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Senate Rural and Regional Affairs and Transport Committee  
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Dear Senate Committee

**Re: Inquiry into Climate Change and the Australian Agricultural Sector**

Please accept this late submission to your inquiry into the impacts of climate change on Australian agriculture. The Sydney Centre for International Law is a leading research centre on international law and policy in Australia, with expertise in climate law. This submission principally raises Australia's international legal obligations of relevance to the inquiry. We apologise for lodging a late submission and hope you are still able to consider it.

**Effects of Climate Change on Australian Agriculture**

There is little doubt that human-induced climate change, if left uncorrected, will have a negative impact on agriculture across Australia. The 2007 Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup> concludes that climate change has already had a discernable influence on environmental systems. According to the IPCC, Australians can expect water security problems from reduced precipitation and increased evaporation, significant loss in biodiversity, particularly in the ecologically-rich sites of the Great Barrier Reef and Kakadu, and major declines in agricultural productivity.

The Stern Review of the Economics of Climate Change (2006) emphasised that Australia, the driest continent, is likely to 'face serious difficulties and rising costs' in accessing water. Flows in NSW rivers (including in the Murray-Darling) could decrease by 15-25% following an increase in temperature of 1-2°C.<sup>2</sup> Increasing water shortages are likely to limit the carbon fertilisation effect and lead to substantial declines in crop yields.<sup>3</sup> Stern warned that most of Australia's farming land would become unproductive if temperatures rose by 4°C.<sup>4</sup>

<sup>1</sup> The four central messages from the AR4 are: that climate change is the result of human activity; that substantial increases in temperature this century can be expected; that temperature rises above 2°C will devastate the physical and biological systems upon which humanity depends; and that considerable reduction in carbon emissions is required to stabilise climate systems. The AR4 reports that emissions of greenhouse gases from human activities are responsible for a rise in global average surface temperatures of 0.75°C between 1906 and 2005. The world is now warming at 0.13°C per decade, roughly twice the rate recorded over the previous century. The AR4 projects that temperatures will increase by between 1.1°C and 6.4°C by 2100. As a consequence, sea levels will rise by between 0.18 and 0.59 metres and the oceans will acidify. These projections do not factor in the risk that 'positive feedback' processes may lead to rapid, runaway climate change.

<sup>2</sup> Stern Review of the Economics of Climate Change (2006), 122-123.

<sup>3</sup> Stern Review of the Economics of Climate Change (2006), 126, 129.

<sup>4</sup> Kathy Marks, 'Australia's Epic Drought: The Situation is Grim', *The Independent*, 20 April 2007.

Climate change may impact on Australian agriculture and forestry through ‘increased fire danger, damage to crops and soils due to flooding, land degradation, crop failure and livestock heat stress and even death’.<sup>5</sup> Such impacts may result in loss of income and trigger family conflict and social stress in communities. There may also be increases in invasive pests and weeds in some areas.

An ABARE report, *Climate Change: Impacts on Australian Agriculture*, quantified the relative sensitivity to climate change of the Australian and international agricultural sectors. Global production of key commodities such as wheat, beef, dairy and sugar may decline by 2-6% by 2030 and 5-11% by 2050. Australian production of these commodities could decline by 9-10% by 2030 and 13-19% by 2050. Consequently, Australian exports of these commodities may decline by 11-63% by 2030 and 15-79% by 2050.<sup>6</sup>

The Interim Report of the Garnaut Climate Change Review noted that Australia was ‘exceptionally sensitive’ to climate change,<sup>7</sup> stemming from four conditions:

- Australia’s climate is already hot, dry and variable;
- The large role that agriculture plays in our economy relative to other developed countries;
- Our terms of trade are heavily influenced by the economic performance of Asian developing countries, which are vulnerable to climate change; and
- Our proximity to developing countries which will be disproportionately harmed by climate change poses particular geo-political risks.<sup>8</sup>

### **Australia’s International Obligations**

In responding to climate change through laws and policies applicable to the agricultural sector, it is important that Australia is mindful of the obligations it has assumed (and is likely in the future to assume) under international law. These obligations can be separated into three main categories: (1) obligations to mitigate climate change by restraining greenhouse gas emissions in Australia; (2) obligations to implement measures so that the Australian agriculture sector may adapt to a warming climate; and (3) biodiversity obligations.

#### **1. Obligations to mitigate climate change by restraining greenhouse gas emissions**

Despite accounting for only 3% of Australia’s GDP, Australian agriculture contributed 16.8% of Australia’s greenhouse emissions in 2005 (or 23% inclusive of energy and transport in the sector), making it the second largest emitter after stationary energy.<sup>9</sup> The Australian Greenhouse Office projects that the Australian agricultural sector will increase its emissions by 11% on 1990 levels by 2020.<sup>10</sup>

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<sup>5</sup> Garnaut Climate Change Review, *Issues Paper 1 – Climate Change: Land Use – Agriculture and Forestry*, August 2007.

<sup>6</sup> ABARE, ‘Climate Change: Impacts on Australian Agriculture’ (December 2007) 14 *Australian Commodities* 656, 657.

<sup>7</sup> Garnaut Climate Change Review: *Interim Report to the Commonwealth, State and Territory Governments of Australia – Executive Summary* (2008), 2.

<sup>8</sup> Garnaut Climate Change Review: *Interim Report to the Commonwealth, State and Territory Governments of Australia* (2008), 22.

<sup>9</sup> Garnaut, *Issues Paper 1 – Climate Change: Land Use – Agriculture and Forestry*, August 2007.

<sup>10</sup> Australian Greenhouse Office, *Tracking to the Kyoto Target: Trends 1990 to 2008–2012 and 2020* (2007).

The *UN Framework Convention on Climate Change* (1992) (*UNFCCC*) states that parties ‘should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects’.<sup>11</sup> All parties should:

Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change.<sup>12</sup>

The *Kyoto Protocol* (1997) lists a variety of techniques that states can employ to reduce their greenhouse gas emissions, including enhancing energy efficiency in relevant sectors of the national economy, researching and developing renewable forms of energy and implementing sustainable forms of waste management.<sup>13</sup> Signatory states should aim to reduce their overall emissions of greenhouse gases by at least 5% below 1990 levels by 2012.<sup>14</sup> Australia is committed to reducing its emissions to 108% of 1990 levels by 2012.<sup>15</sup>

In 2007, the new Federal Government expressed a commitment to reducing emissions to 60% below 2000 levels by 2050.<sup>16</sup> At the UN Climate Change Conference in Bali in 2007, Australia agreed to the Bali Action Plan, which prescribed the establishment of an Ad Hoc Working Group on Long-term Cooperative Action under the UNFCCC. A new agreement, that will extend the terms of the *Kyoto Protocol* to beyond 2012, is to be drafted by 2009.<sup>17</sup>

To assist in reducing Australia’s emissions, the Australian Greenhouse Office, for example, proposes that changes in the agricultural sector should include:

- Reduced fertiliser application;
- Reduced burning of crop residues;
- Improved manure management systems; and
- Limitations on land clearing, especially in NSW and Queensland.<sup>18</sup>

Other suggestions for mitigation might include:

- As in New Zealand, exploring technology to modify the diets of animals which produce large amounts of methane, or to engineer microbial activity in animal digestion, are further ways of reducing emissions;<sup>19</sup>
- Reforestation of cleared land to produce carbon sinks;
- Conversion of cropping for bio-fuels production, to reduce dependency on fossil fuels across other sectors of the economy and society;
- Australian participation in a global carbon emission trading scheme.

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<sup>11</sup> *United Nations Framework Convention on Climate Change* (1992) art 3.3.

<sup>12</sup> *United Nations Framework Convention on Climate Change* (1992) art 4.1(b).

<sup>13</sup> *Kyoto Protocol* (1997) art 2.1(a).

<sup>14</sup> *Kyoto Protocol* (1997) art 3.1.

<sup>15</sup> *Kyoto Protocol* (1997) Annex B.

<sup>16</sup> Media Statement, ‘Federal Labor’s Clean Energy Plan To Help Tackle Climate Change’ (2007) Australian Labor Party, online < <http://www.alp.org.au/media/1107/msloo143.php> > [viewed 8 April 2008].

<sup>17</sup> Bali Action Plan (2007) art 2.

<sup>18</sup> Australian Greenhouse Office, *Tracking to the Kyoto Target: Trends – 1990 to 2008–2012 and 2020* (2007).

<sup>19</sup> G Walker & D King, *The Hot Topic: How To Tackle Global Warming* (Bloomsbury, London, 2008), 113.

## 2. Obligations to adapt Australian agriculture to a warming climate

The *UNFCCC* imposes on states a responsibility to adapt their practices to insulate important sectors against the effects of climate change. It requires States to ‘develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture’.<sup>20</sup> Social, economic and environmental policies should be formulated ‘with a view to minimizing adverse effects on the economy’.<sup>21</sup> Similarly, the Protocol encourages States to develop and promote sustainable forms of agriculture.<sup>22</sup> Examples of adaptation opportunities in Australian agriculture are given in Box 3.1 in the *Garnaut Climate Change Review Issues Paper 1*.

It should be recognised that existing farming practices in some marginal areas of Australia are not sustainable, particularly given the aggravating factor of climate change. The impact of hard-hoofed animals on fragile arid ecosystems, triggering desertification, could, for instance, be avoided if better efforts were made to develop more suitable livestock industries such as expanded kangaroo farming. Adopting environmentally sound agricultural practices will ensure that agriculture will remain a sustainable industry in the long-term.

In some areas, it may be necessary to accept that ‘drought’ conditions may be normal rather than exceptional, and the appropriate response will be to abandon agriculture production in areas where it is no longer sustainable. Government policies which maintain drought assistance to farmers over increasingly protracted or frequent periods are not appropriate responses to climate change in the long term – just as unemployed Australians in our cities are not financially assisted to remain in economically unviable jobs. Long-term assistance programs look increasingly like new forms of agricultural subsidy and protectionism which run counter to global (and Australian) interests in the liberalisation of agricultural trade and the removal of barriers to competition.

The better policy responses in such circumstances are to explore the feasibility of alternative forms of agriculture production in marginal areas; to consider the relocation of farmers where appropriate; or to assist farmers to re-skill and retrain for other areas of the workforce and to establish new livelihoods for themselves elsewhere.

## 3. Obligations to protect biodiversity

Sustainability also requires Australia to ensure that policies to preserve the viability of Australia’s agricultural enterprises do not come at the expense of protecting biodiversity. The *Convention on Biological Diversity* (1992) (*CBD*) aims to conserve and provide for the sustainable use of biological diversity. The *CBD* provides that States should ‘integrate, as far as possible and appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies’.<sup>23</sup>

Australia has implemented the rules and principles found in the *CBD* in the *Environment Protection and Biodiversity Conservation Act* 1999 (Cth), which has the objective of providing for the protection of the environment and promoting ecologically sustainable development.<sup>24</sup> The Act emphasises that sustainable development involves balancing Australia’s competing short- and long-term economic and environmental interests.

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<sup>20</sup> *United Nations Framework Convention on Climate Change* (1992) art 3.3(e).

<sup>21</sup> *United Nations Framework Convention on Climate Change* (1992) art 3.3(f).

<sup>22</sup> *Kyoto Protocol to the UNFCCC* (1997) art 2.1(a)(iii).

<sup>23</sup> *Convention on Biological Diversity* (1992) art 6(b).

<sup>24</sup> *Environment Protection and Biodiversity Conservation Act* 1999 (Cth) s 3(1).

In some cases, such obligations may require Australia to abandon farming in areas where serious harm to biodiversity results. In such cases, it may be appropriate to return some areas currently used for pasture to protected areas such as national parks. There may be economic opportunities arising from increased tourism in new national park areas. Of course it should be noted that protected areas themselves will be subject to climate change pressures which will require responses.<sup>25</sup>

#### **4. Human Rights Obligations and Food Security**

Australia must be cautious not to aggravate other serious international problems through its mitigation measures. For example, the World Bank recently reported that global food prices rose by 83% in the past three years, in part due to demand for bio-fuels and the consequent conversion of food crops to energy crops, driving up basic food prices.<sup>26</sup> The consequence is chronic food insecurity in some parts of the developing world, which both infringes the basic human right to food, and generates social and political instability and even violent conflict.

In this context, *measures to adapt* Australian agriculture should be assessed in light of the important role Australia plays in contributing to global food supply and thus food security, and the need for Australia to maintain food exports at the highest possible level. Likewise, *measures of mitigation* in Australian (such as bio-fuel production) should be mindful of their impact on global food prices and access to food in developing countries.

Yours sincerely

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**Dr Tim Stephens**

**Ms Naomi Hart**

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<sup>25</sup> *The Impacts and Management Implications of Climate Change for the Australian Government's Protected Areas*, A Report to the Department of the Environmental, Water, Heritage and the Arts, March 2008.

<sup>26</sup> See, eg, 'Food price rises threaten global security – UN', *Guardian*, 9 April 2008; 'PM writes to G8 urging action on food scarcity', *Guardian*, 10 April 2008.