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Foreword

Neil Andrew

Paper prepared for presentation at the “Agriculture in A Changing Climate: The New International Research Frontier” conference conducted by the Crawford Fund for International Agricultural Research, Parliament House, Canberra, Australia, September 3, 2008

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Foreword

THE HON. NEIL ANDREW

This conference was the fourteenth in an annual series established by the Crawford Fund to raise awareness of the benefits that accrue both internationally and to Australia from international agricultural research — research that has as its primary goal the reduction of poverty, improvement of food security, and conservation of natural resources for agriculture in developing countries.

The theme of the conference was the impact of climate change on agriculture (including crops, livestock, fisheries and forestry), and vice-versa, in the Asia-Pacific region and Australia, and the need for a new international agricultural research agenda. The conference was extraordinarily timely. Apart from the global financial crisis late in the year and ongoing concerns about global oil supplies and the cost of transport fuel, few issues in 2008 captured the attention of Australian community more than the prospect of undesirable climate change caused by an increase in

atmospheric levels of so-called ‘greenhouse gases’. Indeed, climate change had been a factor in the election of a new Australian Government in late 2007. The Australian public was acutely aware of the ongoing drought in most of eastern Australia and the consequent severe water shortages, particularly in the Murray–Darling Basin but also in several state capital cities, and they saw these as possible early warnings of climate change. Most people were also well aware of the dramatic spike in global food prices, partly because they could see the effects in their weekly grocery bills, partly because they knew the Australian drought was a contributing factor, and partly because of frequent news stories concerning unrest in several developing countries due to reduced food supplies and high food prices. In summary, climate change was high on the Australian radar screen in 2008.

We took as our starting point a view that, on the balance of probabilities, global warming caused by a build-up of greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.) is now a reality and that this has grave implications for food security. Agriculture, forestry and fisheries are themselves a major source of greenhouse gases, producing about 30% of the annual global total. Deforestation produces very large amounts of carbon dioxide. Agriculture is the principal source of methane and nitrous oxide emissions. Methane is generated chiefly by domesticated ruminants and rice paddy fields, whereas large amounts of nitrous oxide are produced by soils. Also, while it may save water, any proposed shift from conventionally-irrigated rice monocultures to rice–maize rotations and reduced-irrigation rice will have profound effects on soil organic matter and will potentially release large volumes of CO₂. Collectively, the Asia–Pacific region that is the

THE HON NEIL ANDREW was brought up in the SA Riverland, where his family and later Neil had interests in horticulture. He was an active participant in the SA Agricultural Bureau movement, and was Chairman 1980–1982. In 1975, he was awarded a Nuffield Agricultural Scholarship to make an overseas study tour. In 1983, he was elected to the Australian Parliament as the member for Wakefield in the House of Representatives. With changes in the boundaries of his electorate, he later moved to Gawler. He held various positions including that of Government Whip from 1997, and from November 1998 became Speaker of the House of Representatives. Neil retired from that position and from his seat in November 2004. He now lives in Adelaide and became Chairman of the Crawford Fund on the retirement of The Hon. Tim Fischer in June 2005.

focus of Australia's aid program may contribute almost half of the global agricultural emissions.

Conversely, climate change may also have a major impact on agricultural production. Reduced yields of rice and maize at low latitudes are likely to occur and there may be shifts in global cultivation of maize and wheat towards higher latitudes. The centres of genetic diversity of major crop plants will be under even more threat than at present. Extreme events (droughts, cyclones, floods) are likely to become more common. Lowland areas in tropical Asia may be permanently flooded, while in temperate Asia water shortages may become more severe. Livestock production will be affected directly through the effects of higher temperatures on reproduction and health, and indirectly via effects on the distribution of pests and diseases and via the quality of forage available to grazing animals. Fisheries, already under pressure from over-fishing and pollution, will be affected by changes in ocean currents and water temperature. These will affect fish distribution and migration, growth rates, population dynamics and genetic diversity.

These prospective impacts will dramatically change the agenda for international agricultural research during the next decade. Examining these impacts and positioning the research effort was at the heart of our conference.

The conference was opened by The Hon. Tony Burke, Minister for Agriculture, Fisheries and Forestry. It attracted a large audience — about 300 people — and once again we had to close registrations well in advance of the day. The overviews provided by our two keynote speakers, Ms Kathy Sierra and Professor Ross Garnaut, indicated that although the likely impacts of climate change may vary greatly over time and between regions, adaptation to climate change will require the global transformation of food production systems, and this transformation will require a significantly increased and re-focussed international agricultural research effort. Our other speakers covered the impact of climate change on particular industries (crop, livestock and fish production, and forestry), crop diversity, the distribution of weeds and agricultural pests and diseases, and on smallholder production systems in Africa. Peter Core, ACIAR's Chief

Executive Officer, then provided a personal view of the way forward in research, and Denis Blight subsequently compiled a synthesis of the salient points of the conference. The conference was authoritative, absorbing, provocative and sometimes disturbing.

The Crawford Fund wishes to acknowledge the following supporters for their important in-kind and financial support for the conference:

- ACIAR — Australian Centre for International Agricultural Research
- AusAID – the Australian Agency for International Development
- Australian Government Department of Agriculture, Fisheries and Forestry
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I hope you find the proceedings of the conference interesting and informative.



The Hon. Neil Andrew AO
Chairman
ATSE Crawford Fund Board of Governors

