agriculture in the SBSTA process should be guided by the mandate to SBSTA contained in Art. 9 of the text of the Convention. This means that the focus of the work of the body should be on providing assessments of the state of scientific knowledge relating to climate change and its effects *on agriculture*; preparing scientific assessments on the effects *on agriculture* of measures taken in the implementation of the Convention; identify innovative, efficient and state-of-the-art technologies and know-how and advise on the ways and means of promoting development and/or transferring such technologies in the *agricultural sector*; providing advice on scientific programmes, international cooperation in research and development related to *agriculture* and climate change, as well as on ways and means of supporting endogenous capacity-building in developing countries at sector level; and respond to scientific, technological and methodological questions relevant to the sector that the Conference of the Parties and its subsidiary bodies may put to the body.

Agriculture productivity and food production: Agricultural production is key to ensure food security as climate change particularly affects agricultural productivity. But food security is an issue much broader than climate change. SBSTA should concentrate on scientific and technical aspects addressing climate change while maintaining productivity and food production. This necessitates an approach that includes adaptation activities, as well as recognition that the agricultural sector may not be able to reduce its overall emissions as it works to feed a growing world population.

Given population growth and increasing demand for food, absolute emissions from the sector will almost certainly grow in the future. Given this, an alternative goal might be to ensure food security and adaptation above all, while minimizing the increase in greenhouse gas (GHG) emissions. According to national and local circumstances, there are opportunities to introduce good practices at farm level that increase productivity and sustainability and reduce emissions intensity, while taking relevant environmental services into consideration (such as fresh water, soil conservation, preservation of grasslands biodiversity, and lifecycle of agricultural inputs. The multiple dimensions of efficiency have to be considered.

In this context, it is important to note that the increase in emissions from agriculture is more likely to occur in developing countries with agricultural based economies, such as Uruguay. In spite of this, there are real opportunities for “win-win” strategies that increase food production with less emissions of GHG per unit of output.

Synergies (and tradeoffs) between adaptation and mitigation: In the case of agriculture adaptation has special relevance, and from some points of view for countries as Uruguay is at least as important as mitigation, if not more. As stated above, Uruguayan economy is based on agricultural production and adaptation to climate change represents a key challenge. On this regard we wish to emphasize the

importance of actions that can build resilience to climate change and at the same time reduce the emissions intensity of the sector. SBSTA may explore what activities would result in synergies by expanding understanding of agricultural practices that deliver multiple benefits.

Assess the state of knowledge and information: There is a lot of existing high-quality scientific and technical information agriculture in the context of climate change. It would be useful for SBSTA to look at what already exists and provide a scientific and technical platform to accelerate on-the-ground implementation as well as to identify the gaps where additional analysis is required.

Cooperation on research and development: Promoting the cooperation on new research and sharing existing knowledge between countries and region would benefit both adaptation and mitigation activities. This could include: technology development and transfer, identifying and sharing best practices on both adaptation and mitigation, enhancing access to information, and education and training through extension activities. Access to information and training is particularly important for smallholders, which are normally more vulnerable to climate change and face barriers to adopt better practices.

In this context, it is important to mention the existence of initiatives like the Global Research Alliance on Agricultural Greenhouse gases (GRA). This Alliance provides a framework for voluntary action of Countries to increase cooperation and investment in research activities to help reduce the emissions intensity of agricultural production systems and increase their potential for soil carbon sequestration, and improve their efficiency, productivity, resilience and adaptive capacity, thereby contributing in a sustainable way to overall mitigation efforts, while still helping meet food security objectives.

Capacity Building: In light of the above, all the activities that provide avenues for sharing information and knowledge to increase capacities (capacity building) are of very high importance.

Additional information on climate change impacts in relation to different scales: there is a need for more information on the anticipated impacts of climate change at the regional, national and sub-national levels for which it is necessary to develop higher resolution Regional Climate Models (**downscaling)**. Global Climate Models (GCM) lack a level of detail necessary to guide adaptation activities locally. Additionally, information is needed to inform adaptation on both short and long term impacts of climate change, such as extreme events and water availability.

Measurement and methodologies: More information could be provided on the current state of scientific knowledge on measurement, methodologies, and the estimation of greenhouse gas emissions and removals in the agricultural sector, including methodologies for adaptation.

Integrated approach: When considering climate change issues in the agricultural sector, attention should be paid to livelihoods and cultural components of agriculture. The agricultural sector produces on the basis of Social and Ecological Systems (SES), where Human and Natural Systems are coupled (CHANS). Integrated and interdisciplinary analysis of these complex systems is indispensable to identify at country level successful adaptation and mitigation strategies.

Proposal: work programme on agriculture under SBSTA. On this regard, Uruguay would like to recommend the establishment, at COP 18, of a work programme on agriculture that takes into account all the elements mentioned above in the framework of the mandate of SBSTA contained in Art. 9 of the text of the Convention.

Paper no. 20: Zambia

This submission is made pursuant to paragraphs 75 and 76 of COP17 AWGLCA Outcome that referred an agenda item on agriculture to Subsidiary Body for Scientific and Technological Advice (SBSTA), with a view to engaging in a broader discussion of agriculture and invited Parties and accredited observers to the COP to submit their views on agriculture to the UNFCCC secretariat for their consideration at the SBSTA-36 in Bonn, Germany.

Preamble

Zambia emphasizes that agriculture is central to the economic and social development of its people. The priority for Zambia and other African countries in the agriculture sector is to ensure food security, eradicate poverty, enhance socio-economic development, ensure environmental and livelihood sustainability with special attention to small-holder and marginal farmers and fishers through adapting to the effects of climate change with the identification and maximization of the potential co-benefits of mitigation. These must be implemented through actions in the immediate, short, medium and long-term.

The Scope

In this submission, agriculture encompasses, but is not limited to; farming, harvesting, processing, storing and related products and activities from crops, agroforestry, livestock, fisheries and aquaculture.

Priority Issues for Agriculture under SBSTA

A. Knowledge Base)

1. Compilation and assessment of the present state of knowledge regarding impacts of climate change on agriculture and related ecosystems including, inter alia, agricultural productivity, pests and disease prevalence, land and soil degradation, biodiversity loss, seasonal variability of rainfall patterns, the associated risks, vulnerabilities, adaptation and mitigation technologies and techniques including indigenous technologies and knowledge and their socio-economic impacts with a view to identifying gaps and needs for additional analysis for Zambia and other African countries and ways to deal with them.

2. Identification and transfer of practices and technologies that are appropriate to the developing country context such that knowledge and information are easily accessible by Zambia and other African countries.

3. Support the strengthening and, where needed, setting-up of national mechanisms for effective dissemination of required practices and technologies.

4. Facilitate the assessment of current and projected impacts of climate change on the agricultural sector under different climate scenarios (temperature) on national, regional and international levels, in particular on the African continent.

5. Compilation of the needs of African countries building on available data and country submissions such as in national communications needs assessments and other relevant reports.

6. Establish guidelines and modalities to facilitate the process of identifying mitigation potential in agriculture, in particular in African countries, taking into account national circumstances.

B. National Research & Development

1. Organize in-session workshops to enhance knowledge and deepen understanding related to Research and Development and the scaling up of technologies for increased agricultural productivity and resilience.

2. Prepare a technical paper on the issues of sustainable management and use of marine resources.

3. Harmonize methodologies, measurements and guidelines for carbon emission and sequestration in the agricultural sector.

4. Prepare assessments on post harvest technologies and systems to reduce wastage and inefficiencies and advise on the ways and mechanisms of promoting and transferring of such technologies and systems.

5. Facilitate identification and application of tools, methods and models for climate forecasting in order to improve seasonal forecasting, early warning systems and future projection of vulnerability and impacts in agricultural systems

6. Support setting up of national carbon accounting systems.

C. Cooperation for R & D

It is important to encourage and promote cooperation on new research and the sharing existing knowledge between countries and regions to benefit both adaptation and mitigation activities. This could include: technology development and transfer, identifying and sharing best practices on both adaptation and mitigation, enhancing access to information, and education and training through extension activities:

1. Establish a 3-year work programme to enhance international cooperation on research and development of climate resilient agricultural systems, practices and technologies based on needs identified by African countries, and establish modalities and guidelines to enhance cooperation and dissemination of research outcomes and technology development outputs.

D. Capacity Development

1 Assess the capacity needs and support mechanisms for strengthening institutional and policy frameworks for implementation of agricultural adaptation and mitigation plans of action.

E. Other matters.

1. SBSTA should consider providing information and advice to the COP on how to deal with issues that need to be addressed to realize food security, eradicate poverty, enhance socio economic development, enhance environment and livelihood sustainability and support effective adaptation and mitigation in agriculture. These issues include; financing, trade, intellectual Property rights and investment in technology which supports early action in agriculture.

2. Zambia urges Annex II parties of the Convention, developm~~ent~~ partners and multilateral organizations to provide support including finance, capacity building, research and technology transfer to African countries to undertake and implement adaptation and mitigation actions in agriculture, in line with articles 4.1 (c),(d), (e), 4.3, 4.4 and 4.5 of the convention.