AUSTRALIA

Submission to the SBSTA | May 2012

Issues related to Agriculture

I. Overview

Australia is a major agricultural producer and exporter and the agricultural sector is vital to the national economy. The sector provides important employment in regional and rural areas in Australia. It also provides valuable environmental stewardship and sustainable land management.

The land sector currently represents approximately 18 percent of Australia's total greenhouse gas emissions. Simultaneously, Australia's agricultural industries face unique challenges in a changing climate and could face a broad range of physical, social and economic impacts.

Australia also recognises the valuable and diverse role this sector plays in providing food, livelihoods and incomes for many countries, as well as the environmental benefits the sector provides. In the context of climate change, agriculture is likely to be the sector which is most greatly affected. It is critical that the UNFCCC further facilitate the sector's response to climate change in all countries in terms of both adaptation and mitigation .

Australia therefore welcomes the COP Decision 2/CP.17 - Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, paragraphs 75-77, and the opportunity to submit views on issues related to agriculture for consideration by the Subsidiary Body for Scientific and Technical Advice (SBSTA) according to its mandate as set out in Article 9 of the United Nations Framework Convention on Climate Change (UNFCCC).

The request to SBSTA provides an opportunity to explore how the technological, scientific, methodological and knowledge sharing issues associated with the agriculture sector's ability to respond to climate change can best be addressed. It is important that countries work together in examining these issues, sharing information, and in considering how such issues can be addressed collectively in a way that enhances the domestic action being taken by countries.

Australia encourages the SBSTA to consider:

1. the state of scientific knowledge and existing processes related to the physical impacts of climate change on agriculture production and food production;

2. the state of scientific knowledge on the measurement and estimation of greenhouse gas emissions and removals in the agriculture sector;

3. scientific, technical and socio-economic aspects of adaptation and mitigation in agriculture and their synergies;

4. ways and means to support capacity-building, information sharing, education and training of all relevant stakeholders on adaptation and mitigation in agriculture; and

5. the identification of innovative, efficient and state-of-the art agricultural technologies, practices, processes and know-how and advice on the ways and means of promoting the development and/or transfer of such technologies.

II. Climate change and agriculture in Australia

Climate change poses challenges for all sectors of the Australian economy, but particularly for those sectors like agriculture that are dependent on natural resources. Climate affects almost every aspect of agricultural production, including the plants used, yield and quality, and which areas are farmed. Changes in temperature, rainfall and extreme events will affect water availability, water and soil quality, fire risk, and the incidence of pests, weeds and disease[1]. These impacts may reduce productivity and output in agricultural industries in Australia and other countries.

Australia's agricultural and land use sectors have already made a significant contribution to Australia's commitment to reduce its greenhouse gas emissions, but more can be done. Australia has put in place a range of domestic policies and programs to provide strategies and action for helping primary industries and producers to make choices and decisions to adapt and respond to climate change.

Australia would welcome the opportunity, as part of the SBSTA consideration of issues related to agriculture, to share the lessons learned through the development of these various programs and policies to assist other countries in undertaking such efforts. Likewise, Australia would welcome the opportunity to learn from the experience of other countries. Several examples of policies and measures that Australia has undertaken in relation to agriculture and climate change are included in Attachment 1 to this submission.

III. Agriculture and the UNFCCC

Australia believes the UNFCCC has an important role to play in facilitating a global response to the adaptation challenges and mitigation opportunities presented by the agriculture sector.

There is a clear role for domestic governments to put in place policies and measures to help the agriculture sector adapt to and respond to climate change. This may include, but is not limited to, the need to encourage and support sustainable natural resource use and management, enable industries to adapt, and encourage and assist agricultural industries to adopt new technology and practices as appropriate. However, there are areas that would benefit from Parties working collectively to ensure that the international climate change framework encourages appropriate domestic action.

Building on existing processes and research

The SBSTA should consider the state of existing scientific knowledge on the physical impacts of climate change on agriculture production and food production, seeking to identify priority areas, build on existing initiatives, and focus on filling gaps in research.

[1] Department of Climate Change 2010, Australia's Fifth National Communication on Climate Change, Canberra

A number of independent research programs already exist to examine the likely impacts of climate change on agricultural systems and potential emissions reductions from agricultural production. For example, the Primary Industries Adaptation Research Network in Australia has been established to provide a gateway to climate change adaptation research in primary industries. Its aim is to improve the coordination, salience, development and accessibility of climate change adaptation research in the sector.

The Global Research Alliance on Agricultural Greenhouse Gas emissions is an example of a voluntary international alliance working to broaden existing mitigation research efforts. Through identifying knowledge gaps and building off existing research, there is potential to substantially progress outstanding issues in agriculture mitigation research, while maintaining the integrity of existing research initiatives.

In addition to research, processes are also underway to practically realise the potential of the agriculture sector to mitigate climate change impacts. Through identifying existing processes and prioritising areas with mitigation potential, there is an opportunity to facilitate the contribution of the agriculture sector to real and verifiable emissions reductions and support countries' domestic mitigation initiatives.

Measurement and estimation

The SBSTA should consider establishing a process for countries to share developments relating to measurement and estimation in the agricultural sector. Such a process should aim to increase awareness of and accessibility to new and existing research. It should provide for countries to learn from each others' experience developing and implementing measurement and estimation methodologies and applying the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* to the agriculture sector.

The SBSTA should also encourage parties to utilise and contribute to existing processes for disseminating research into measurement and estimation. For example, the Intergovernmental Panel on Climate Change Emissions Factor Database provides a centralised library, where users can upload and access emission factors and other parameters with background documentation or technical references that can be used for estimating greenhouse gas emissions and removals.

There should be coordination between agricultural discussions on measurement and estimation and the SBSTA work programmes relating to land use, land use change and forestry issues, established by Decision CMP.7. These work programmes will also consider information relevant to measurement and estimation of agricultural emissions and removals.

Addressing adaptation and mitigation

SBSTA is encouraged to consider the scientific, technical and socio-economic aspects of adaptation and mitigation in agriculture and their synergies.

Within the agriculture sector, the link between adaptation and mitigation actions is highly complex, and any attempt to separate the two is difficult. Any specific response to climate change in the

agriculture sector should be assessed coherently in order to understand both the adaptation and mitigation benefits of the action.

Agriculture offers options that can provide multiple benefits for adaptation, mitigation, development and food production, and drawing out these linkages can improve uptake of practices by farmers, land managers and policy-makers. Identification and prioritisation of activities which maximise benefits for both adaptation and mitigation will improve uptake and incentivize action within the agriculture sector.

Adaptation is a necessity if agriculture is to remain profitable and sustainable and to maintain and enhance food production to feed a growing world population. Adaptation actions should complement mitigation efforts and provide an opportunity to adjust resource management practices to support the sustainability of agriculture. Such adjustments could better prepare these sectors to cope with climate change by increasing the resilience of human and natural systems.

Climate change adds to the complexity of the farming environment. Fostering adaptation entails a mix of innovation and strategy initiated at a number of levels. In this context there is a need to promote the consideration of climate change risks as a component of mainstream decision making for agriculture in all countries.

The global challenge will be to increase food production through raising agricultural productivity efficiently, whilst decreasing resource intensity and protecting biodiversity and human livelihoods. Adaptation will involve changing management practices, technologies, institutions and expectations to fit the prevailing or projected climate. Adapting primary industries effectively will not only minimize the negative impacts of climate change, but will allow producers to take advantage of opportunities afforded by our changing climate. Successful adaptation to climate change will need both strategic preparation and tactical response strategies. Adaptation measures will have to reflect and enhance current 'best-practices' designed to cope with adverse conditions such as drought. Adoption of these new practices will require, amongst other things:

- robust projections of climate change impacts at local or regional scales, to provide the confidence for land managers to take action;
- the motivation to change to avoid risks or to exploit opportunities;
- demonstrated technologies to enable change to occur;
- support during transitions to new management or new land use;
- altered transport and market infrastructure; and
- an effective monitoring and evaluation system to learn which adaptation approaches work well, which do not and why.

The SBSTA is also encouraged to consider what barriers exist to implementing adaptation and mitigation strategies in the agriculture sector.

Capacity building and information exchange

The SBSTA is encouraged to consider ways and means to support capacity-building, information sharing, education and training of all relevant stakeholders on adaptation and mitigation issues in agriculture within both developed and developing countries.

Countries are already realising substantial reductions in emissions and building resilience in the agricultural sector. The SBSTA is requested to explore existing measures already being undertaken to adapt to and to mitigate climate change within the agricultural sector, with a view to sharing this information to increase the capacity of all countries to implement the strategies most suited to their national circumstances.

Technology

The SBSTA should consider the identification of innovative, efficient and state-of-the art agricultural technologies, practices, processes and know-how and advice on the ways and means of promoting the development and/or transfer of such technologies.

New technological developments and innovation will be required in order to take advantage of the opportunities for mitigation and respond to the challenges of adaptation within the agricultural sector. Through identifying existing technologies and emerging developments and aligning these with identified priorities for agriculture mitigation and adaptation, it will be possible to implement effective responses to climate change in the agriculture sector.

Technological responses which encourage the best use of available resources, increasing the efficiency of food production whilst decreasing resource intensity and protecting biodiversity, should be explored. Opportunities to share and apply this technology, taking into account local and cultural specific conditions, should be maximised.

Attachment 1: Examples of climate change policies and measures for agriculture in Australia

Adaptation - Drought Policy

Agricultural production in Australia is affected by periodic droughts and flooding, and the incidence of drought is projected to increase under climate change. Recognising the impact of severe drought on rural and regional communities, the Australian Government provides support to drought affected farmers and rural communities through its drought policy.

In 2008-09, the Australian Government conducted a comprehensive national review of drought policy. This review found that Australian farmers faced an increased risk of drought over the next 20 to 30 years and that there was a need to move from a crisis framed assistance model to a system that promotes improved farmer preparedness and risk management. As a result of this review, a pilot of drought reform was developed and trialled in Western Australia. Drought pilot measures include:

- farm planning - support for training to develop or update a strategic plan for farm business. The plan identified priority activities to help improve the management and preparedness of farm businesses to respond to future challenges; and

- farm social support - support for a better coordinated social support network to meet the mental health, counselling and other social needs of farming families and rural communities.

The findings from the Western Australia pilot are being considered in the context of reforming national drought policy.

Mitigation - The Carbon Farming Initiative

Australia's Carbon Farming Initiative (CFI) provides financial incentives to farmers and land managers to store carbon or reduce greenhouse gas emissions on the land. The CFI also improves the resilience of Australia's environment to the coming impacts of climate change by encouraging sustainable farming and flexible land management approaches and by providing a source of funding for landscape restoration projects.

The CFI is the first federally legislated agriculture and forestry offset market in the world, and covers the broadest range of eligible agricultural and forestry activities of any market currently in operation. It will be linked to Australia's Carbon Pricing Mechanism.

The CFI provides new opportunities for farmers to access proven technologies and management practices that will reduce input costs and emissions whilst maintaining or enhancing productivity. The focus is on rewarding practices that increase the efficiency of production and build resilience to climate change.

Projects must use a methodology approved by the Government based on advice from an independent expert committee. Methodologies have so far been approved for the capture and destruction of methane in piggeries, sequestration through environmental plantings, the capture and combustion of landfill gas, and reducing emissions through savanna fire management.

Research and Development

The Australian Government has been investing in research on climate change and agriculture from 2008-09 to 2011 through the Australia's Farming Future Climate Change Research Program (CCRP). The CCRP funds research projects and on-farm demonstrations to improve opportunities for primary producers to respond to climate change and manage emissions while improving their productivity.

Research focuses on reducing greenhouse gas emissions, improving soil management and adapting to a changing climate. There are a number of examples of the CCRP research outcomes showing areas for potential emissions reductions while maintaining productivity, such as:

- the use of feeding supplements to reduce livestock emissions;
- using alternative pasture species to counteract the impacts of shorter growing seasons predicted under future climate scenarios;
- incorporating low methane traits into breeding programs for the livestock industry;
- improved fertiliser management in high rainfall cropping areas to reduce nitrous oxide emissions;

- identifying the effect of management practices on soil carbon levels; and
- analysing the costs and opportunities of relocating industries to areas with more suitable climates.

The new Carbon Farming Futures program will build on and expand the CCRP. The Carbon Farming Futures will undertake research, demonstration and extension to allow farmers and other landholders to benefit from the economic opportunities of the Carbon Farming Initiative while assisting Australia in achieving its long-term emission reduction targets.

One key activity is the Filling the Research Gap Program. This Program will build on the CCRP and provide funds for research into new technologies and practices for land managers to reduce emissions and store carbon. Outcomes from the Filling the Research Gap Program will be shared in international fora, including through Australia's participation in the Global Research Alliance on Agricultural Greenhouse Gases.