



Australian Government

Strategic Framework for International Agricultural Research within Australia's Aid Program







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21 October 2011

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Dear Minister

I am pleased to send you the Report of an Independent Panel on "*A Strategic Framework for International Agricultural Research within Australia's Aid Program*".

The Panel, which I have the pleasure of Chairing, believes that Australian Aid investments in international agricultural research give value for money, for the following reasons:

1. Australia produces sufficient food to contribute to the diets of 60 million people per year. But when Australian investments in agricultural science, technology and training are taken into account, Australia contributes towards the diets of an order of magnitude more people – perhaps more like 400 million people per year. The numbers of poor people benefitting from Australian scientific expertise could be increased through well targeted investments in agricultural research in priority countries and regions, including in Africa.
2. Investing in agricultural research for development fits the high moral purposes of the Australian Aid program, as reflected in its 5 strategic goals and 10 development objectives, and as set out in the Government strategy of "An Effective Aid Program for Australia: Making a real difference – Delivering real results". It relates particularly to 3 of the development objectives, namely: Improving food security by investing in agricultural productivity; improving incomes, employment and enterprise opportunities for poor people; and reducing the negative impacts of climate change and other environmental factors on poor people.
3. Collaborative research with our neighbours also serves our national interests, with direct benefits through improving our own agricultural productivity, conserving biodiversity and protecting crops and livestock from pests and diseases; and intangible benefits of good will, built up through the thousands of agricultural and social scientists and students who study with Australian universities, since the time of the Colombo Plan.
4. Finally, we are good at this: Australia has a long standing, worldwide reputation for excellence in science related to food and agriculture. This is an area where Australia can show leadership amongst the G20 countries; and we can leverage our investments with other likeminded countries, the development banks and the private philanthropy sector.

The Panel's report was commissioned by the Australian Centre for International Agricultural Research (ACIAR) to provide guidance on Recommendation 23 of the Independent Review of Aid Effectiveness, which said: *"There should be more aid funding for research by Australian and international institutions, particularly in agriculture and medicine"*. The Government Response to the Review, *"An Effective Aid Program for Australia: Making a real difference - Delivering real results"*, agreed with this recommendation in principle.

The Panel also concurs with Recommendation 23.

On behalf of the Panel, thank you for the opportunity to work on this challenging task.

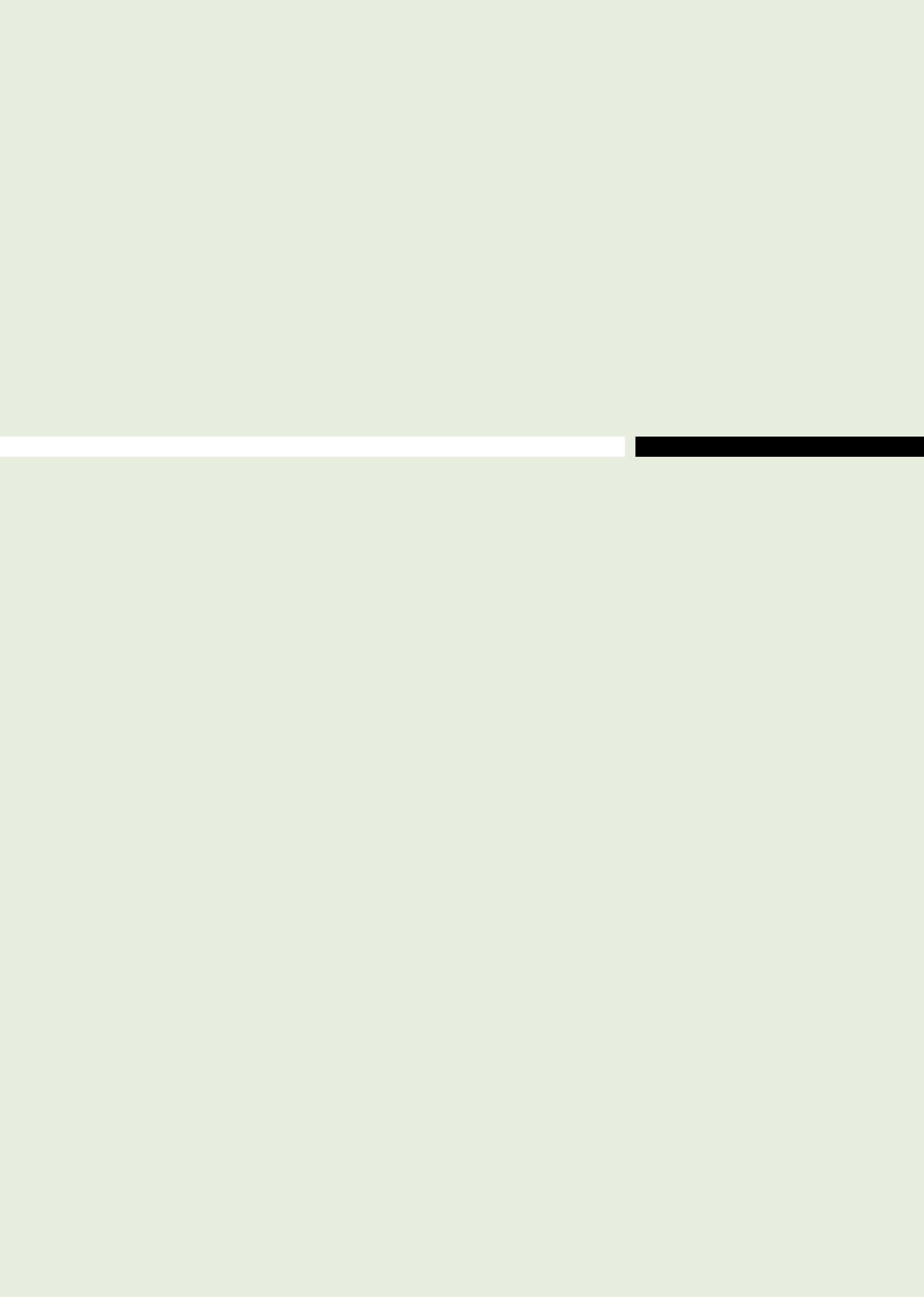
Yours sincerely

A handwritten signature in blue ink, appearing to read 'Ian Chubb', written in a cursive style.

Professor Ian Chubb AC
Chief Scientist

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Executive summary

Australia produces sufficient food to contribute to the diets of at least 60 million people per year. But when the outcomes of Australian investments in agricultural science, technology and training are taken into account, Australia contributes towards the diets of an order of magnitude more people—possibly as many as 400 million per year¹. The numbers of poor people benefiting from Australian scientific expertise could be increased through well-targeted investments in agricultural research in priority countries and regions, including Africa.

Investing in agricultural research for development fits the high moral purposes of the Australian aid program, as reflected in its five strategic goals and 10 development objectives, which are set out in the government strategy 'An effective aid program for Australia: making a real difference—delivering real results'.² It relates particularly to three of the development objectives: improving food security by investing in agricultural productivity; improving incomes, employment and enterprise opportunities for poor people; and reducing the negative impacts of climate change and other environmental factors on poor people.

The strategic framework for international agricultural research within Australia's aid program as developed in this report in relation to Why? Where? What? and How? gives emphasis towards forming longer term partnerships of up to 15 years. These partnerships would have some of the following characteristics:

- The priority themes would be determined according to the priorities of the developing countries and matched with Australia's capacity to contribute.
- There would be a commitment from the partner developing country or regional entity to ensure an enduring development.
- Partnerships would include research in the social sciences and humanities as well as the natural sciences; including economic research on the links between increasing scientific research for sustainable productivity growth and reducing poverty.
- Each partnership would require a training component—from TAFE-level certificate to PhD—with most of the training done in country.

It is understood that shorter term, project-based work of around 3 years duration may be important in some instances, such as in timely response to natural disasters, but should not be dominant. A 'Team Australia' approach should be taken to avoid parallel pathways and lead to a more cohesive Australian effort in support of international agricultural research.

It is understood that much of Australian aid will be focused in our near neighbourhood of Asia and the Pacific. Nevertheless, emerging issues—such as those facing Africa—should continue to be included in Australian aid, as part of our being a responsible global citizen.

The panel's findings imply that there are some steps that can be taken to improve the efficiency and effectiveness of Australian aid delivery in relation to international agricultural research. We draw attention to the following opportunities, as examples emerging from the panel's report. They are cross-referenced to the sections and pages of the panel report where their strategic rationale is described in more detail. The panel commends these steps as examples to the responsible parties for their further consideration and appropriate action.

1 D'Occhio M.J. 2011. A food secure world—challenging choices for our north. Highlights newsletter, August 2011. Crawford Fund: Canberra.

2 Available at ausaid.gov.au/publications.

1 Team Australia

Section 5, Models and modalities for efficient and effective delivery, p. 16

The panel heard of the multiplicity of agencies working in particular places with sometimes little coordination or collaboration. Australia may be able to improve that situation through dialogue with agencies abroad that are beyond our direct control—but Australia could develop more of a ‘Team Australia’ approach of its own. More integrated support for international agricultural research should be explored initially in a few priority countries and regions where agricultural research is also accorded high priority by governments. Such programs would comprise a mix of support for capacity building, institutional strengthening and research collaboration.

2 Institutional innovations

Section 5, Models and modalities for efficient and effective delivery, p. 17

Australian institutional arrangements that bring together public- and private-sector parties in the financing, management and conduct of agricultural research focused on the delivery of research results, offer new modalities for consideration in relation to developing countries and international agricultural research.

3 Joint program design in a few priority locations

Section 3, Geographic focus p. 11

Three priority locations are suggested here as examples where new approaches can be explored and lessons learned from previous experiences, to guide future long-term and enduring partnerships. These examples include a range of different types of places, where lessons learned will be applicable in other countries. They include a large and high-priority country in the Asia–Pacific region; small island nations at risk; and a continent where national and regional priorities and institutions interface:

Indonesia: a high-priority country for Australian aid. A new World Bank project on support for agricultural research and technology is starting there, with opportunities for complementarity and leverage. This partnership would build on the knowledge about Indonesian institutions and its agricultural sector within Australian research institutions and universities, in both biological and social sciences.

Pacific islands: The small island nations of the Pacific (and Indian) oceans require particular attention as our near neighbours. Their fragile environments are at risk from climate change and extreme climatic events. Australia could take the lead in stimulating innovative thinking about research for development that will serve the needs of large numbers of small island nations. There are also opportunities for leverage with other partners.

Africa: Australia’s aid program has recently re-engaged in Africa, including through a number of food-security research initiatives being managed by the Australian Centre for International Agricultural Research (ACIAR), the Australian Agency for International Development (AusAID) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), and their partners in Africa. It is timely to examine these recent engagements and partnerships, identify gaps and use the experiences to guide future long-term engagement of Australian researchers working with African partners.

4 Increase Australian engagement with global research programs, including the new CGIAR Research Programs

Section 4, Priority areas for research p. 12 and section 5.5 Accountability p. 18

This engagement includes identifying the high-priority global programs in which Australia should participate, financially and scientifically. The priority choices would be based on a combination of relevance to overall Australian aid strategy and development objectives, geographic focus, impact on poverty and the capacity of Australian research to contribute. This process would also identify gaps in coverage of the global research agenda, by geography and content, which Australia may be able to help fill.

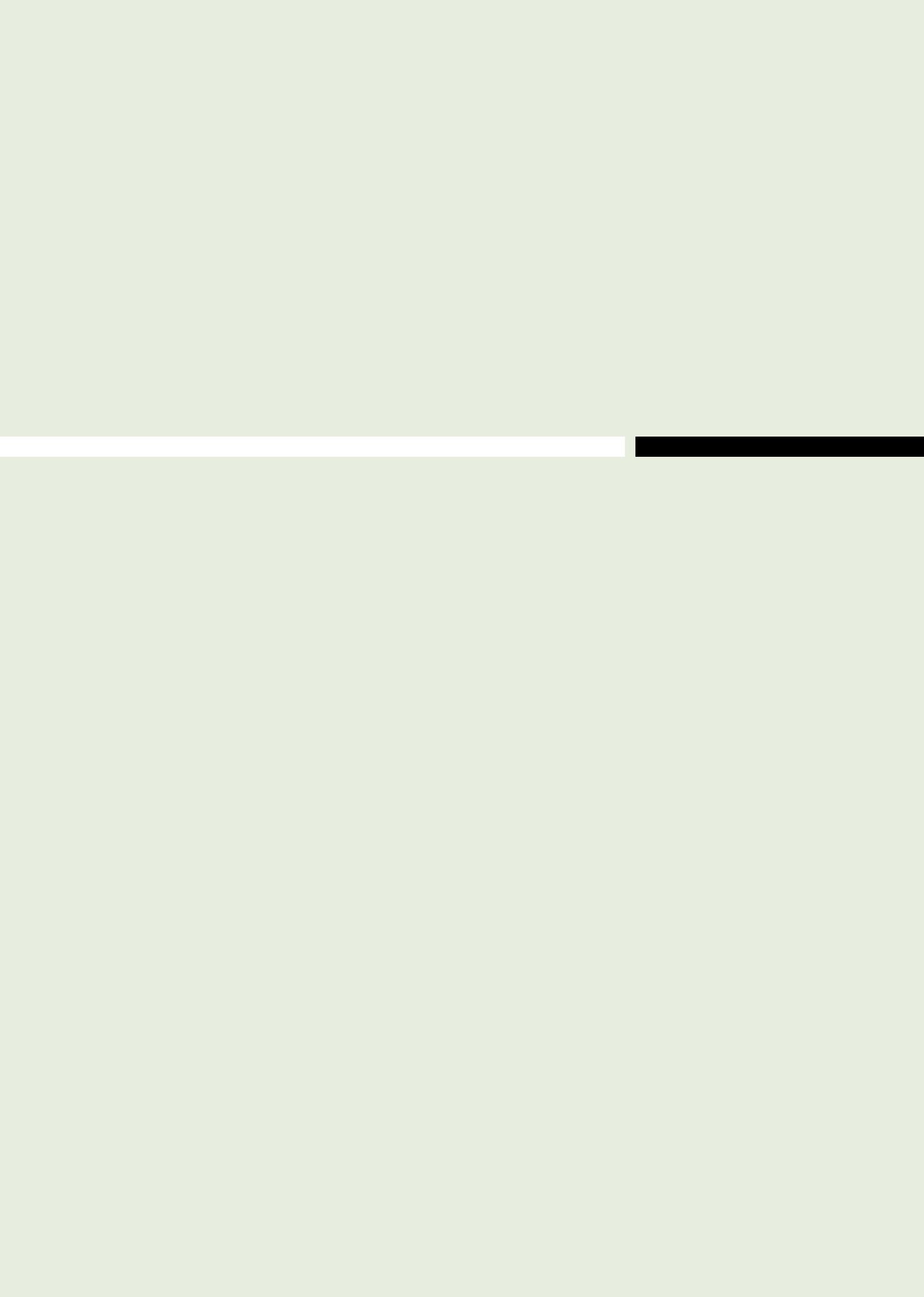
Australian financial support to the Consultative Group on International Agricultural Research (CGIAR) system should be linked to stronger accountability measures and more substantive Australian participation, at all levels, in the governance of the CGIAR system and its evolving matrix of CGIAR Research Programs (CRPs) and the International Agricultural Research Centres. This includes ensuring Australian participation on the Consortium Board and the emerging governance arrangements for the new CRPs.

5 Communications and public awareness

Section 4, Priority areas for research p. 12

Public awareness of the importance of science in international development, with both Australian and developing countries' communities and policymakers, is essential in building the case for continued Australian aid support.

In addition to drawing more on ACIAR Impact Assessment Studies, AusAID economic research and other peer-reviewed studies that demonstrate that investments in research have an impact on poverty, it would be useful to commission additional economic analysis on how investments in research lead towards increased agricultural productivity and enable many millions more people to move out of poverty. Strengthening the analytical base would further substantiate future Australian investments in research and be important evidence on which to build greater public awareness of these critical issues.



1 Background

The Australian Government is committed to meeting an aid delivery target of 0.5% of gross national income by 2015. A panel was commissioned by the Australian Centre for International Agricultural Research (ACIAR) in September 2011, to seek guidance on implementing Recommendation 23 of the Independent Review of Aid Effectiveness³—*There should be more aid funding for research by Australian and international institutions, particularly in agriculture and medicine*—while considering the government’s response to the review.

The panel, chaired by Professor Ian Chubb, Chief Scientist of Australia, was charged with preparing a new strategic framework that would give effect to Recommendation 23. The panel’s terms of reference and membership are given in Annex 1. The panel gave particular attention to:

- the rationale and scale of any expansion in support of international agricultural research
- geographic focus
- research focuses and priorities
- new models and modalities for efficient delivery and accountability.

The panel undertook this work during September–October 2011, seeking answers to four overarching, interrelated questions: Why? Where? What? and How? In so doing, it consulted with key overseas and Australian partners, including the members of the ACIAR Policy Advisory Council and the Commission for International Agricultural Research; and a variety of stakeholders in the public and private sectors, Australian and state government agencies, and Australian research organisations, including the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and universities. The panel’s findings and recommendations are reported here.

Independent Review of Aid Effectiveness and the Australian Government’s response to the review in relation to Recommendation 23

Review Recommendation 23

There should be more aid funding for research by Australian and international institutions, particularly in agriculture and medicine.

Government’s response

Agree in principle, with the details to be determined by the Government through the 2012–13 budget process. Allocations will be made based on an assessment of poverty, national interest, capacity to make a difference, and current scale and effectiveness. AusAID will consult with the Australian Research Council and the National Health and Medical Research Council on relevant research.

2 Rationale

2.1 Context

Research contributes to development

- Research results need translating into development outcomes.
- Rural sector development is an economic driver to reduce poverty and ensure food security.

Research in agriculture is an important, even core, element in the alleviation of poverty. Research leads towards higher levels of productivity and increasing incomes for both rural and growing urban populations. These improvements can lead to better health through better nutrition and improved local economies and services.

But the greatest impact requires more than just research in agriculture. Agricultural research outputs and outcomes need to be applied in a coordinated way within the rural sector. Key requirements are:

- an enabling framework of public policy, including policies that encourage local private-sector development
- research-to-extension linkages
- strengthened rural infrastructure such as roads to enable market access
- smallholder access to credit and inputs such as water and fertiliser
- rural education and health investments.

Research outcomes also need to be developed in a broader economic context in which greater productivity in agriculture can sustain growth of production for urban populations and ensure food security as non-agricultural activities encroach on land use, and in terms of the particular responsibilities that Australia has to assume in the international community.

Therefore, investments in the rural sector must generate new knowledge through research and provide the enabling environment and market opportunities that allow research results to carry through to sustainable development outcomes.

Investments in rural research should be targeted to priority countries and regions to improve agricultural productivity and increase the contribution of the rural sector in reducing poverty in terms of both the absolute numbers of people and the proportion of the total population moving out of poverty; and in terms of the particular responsibilities that Australia has to assume in the international community.

The share of agricultural assistance in overall development assistance has in fact been declining. While there have been investments in other important areas (such as health, education and governance), investments by all Organisation for Economic Co-operation and Development (OECD) countries in the rural sector (agriculture, forestry and fisheries) fell from about 13% of total OECD official development assistance in the mid 1970s, at the height of the green revolution, to about 4% by 2008.

Australian investments in the rural sector have, until very recently, been following a similar downward trend. For example, in 2009, the Australian Government committed an additional A\$464 million over 4 years to food security initiatives in Asia and Africa, in response to the global food price crisis.

The panel commends these Australian Government initiatives for investments in the broader rural sector, as part of efforts to improve global food security. The panel notes the importance of a dynamic rural sector as an important driver to move large numbers of poor people out of poverty and to ensure food security in both the rural areas and among the growing urban populations in the developing world.

2.2 Why invest in international agricultural research?

- Food has no substitute, and poorer people spend more than 50% of their income on food.
- Improving agricultural productivity is an effective way to increase food production and reduce poverty, and increased productivity builds local economies.
- Investments in agricultural research give high rates of return derived from increased productivity.
- Declines in research investments by both national governments and development agencies need to be reversed.

The proposition is simple: there is no substitute for food. People are either fed or they die.

There are already approximately 1 billion malnourished people in the world, and the global population will grow by another 2 billion by 2050.

It would be unconscionable for the people of wealthy countries to turn their backs on such basic needs of humanity. But, in addition to the moral imperative, there is self-interest. Sharing the global wealth will lead to a safer world for all.

If the world does not take steps now to improve food production then it will soon come to understand the consequences of having large numbers of hungry people.

Funding aid is not simply a cost. As Australia and Australians work off-shore, we learn how to develop our own agricultural productivity. We know that our arable land is being degraded and we know that, as our population grows, our urban spread will reduce our remaining arable land. We know of our problems with water, its management and distribution; and we can begin to estimate the effects of changing rainfall patterns and climate on our agricultural productivity.

Simply doing more of what we do now will not work; it will not enable us to cope.

It is in our national interest to establish processes and investments to ensure a two-way flow of know-how.

Science—discovery and application—will show the means; the humanities and social sciences will help get the science adopted and translated into tangible improvements in the lives of malnourished and impoverished people.

Food has no substitute.

Poor people in both rural and urban areas in developing countries spend more than half their income on food, leaving little money to access health, education and other services that people in the developed world consider to be essential.

Adequate food and good health are inseparable. But the impacts of adequate supplies of affordable food also have consequential benefits. Increasing food supplies drive local economic development through markets, stimulate the development of infrastructure and services—some of them essential to get the food to market, and they reduce political instability.

Improving agricultural productivity is an effective way to reduce poverty.

The agricultural sector in the developing world is dominated by small-scale farmers and livestock keepers. Raising productivity of smallholders, so that they have food for themselves plus a surplus to take to the developing market, is an effective way to reduce poverty and improve the health of large numbers of people.

Investments in agricultural research give high rates of return and lead to increasing productivity.

The rates of return from previous public investments in agricultural research are high.^{4,5} Yet, because of its long-term nature, agricultural research has declined because of underinvestment in research, by both national governments in developing countries and development agencies.

These declines have been followed by declining agricultural productivity growth and this has contributed, in turn, to rising world food prices.⁶ In 2011, the Food and Agriculture Organization of the United Nations (FAO) world food price index reached its highest level in more than 20 years.⁷

The declines in research investments by both national governments and development agencies need to be reversed, and target, in particular, increasing productivity by smallholders in developing countries. This additional productivity will be essential to meet the predicted food needs of the growing world population. Research and development (R&D) also needs to be linked with agricultural reform. This was a key element in the success of the green revolution, in which a prominent Australian economist, Sir John Crawford, played a critical role in agricultural reform in India and China and as the first Chair of the CGIAR Technical Advisory Committee.

After two decades of underinvestment, the role of agriculture and agricultural research in reducing poverty is once again receiving high-level political recognition. The World Bank's 'World development report 2008',⁸ and policy statements from the United Nations, the Groups of Eight and Twenty (G8 and G20), the European Union, the United States, China and the African Union, among others, are focusing attention on these issues.

4 Alston J.M., Chang-Kang C., Marra M.C., Pardey P.G. and Wyatt T.J. 2000. A meta-analysis of rates of return to agricultural R&D: expedite herculem? Research Report 113. International Food Policy Research Institute: Washington, DC.

5 Harding M., Tingsong Jiang and Pearce D. 2009. Analysis of ACIAR's returns on investment: appropriateness, efficiency and effectiveness. ACIAR Impact Assessment Series Report No. 63. Australian Centre for International Agricultural Research: Canberra.

6 Persley, G.J. and Blight D.G (eds) 2008. A food secure world for all: how Australia can help. Report of the Crawford Fund World Food Crisis Task Force. Australian Academy of Technological Sciences (ATSE): Melbourne Australia.

7 At fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/.

8 World Bank 2007. World development report 2008: agriculture for development. World Bank: Washington, DC.

New challenges and opportunities

Global food insecurity has increased and undernourishment remains stubbornly entrenched among many of the world's poorest people. Global economic growth and population growth have increased the pressure on food supplies. Natural resources are overstretched. Climate change imposes new stresses on natural resources, agriculture, and health and safety, especially among the poor. The commercial pressure on land and water resources is increasing and conflicts over these are spreading, with poor communities' rights often going unprotected.⁹

The context of R&D in world agriculture is also changing. Private-sector research is playing a growing role. Although limited research capacity is still common in many low-income countries, some large national research systems, especially in Brazil, China and India, have made rapid advances, enabling them to play a leading role. The new challenges require new and increased R&D attention, while science itself is presenting new opportunities.

2.3 Why Australia should invest more in international agricultural research

- Agricultural research serves the five strategic goals and 10 development objectives of the Australian aid program.
- It is in Australia's national interest, with tangible and intangible benefits.
- Agricultural research is an area of comparative advantage within Australia's aid program.

Australia is an important and growing contributor to global aid. In regard to food security, while it is important to offer food aid quickly in emergency situations, food aid does not provide a long-term solution to the problem of population undernourishment. Australian aid should contribute towards global food security and sustainability, with investments in scientific and other research, the development of local agencies and capacity building as essential elements.

Increasing Australian support for international agricultural research is warranted for three reasons:

- Boosting agricultural research serves the strategic goals and development objectives of the Australian aid program, as set out in the Australian Government's 'An effective aid program for Australia: making a real difference—delivering real results'; This describes five strategic goals and 10 development objectives for Australian aid.
- Agricultural research contributes to three of the 10 stated development objectives:
 - improving food security by investing in agricultural productivity
 - raising incomes, employment and enterprise opportunities for poor people
 - reducing the negative impacts of climate change and other environmental factors on poor people.
- Collaborative research with our neighbours serves our national interests, with direct benefits through improving our own agricultural productivity, conserving biodiversity, and protecting crops and livestock from pests and diseases—there is a two-way flow of know-how. Furthermore, there are intangible benefits built up through the goodwill of overseas agricultural and social scientists and students who study in Australian universities through the current Australia Awards Program—a benefit similar to that derived from the Colombo Plan. This is part of Australia's contribution to a prosperous world in which it is a responsible global partner.

⁹ Consultative Group on International Agricultural Research 2010. Strategy and results framework. CGIAR Consortium Office: Montpellier, France.

Agricultural research is an area of Australian strength within the aid program, as evident in:

- Australian scientific leadership and long-term, successful partnerships with developing-country national research institutes and universities, international agricultural research institutes and global research programs, including those supported by multilateral agencies such as the CGIAR system, CABI and FAO
- excellence of Australian universities in teaching and research in a broad range of biological, agricultural and social sciences related to food and agriculture, including livestock
- experience in dealing with climatic variability and extreme climatic events (drought, floods, fires) that affect farming, forestry, fisheries and livestock—living and working with nature
- a variety of shared agroecological conditions between Australia and parts of the developing world, from the wet tropics through to dry Mediterranean climates and deserts
- the overall efficiency and sustainability of the Australian food and agricultural sector, in an export-focused and market-oriented environment.

Australia can also offer institutional and policy strengths as evidenced by:

- innovative models in research management that bring together the public and private sectors to finance, manage and conduct research, with the intent to deliver research results that lead to practical outcomes. These models include the CSIRO Flagships (which are similar to the new CRPs), Cooperative Research Centres, and Rural Research and Development Corporations
- practical approaches to the management of intellectual property and establishing regulatory systems, including for biosecurity, the safe use of gene technology and food safety and quality
- economic-policy strengths in relation to developing countries, especially in the Asia-Pacific region
- the capacity, where and when appropriate, to establish not only the scientific basis for improvements but the social and humanitarian context simultaneously, to ensure that research outputs translate to development outcomes
- the extensive network of Australian alumni in all relevant disciplines, flowing from the beginnings of the Colombo Plan to the present day
- institutional innovations, such as establishing ACIAR, a Commonwealth Heads of Government Meeting (CHOGM) initiative, in 1982, to bring together Australian and developing-country scientists to solve priority problems of developing countries, with potential benefits both to partner countries and Australia
- ACIAR is delivering new research projects through partnerships with national and regional research systems and international institutes, such as with the International Maize and Wheat Improvement Center (CIMMYT), which is leading a new ACIAR project on sustainable intensification of maize-legume cropping systems for food security in eastern and southern Africa (SIMLESA)
- institutional innovations in developing new Africa-Australia regional programs in food security with partners in Africa, to deliver improved food and nutritional security. The Australian-funded Africa Food Security Initiative supports African regional priorities, as identified through the Comprehensive Africa Agriculture Development Program. The Australian financial and scientific contributions are provided through CSIRO and institutional partnerships with regional entities, notably Biosciences eastern and central Africa (BecA), a state-of-the-art research facility in Nairobi, now used by over 200 scientists coming mainly from eastern and central Africa; and the subregional organisation that serves 22 countries in West and Central Africa, known as CORAF/WECARD (Conference of African and French leaders of agricultural research institute's, CORAF); West and Central African Council for Agricultural Research and Development (WECARD).

3 Geographic focus

What should be the geographic focus of Australian-supported international agricultural research?

- The independent review and the Australian Government's response make recommendations on the future geographic scope of Australia's aid program.
- A similar geographic scope is appropriate for agricultural research, with emphasis on Asia, the Pacific and Africa.
- There should be sufficient flexibility to enable continuing science and technology cooperation with Brazil, India and China, and with newly emerging economies such as Malaysia and Thailand.
- Flexibility is needed too in other areas where Australian research capability matches with needs, e.g. northern Africa and Tibet.

The independent review of Australian aid and the Australian Government's response recommend the future geographic scope of the aid program.

In relation to the strategy for future Australian support for international agricultural research, a similar geographic scope that gives emphasis to the Asia-Pacific region is appropriate. Some flexibility is needed, however, due to the nature of agricultural research and particular Australian capabilities and experiences in similar agroecologies, including in parts of South Asia and Africa, where there are large numbers of poor people in rural areas.

Our neighbourhood is important, and countries in our region will doubtless remain a focus for Australian aid, as our area of particular international responsibility.

Papua New Guinea and the small island nations of the Pacific (and Indian) oceans require particular attention. These fragile environments are at particular risk from climate change and increasing frequency of extreme climatic events. Australia is the largest aid donor in the Pacific and should continue to take the lead in this area. Innovative thinking about research that will serve the needs of large numbers of small island nations is overdue.

The needs within Africa vary. There are extreme examples of need, as exemplified by the current famine in the Horn of Africa. The variability in weather conditions, the mass migrations of people, and political instability, result in millions of impoverished and malnourished people. While Africa lies outside Australia's immediate neighbourhood, as a relatively wealthy global citizen prepared to meet its consequential obligations to people less fortunate, Australia is investing in aid to ameliorate poverty and malnourishment and to achieve enduring outcomes. Australia has been increasing its aid investments in Africa in recent times and the panel commends this.

It is in Australia's interests to broaden research partnerships with countries such as China and India, even as these countries emerge from bilateral aid relationships. Such scientific cooperation delivers direct benefits to Australian agriculture. Trilateral research partnerships may also be important in some areas. These are arrangements in which Australian expertise is combined with that in emerging economies and other countries for work in a third, developing country. Trilateral research relationships should become part of the evolving relationships between Australia and countries in South-East Asia, such as Malaysia and Thailand.

4 Priority areas for research

What areas of research should have the highest priority?

- The international strategy and results framework should be taken as a guide.
- Priorities should be based on a matrix matching developing-country partners' needs and priorities with Australian capabilities.
- Multidisciplinary and systems approaches, stressing–development outcomes, policy and economic research, should be adopted.
- To ensure continued support for international agricultural research, science communication in Australia and developing countries should promote the role of science in ensuring food security.

4.1 International agricultural research strategy and results framework

As part of a reform process, the CGIAR system has developed a new Strategy and Results Framework to help it more effectively meet current and emerging R&D challenges, and to maximise the returns to investment. The framework identifies seven high-priority research themes for international agricultural research for development, as summarised in Table 1.

The strategy has been developed on the basis of evidence, including the use of models for projecting the demand for food and other commodities, to identify major research needs. The models include the Integrated Modelling Platform for Animal Crop Systems in the Tropics¹⁰ developed by the International Food Policy Research Institute (IFPRI). An important feature of the modelling is that it allowed separation of the distinct yet complementary contributions of increased agricultural productivity, improved policies and better management of natural resources. All of these areas are demonstrably improved by agricultural research, as detailed in the CGIAR Strategy and Results Framework.

The seven high-priority global research themes are:

1. Integrated agricultural systems for the poor and vulnerable
2. Policies, institutions and markets for enabling agricultural incomes for the poor
3. Sustainable production systems for ensuring food security
4. Agriculture for nutrition and health
5. Durable solutions to water scarcity and land and ecosystem degradation
6. Forests and trees
7. Climate change and agriculture.

Within this framework, a set of CRPs is being developed as global activities to commence in 2012. Each of the priority themes has a 'pathway to impact', indicating how the proposed research will lead to economic and social benefits in the long term. Agricultural research generates *outputs*, such as improved crop varieties, policy instruments, pest-management strategies or water-use strategies. Uptake of these outputs by targeted end users generates *outcomes*, such as increased agricultural production, lower food prices or more-efficient production systems. These outcomes lead to *impacts* on ultimate beneficiaries in the form of improved food security, better health and increased income.

¹⁰ IFPRI 2010. Agriculture and food security under global change: prospects for 2025/2050. International Food Policy Research Institute: Washington, DC.

TABLE 1. CGIAR international agricultural research strategy and results framework (SRF)

International agricultural research thematic area	Outcomes
<p>1. Integrated agricultural systems for the poor and vulnerable</p> <p>Research into resilient, diversified and more-productive combinations of mixed crop/livestock, rangeland, aquatic and agroforestry systems, with three particular areas of focus: tropical and subtropical drylands; smallholder systems in subhumid, humid and highland areas; and coastal and aquatic ecosystems.</p>	<p>Food security</p> <p>Environmental sustainability</p> <p>Poverty reduction</p>
<p>2. Policies, institutions and markets for enabling agricultural incomes for the poor</p> <p>Research into institutional, policy and investment changes needed to enhance agricultural income opportunities for farmers, pastoralists and fisherfolk, with a focus on agricultural value chains; policies and investments that enable pro-poor growth; and institutions and governance for the poor.</p>	<p>Food security</p> <p>Poverty reduction</p>
<p>3. Sustainable production systems for ensuring food security</p> <p>Research to develop sustainable and resilient productivity increases at the global and regional level as climates change and demands increase, including by accelerating the development and uptake of new varieties; conserving, characterising and utilising the world's collections of germplasm for targeting gene discovery; improving crop management and providing information and policy support for pro-poor and gender-sensitive impacts. Will focus on seven main types of crop or food source: rice; wheat; maize; pulses and legumes; roots, tubers, bananas and plantains; millets, sorghum and barley; livestock and fish; and also on crosscutting research relating to the conservation and characterisation of genetic resources.</p>	<p>Food security</p> <p>Environmental sustainability</p> <p>Poverty reduction</p>
<p>4. Agriculture for nutrition and health</p> <p>Promote, coordinate and undertake cutting-edge research into the interactions between agriculture, nutrition and health, with the aim of reducing poverty and gender inequality, and improving the food, health and nutrition security and dietary diversification of poor populations, through enhanced policy and program effectiveness. Includes research on nutrition-sensitive agriculture; biofortification; new approaches to control of neglected and zoonotic diseases; mitigating health risks in intensifying agrifood systems; and improving agricultural development planning and policymaking to achieve better health and nutrition, sustainable intensification of agrifood systems and support to marginal and vulnerable people.</p>	<p>Food security</p> <p>Environmental sustainability</p> <p>Poverty reduction</p>
<p>5. Durable solutions to water scarcity and land and ecosystem degradation</p> <p>Research interactions between soil, water, ecosystems and productivity; their implications for livelihoods; the role of policies and institutions, and farm-level practices, in bringing improvements. The aim is harmonisation of agricultural productivity and environmental sustainability to improve water, soil, biodiversity and ecosystems management and to increase water and land productivity for crops, livestock, fish, agroforestry.</p>	<p>Food security</p> <p>Environmental sustainability</p> <p>Poverty reduction</p>
<p>6. Forests and trees</p> <p>Research the technical, institutional and policy changes needed to address the growing risks (including loss of rural livelihoods) from imbalanced land-use change, deforestation, loss of tree diversity, and the resulting degraded ecosystem services. Help conserve, develop and sustainably use agroforestry and forests for humanity, harness forest ecosystem services, including forest, tree and biomass production potentials for sustainable development and the poor, and increase biodiversity and carbon sequestration through avoided deforestation.</p>	<p>Environmental sustainability</p> <p>Poverty reduction</p>
<p>7. Climate change and agriculture</p> <p>Coordinated action to diagnose and analyse the directions and potential impacts of climate change for agriculture; to ensure the inclusion of the agriculture, livestock, forestry and fisheries sectors in climate-change policies in ways that benefit the rural poor; and to identify and develop pro-poor adaptation and mitigation practices, technologies, and policies for food production systems and rural livelihoods.</p>	<p>Food security</p> <p>Environmental sustainability</p> <p>Poverty reduction</p>

Source: CGIAR Strategy and Results Framework 2010

4.2 Strengthening Australian scientific participation in global research programs

It is opportune to consider how Australia can best support the CGIAR reform process and participate in the new CRPs, both financially and through research collaboration. The latter should include designing new trilateral arrangements, linking Australian, developing-country and international research institutes through their participation in the CRPs.

Australian support for the global system of international agricultural research complements Australian bilateral and regional programs. Australian financial support for the new CRPs, which are at the heart of the CGIAR reform, should be complemented by direct linkages between the new research programs and Australian scientific expertise, and by research partnerships in priority countries, regions and research areas.

Engagement with a range of global programs, within and beyond the CGIAR system, includes identifying the high-priority global programs in which Australia should participate, financially and scientifically. The priority choices would be based on a combination of relevance to overall Australian aid strategy and development objectives, geographic focus, impact on poverty and the capacity of Australian research to contribute. This process would also identify gaps in coverage of the global research agenda, by geography and content, which Australia may be able to help fill. These may include, for example, biodiversity and biosecurity, among others.

4.3 Responding to developing-country priorities

The approach to identifying the type of research supported should be flexible, provided some key principles are met:

- Most importantly, the priorities of developing-country partners should be the key driver. These priorities should be identified through dialogue with partner countries and regional entities, specifically in relation to how research can overcome some of their rural development constraints.
- There should be a high likelihood of the research reducing poverty and contributing to one or more key development objectives of improving food security, increasing incomes and/or mitigating the effects of climate change.
- Collaborative research programs should show complementarity with Australian R&D capabilities and priorities.

Thus, Australian aid should support agricultural research with the following characteristics:

- Research that will make a difference to communities, reduce poverty and contribute to long term food security

The international priorities framework (Table 1) identifies some of the key areas where investments in research are considered most likely to lead to poverty reduction and the alleviation of food insecurity, while also conserving the natural resource base.

- Research where Australian scientific participation adds value

Australian research offers scientific knowledge and know-how through both the public and the private sectors, from research results to applied outcomes.

- Foresight on research that anticipates new challenges and scientific opportunities

Challenges are likely to come from responding to emerging issues such as climate change and variability. An aim should be to build resilience into food and agricultural systems to respond appropriately to natural disasters.

- Communication and public awareness

Public awareness of the importance of science in international development, with both Australian and developing countries' communities and policymakers, is essential in building the case for continued Australian aid support. In addition to drawing more on ACIAR Impact Assessment studies, AusAID economic research and peer-reviewed studies, it would be useful to commission additional economic analysis on how investments in research lead towards increased agricultural productivity and enable many millions more people to move out of poverty. Strengthening the analytical base would further substantiate future Australian investments in research and be important evidence on which to build greater public awareness on these critical issues.

5 Models and modalities for efficient and effective delivery

- Models and modalities must be flexible, accommodating lessons learnt from earlier research and adapting to new circumstances.
- Partnerships are essential, with more emphasis on building long-term, enduring relationships with partner institutions in priority countries and regions.
- Institutional and individual capacity needs to be built, at all levels.

5.1 Partnerships

Australia's aid program aims to provide enduring and sustainable outcomes that enable developing countries to feed their people and improve their economies, population health and social stability.

The best way to achieve this is to engage with the selected countries and regions for the longer term, moving away from short-term, project-by-project approaches except where, for example, natural disasters need a rapid and substantial response.

Longer term engagement means partnerships, a process beginning with a dialogue that:

- identifies country needs
- establishes Australia's capacity to help, possibly with third-party partners from other countries or global agencies in trilateral arrangements
- identifies local partners
- ensures a commitment from the governments to invest at an appropriate level
- maps access routes to markets
- identifies training partners, because the partnership is more likely to endure if training is a formal requirement.

The ways in which partnerships are established can be flexible. There are lessons to be learnt from the past, adapting and innovating on the basis of earlier models. Continuing the old ways is not necessarily the best way for the future.

There are two broad types of research partnerships:

- *Long-term research partnerships* (e.g. 10–15 years) in which Australia and its developing-country partners make a commitment towards the development of food and agriculture in a country and/or region.

During its consultations, the panel was apprised of the need to build longer term, enduring relationships with key institutions in a selected number of high-priority countries and regions, and of developing a more integrated approach for Australian assistance to agricultural research, including strengthening of key research institutions and agencies with collaborative research and capacity building.

This implies developing some new ways of working and new modalities for delivering Australian support for international agricultural research, as discussed below under 'Delivery mechanisms'.

- *Relatively short-term partnerships (3–5 years)*, whereby Australian agencies may either implement collaborative research projects around specific topics (the current ACIAR project model), support capacity building, mainly through scholarships for study in Australia, or provide research infrastructure support.

An important and enduring outcome of Australian aid should be increased capacity in the developing country. The training to ensure this occurs can take various forms:

- targeted scholarships for postgraduate study at Australian universities
- master classes on specific topics for mid-career scientists and research managers
- short-term research training on specific topics
- in-country training workshops.

TAFE-level training for those working in agriculture and related sectors may also be appropriate.

Capacity building and training of individuals should be more explicitly linked to strengthening the institutions where they will pursue their careers, especially in high-priority partner countries. Australian education and training institutions should be encouraged to allow much of the research and other training activities for developing-country researchers to be conducted in their home country, with co-supervision being provided at partner-country universities and research and training institutes.

5.2 Delivery mechanisms

Delivery mechanisms can be improved by:

- promoting more-integrated Australian support for international agricultural research
- developing new modalities in design and delivery of research results
- increasing accountability of Australian, developing-country and international partners for delivery of results.

The old ways of conducting research will need to be adapted as the science gets better, local understanding of the science becomes more sophisticated and the world changes in terms of weather and climate, population and fertility of the land.

This will also flow through to the way aid is delivered. The panel heard of the multiplicity of agencies working in particular places with sometimes little coordination or collaboration. Australia may be able to improve that situation through dialogue with overseas agencies that are beyond our direct control—but Australia could develop more of a ‘Team Australia’ approach of its own. More-integrated Australian support for international agricultural research should be explored initially in a few priority countries and regions, where agricultural research is also accorded high priority by governments. Such programs would comprise a mix of support for capacity building, institutional strengthening and research collaboration. Examples of where this mix has worked well are evident in Cambodia, Indonesia and Thailand, and in new subregional programs in Africa. These experiences should be analysed and adapted in the design of new programs of support, in conjunction with developing-country partners.

5.3 Promoting more-integrated Australian support for international agricultural research

Australia contributes to global food security through its substantial support for national, regional and international agricultural research. Current programs are building the capacity of developing-country and international institutions, and supporting collaborative research between those institutions and Australian researchers. With additional financial resources, greater access to a broader range of Australian research bodies and a more cohesive Australian effort, much more could be done.

5.4 New modalities in design and delivery of research results

Both AusAID and ACIAR have vital roles in support of international agricultural research, institutional strengthening, capacity building and training. On the one hand, it is vital that AusAID continue to support institutional strengthening and capacity building in agricultural research within the context of its country programming mechanisms. Any view that all agricultural research activities should be undertaken by ACIAR would be inimical to this objective. On the other hand, the specialist resources that ACIAR can mobilise for utilising, monitoring and evaluating Australia's skills and experience in agricultural research for development are unique. Through dialogue with partner countries in determining priorities for needs and areas of research, ACIAR is well positioned to ensure that research is targeted at priority problems of agriculture in developing countries. Dialogue with other development partners that are providing complementary programs is also critical for efficient delivery

In developing new modalities and the design of new programs, Australian aid organisations will need access to new skills. Both AusAID and ACIAR could draw more upon the scientific and policy resources available within the broader Australian research community. More strategic alliances could be formed with CSIRO and bodies such as the faculties of agriculture, veterinary science and development economics at Australian universities; Australian and state departments of agriculture and natural resources; the National Farmers' Federation; and the Rural Research and Development Corporations among others.

Exploring new modalities in support of international agricultural research will also open up the options to leverage Australian investments with those of others. This will enable Australian-supported international research programs to work directly with other research-for-development partners, including: other like-minded OECD and G20 countries; the development banks; United Nations agencies; global and multilateral programs such as the CGIAR system, CABI, and the Global Crop Diversity Trust; and the private sector, including philanthropic bodies such as the Bill and Melinda Gates Foundation.

Institutional innovations developed in Australia that bring together public and private sector parties in the financing, management and conduct of agricultural research focused on the delivery of research results, offer new modalities for consideration in relation to developing countries.

5.5 Accountability

Strong accountability and demonstrable outcomes will be critical to ensuring continuing government and public support for the Australian aid program in general and research in particular. The need for accountability highlights the importance of identifying reliable partners in Australia and overseas, and holding them accountable for the investments and delivery of agreed outputs. Means for ensuring accountability by Australian and overseas institutions include setting measurable indicators on progress towards sustainable results during the design of projects and programs.

Australian financial support to the CGIAR system (and to other multilateral and global agricultural research programs) should be linked to stronger accountability measures and more substantive Australian participation, at all levels, in the governance of the CGIAR system and its evolving matrix of CRPs and the International Agricultural Research Centres. This includes ensuring Australian participation on the Consortium Board and the emerging governance arrangements for the new CRPs.

6 Conclusion

- Australia produces sufficient food to contribute to the diet of 60 million people per year.
- Through its research investments, Australia contributes to the diet of many more millions of people.
- Australia should invest at sufficient scale and depth to make a difference to a much greater number of poor and hungry people.
- Australia should show leadership in this field, to leverage investments by others—partner countries and development agencies.

While any proposals for increased financial support will be considered through the budget processes in government, the panel believes it may be useful to give some indications of its thinking in regard to future investments.

Australia currently produces sufficient food to contribute to the diets of approximately 60 million people per year. But when the outcomes of Australian investments in agricultural science, technology and training are taken into account, Australia is estimated to contribute towards the diets of an order of magnitude more people—possibly 400 million people per year.¹¹

As expenditure on the Australian aid program grows towards 0.5% of gross national income by 2015–16, the panel considers that the Australian Government should support the area of international agricultural research with sufficient additional resources to make a step change on current efforts. This would enable:

- Australian and partner-country institutions to implement programs at sufficient scale and over sufficient duration to achieve substantive results
- Australia to play a key role among G20 countries as a leader in the field of international agricultural research
- leverage of increased investments by others in international agricultural research, including developing-country governments, other development partners in the public and private sectors, and the CGIAR system.

Finally, the panel considers that future Australian investments in international agricultural research should be made in the light of the proposed strategic framework, with particular attention to encouraging more in-depth and longer duration engagement with priority countries and regions. This will entail a more integrated approach, linking research institutional strengthening with knowledge generation and capacity building, so that research contributes more efficiently and effectively to sustainable poverty reduction and the achievement of priority development objectives.

¹¹ D’Occhio M.J. 2011. A food secure world—challenging choices for our north. Highlights newsletter, August 2011. Crawford Fund: Canberra.

Acknowledgments

The panel was greatly assisted by many individuals and organisations who agreed to share their views during September –October 2011. On behalf of the panel, I would like to thank all who participated in the consultations, and those who took time to prepare written submissions and provide additional information. All of these contributions greatly assisted the panel's deliberations.

The panel Chair also had the opportunity to meet with members of ACIAR's Policy Advisory Council and the Commission for International Agricultural Research, who provided insights especially on the priorities and issues facing our developing-countries partners.

As part of the consultative process, the College of Asia and the Pacific at the Australian National University hosted a workshop on 4 October 2011, where more than 40 people from a range of public agencies throughout Australia, including CSIRO, state departments of agriculture and universities, and non-government organisations, interacted with the Chair of the panel about our initial findings and added many helpful insights.

Several other colleagues reviewed the panel report as it progressed and provided many helpful comments and suggestions. We thank especially AusAID for their valuable contributions that helped to clarify a number of issues.

The panel thanks ACIAR for its support, through Dr Nick Austin, ACIAR Chief Executive Officer, and his colleagues Mr David Shearer and Dr John Dixon. ACIAR also provided the services of Dr Gabrielle Persley AM of the Doyle Foundation who served as the resource person for the panel. We thank all for their concerted efforts, which allowed the panel to complete the strategic framework within a challenging timeframe.

Finally, my thanks go to the members of the panel, Professors Peter Drysdale AM, Alan Robson AM and Jeffrey Sayer, for working with me on this important task. The views expressed here are those of the panel and we take responsibility for the final report.

Professor Ian Chubb AC
Chief Scientist and Panel Chair

Annex 1 Terms of reference

Developing a Strategic Framework for International Agricultural Research within Australia's Aid Program

1 Introduction

A strategic framework is required for the planned future expansion of agricultural research supported by the Australian aid (Official Development Assistance, ODA) program.

Australia's aid program aims to assist developing countries reduce poverty and achieve sustainable development, in line with Australia's national interests. The program has doubled in size over the past five years to an estimated \$4.3 billion in 2010–11 and, on current economic projections, will double again to meet the government's commitment to increase Australia's aid to 0.5% of gross national income by 2015–16.

The government established an Independent Review of Aid Effectiveness, which proposed a set of recommendations that has been largely adopted by Government (see Independent Review of Aid Effectiveness¹²). The review proposed, inter alia, that *'There should be more aid funding for research by Australian and international institutions, particularly in agriculture and medicine'* (Recommendation 23); a recommendation accepted by government with the following observation 'Allocations will be based on an assessment of poverty, national interest, capacity to make a difference, and current scale and effectiveness'.

To ensure effective implementation of the recommendations of the aid review, a broad strategy for the expansion of agricultural research funded by the aid program and undertaken by Australian and international institutions would be timely. This strategic framework will draw upon the experience and analysis of ACIAR and other agencies supporting international agricultural research and propose a strategic framework for expanding international agricultural research supported by ODA, with particular reference to the questions of where (geography), what (subsectoral focuses) and how (partnership modalities).

2 Objective

Considering Recommendation 23 of the aid review report, the objective of this activity is to provide guidance for the expansion of agricultural research by Australian and international institutions supported by Australia's aid program.

12 Available at www.aidreview.gov.au.

3 Focus and scope

The framework will focus in particular on:

- the rationale and appropriate scale for an expansion of Australian ODA-supported agricultural research, with particular reference to its effectiveness in reducing poverty and contributing to the achievement of the Millennium Development Goals in a post-CGIAR reform era; lessons learned from previous aid-program investments in agricultural research and capacity building, including relevant assessments from the World Bank, OECD and CGIAR, with a particular focus on impact, effectiveness and efficiency
- the appropriate geographic focus of the expanded program, taking into account the existing program, linkages from agricultural research to poverty reduction, and partner country research and scaling-out capacities
- the appropriate research focuses of the expansion, taking into account international indicators associated with poverty reduction, and Australia's areas of comparative advantage; the linkages between agricultural research and other sectors, including climate change, nutrition and health, and renewable energy
- the appropriate modalities including the research manager (cf. provider) model and, for partnerships, the balance and synergy between multilateral and Australian research providers; and an appropriate future organisational and coordination structure for Australian-ODA-supported agricultural research across the public service.

4 Panel composition

The task will be conducted by an independent panel including Professor Ian Chubb AC (Chair), Professor Alan Robson AM, Professor Peter Drysdale AM and Professor Jeffrey Sayer.

5 Methodology and workplan

The independent panel will report to the Minister for Foreign Affairs, Mr Kevin Rudd, through the Australian Government's Commission on International Agricultural Research (the Commission).

The panel will access background documents including those from the aid review, AusAID and ACIAR, examine broader international thinking on agricultural research, consult widely across the government, recipients, providers and other key stakeholders in the research community, analyse trends and capacities, and propose the key elements of a strategy, including recommendations where appropriate.

The panel will consult with:

- key Australian agencies including AusAID, the Department of Agriculture, Fisheries and Forestry, and the Department of Innovation, Industry, Science and Research
- key Australian research providers including CSIRO, universities and state departments
- selected national agricultural research systems in developing countries, including through ACIAR's Policy Advisory Council and other partners
- CGIAR and selected International Agricultural Research Centres.

The activity will commence in August 2011 and be completed by 15 October 2011. ACIAR will provide a secretariat team to support the Panel.

Annex 2 Panel members

Professor Ian Chubb AC

Chief Scientist for Australia

Professor Ian Chubb was appointed to the position of Chief Scientist on 19 April 2011 and commenced the role on 23 May 2011. Before his appointment as Chief Scientist, Professor Chubb was Vice-Chancellor of the Australian National University from January 2001 to February 2011. He was Vice-Chancellor of Flinders University of South Australia for 6 years and the Senior Deputy Vice-Chancellor of Monash University for 2 years.

From January 1986 to September 1990, Professor Chubb was the Deputy Vice-Chancellor of the University of Wollongong and an Honorary Professor of Biology. He was also Chair of the Higher Education Council from September 1990 to December 1994 and was, until mid-1994, the Deputy Chair of the National Board of Employment, Education and Training.

In 2006 he was made a Companion of the Order of Australia (AC) for 'service to higher education, including research and development policy in the pursuit of advancing the national interest socially, economically, culturally and environmentally, and to the facilitation of a knowledge-based global economy'. For his contribution to higher education, Professor Chubb was named as the Australian Capital Territory's Australian of the Year in 2011.

Professor Alan Robson AM CitWA

Vice-Chancellor University of Western Australia

Before his appointment as Vice-Chancellor in 2004, Professor Alan Robson was Deputy Vice-Chancellor and Provost of The University of Western Australia from 1993. He has also held the positions of Foundation Director of the Cooperative Research Centre for Legumes in Mediterranean Agriculture (CLIMA), Dean of the Faculty of Agriculture, Head of the School of Agriculture and Professor of Agriculture (Soil Science) at The University of Western Australia. He is currently the Hackett Professor of Agriculture.

Professor Robson is currently Deputy Chair of Universities Australia. He was Chair of the Group of Eight (2007–10), Deputy Chair of the Council of the National Library (1998–2005), a member of the Western Australian Science Council (2003–09), and of the CSIRO Board (2003–08).

Professor Robson was Foundation Chair of the Grain Legumes Research Council, Deputy Chair Research Grants Committee of the Australian Research Council and a Member of the Committee for University Training and Staff Development (1998–99), the Australian Teaching and Learning Committee (2000–04) and the Board of Directors of the Australian Universities Quality Agency.

In 1989, Alan Robson was a member of a three-person committee to review agricultural and related education in Australia. He has also been a member of review panels in Denmark, India and Canada.

In 1987, Professor Robson was elected as a Fellow of the Australian Academy of Technological Sciences and Engineering. Subsequently, he was awarded the Australian Medal of Agricultural Science. In 2003, Professor Robson was made a Member of the Order of Australia, and awarded a Centenary Medal. In 2009, he was made a Citizen of Western Australia.

Professor Robson's research interests are the mineral nutrition of plants and soil fertility.

Professor Peter Drysdale AM

Emeritus Professor of Economics, Australian National University

Peter Drysdale is Emeritus Professor of Economics and the Head of the East Asian Bureau of Economic Research and East Asia Forum at the Crawford School of Economics and Government at the Australian National University. He is widely recognised as the leading intellectual architect of the Asia–Pacific Economic Cooperation forum. He is the author of a number of books and papers on international trade and economic policy in East Asia and the Pacific, including his prize-winning book, 'International economic pluralism: economic policy in East Asia and the Pacific'. He is recipient of the Asia Pacific Prize, the Weary Dunlop Award, the Japanese Order of the Rising Sun with Gold Rays and Neck Ribbon, the Australian Centenary Medal and is a member of the Order of Australia.

Professor Jeffrey Sayer

Professor of Development Practice, James Cook University

Professor Sayer has had a distinguished career in natural resources management. He has worked for FAO and the International Union for the Conservation of Nature (IUCN), and was a Senior Environmental Adviser at the World Bank. He held the chair of International Nature Conservation at the University of Utrecht in the Netherlands. He was founding Director General of the Centre for International Forestry Research in Indonesia and is now Senior Fellow of the IUCN. He is a member of the Independent Science and Partnership Council of CGIAR. He has authored many papers in peer-reviewed journals and a number of books on natural resource topics. He has taught a Master's program at the University of Utrecht and has been a frequent guest lecturer at universities in the Netherlands, the United Kingdom, the United States of America and several other countries. At present he is Professor of Development Practice at James Cook University in Cairns, Australia.

