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A Profit in Our Own Country

RECORD OF A SEMINAR CONDUCTED BY THE CRAWFORD FUND FOR INTERNATIONAL
AGRICULTURAL RESEARCH, PARLIAMENT HOUSE, CANBERRA, MAY 17 1994

EDITOR: JANET LAWRENCE



COSPONSORS:

Australian Centre for International Agricultural Research
Australian International Development Assistance Bureau
Department of Primary Industries and Energy

Canberra 1994



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The Range of Benefits

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The eminent speakers that follow me will provide you with hard evidence of the benefits to Australia's agriculture, trade and environment that flow from our investment in international agricultural research. Suffice for me to note that these benefits are shared by all Australians and that they far, far exceed the cost of our investment in international agricultural research.

First I will explain what international agricultural research is and who the major players are. Then I will briefly refer to the benefits beyond the areas of agriculture, trade and the environment that we gain from investing in international agricultural research. Finally, I plan to tell you of the fantastic but little-publicised job that Australia has done over recent years to position itself so as to benefit from international agricultural research.

What is International Agricultural Research?

International agricultural research encompasses research in the areas of agriculture, fisheries, forestry and natural resources which is supported by developed country donors (largely government agencies) and which aims to assist developing countries through the provision of sustainable improved production and resource management systems. Its target beneficiaries are the poor, whether producers or consumers, and future generations. Typically it is more strategic than applied or location-specific, and is generally of a nature beyond the capacity of developing countries to do on their own.

International agricultural research is funded and carried out both bilaterally and multilaterally. Under the bilateral

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mechanism, developed countries provide support for their national agricultural research institutions to undertake work in or on behalf of developing countries. Major players in this game are Canada, France, Germany, Japan, UK and USA. Multilaterally, the major mechanism is through core budget support to the 18 international agricultural research centres sponsored by the Consultative Group on International Agricultural Research (CGIAR) and to a number of other international research institutes not under the wing of the CGIAR. Currently the CGIAR System has an annual core budget of some US\$220 million plus complementary funding of some US\$70 million. This is provided by nearly 40 donor countries (including six developing countries), foundations and international organisations.

Australia has always played a significant part in the CGIAR System since its founding in 1970. The late Sir John Crawford, that great Australian public servant and internationalist who is commemorated by the Crawford Fund for International Agricultural Research, was influential in its inception and structuring under cosponsorship by the World Bank, FAO and UNDP, and we are more than proportionately represented in the governance of the system (each of the 18 centres is autonomous with its own Board of Trustees—of some 274 current Trustees, 14 are Australian). Not least, two of the 18 CGIAR centres are currently directed by Australians—Dr James Ryan of the International Crops Research Institute for the Semi-Arid Tropics and Dr Meryl Williams (the CGIAR's first female Director-General) of the International Centre for Living Aquatic Resources Management. Also our scientists have always contributed significantly, both as members of the centres' international staffing and as participants in the System's advisory and peer review mechanisms.

Benefits beyond Agriculture, Trade and the Environment

While the benefits Australia gains from international agricultural research—in terms of improved agricultural technology, enhanced trade and better methods of managing our environment and natural resources—can all be assessed in financial terms, there are other benefits of a less direct and more long-term nature that are not so easily measured in dollars and cents.

The first of these additional benefits comes from the complementarity we gain for our science by participating in international agricultural research. Though only a small part of the total global scientific effort, this research is at the

cutting edge of science for agriculture and the environment, particularly in the areas of (1) germplasm conservation and manipulation, (2) crop and animal husbandry and disease control, (3) research management, priority setting and evaluation, (4) agricultural information systems and (5) the nexus between agriculture, resources and the environment.

Without their connections to the international agricultural research system with its partnerships and networks of scientists spanning the developed and developing world, our scientists would have to continually reinvent the wheel. Our involvement in international agricultural research gives us a jump start. To give just one example: without access to the cereal germplasm made available through our involvement in international agricultural research over the past 30 years, our cereal breeders would be greatly disadvantaged and our cereal productivity would be far below its present level.

Of course our membership of this international agricultural research community implies a two-way flow of knowledge—we receive and we contribute knowledge, and both we and our international partners benefit. It's a positive sum game that not only gives us immediate benefits but positions our science to serve us better in the long term.

The second additional benefit of our involvement in international agricultural research is more diffuse and pragmatic. I refer to the benefits we gain in the international political arena. Doubtless these political benefits are sometimes more at the margin and longer term. Like other overseas development assistance, aid through agricultural research is a sign of friendship, interest and willingness to help, especially in the context of developing countries where agriculture is usually the major sector and most people live in rural areas. Support for research, just as other less effective forms of aid, earns us brownie points that we can spend to help achieve our international political agenda.

There is no doubt, for example, that—thanks to ACIAR—our agricultural research partnership with the People's Republic of China has helped to open doors there that would otherwise have opened more slowly, if at all, for us. Other political gains from international agricultural research are more direct. For example, without food security in the countries to our north, these countries are unlikely to maintain political stability, and without international agricultural research, given their growing population pressure, they will not achieve food security. It is in our political interest to help ensure their food security and thus contribute to their political stability by playing our part to ensure the necessary research gets done.

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Less directly, but not least, there are the political gains to us of having international linkages with scientists in other countries. Particularly in developing countries scientists are influential. Our good relations with them can translate into goodwill for Australia in their domestic political environments. Moreover, when nations argue, as we have sometimes done with some of our northern neighbours, scientific and research linkages are typically among the last to be disrupted, if they are at all, and can provide a bridge back to normalcy in relationships.

The third additional benefit to us of our participation in international agricultural research is a moral and psychic one. Though we could and should contribute more, nonetheless we can hold our heads high in the international arena knowing that we are contributing, albeit not without benefit to ourselves and, in a small but highly effective way, to the amelioration of the world's problems of poverty, food supply and environmental degradation. Being as lucky as we are to be Australians, this humanitarian contribution is important for the good of our national psyche.

ACIAR: its Uniqueness and Success

Now let me tell you how Australia has so successfully positioned itself to ensure that we do indeed reap profit for ourselves from our investment in international agricultural research—profit, moreover, that in no way diminishes our contribution to helping solve the global problems of poverty, food security and environmental degradation.

The institutional mechanism is the Australian Centre for International Agricultural Research (ACIAR). Largely the brainchild of Sir John Crawford, who served as its first Chairman (and whose shoes I found it very difficult to fit), ACIAR was established as a Commonwealth statutory authority in 1982 with a small Australian-based Board of Management and a joint Australian–partner country Policy Advisory Council which meets approximately annually to provide relevant advice to the responsible federal Minister. The major element of ACIAR's mandate is to promote research partnerships between Australia and developing countries. As well, since 1992, ACIAR's budget (\$35 million for 1993–94) has included provision for the funding of some training and development activities (about \$1 million in 1993–94) related to its research programs (budgeted at \$20 million in 1993–94) and for it to serve as the official channel through which Australia provides support (\$8 million in 1993–94) for the international agricultural research centres (chiefly those sponsored by the CGIAR). As an aside, reflecting ACIAR's

managerial efficiency, let me note that only about 13 per cent of ACIAR's budget goes to administration—a feat unmatched by any analogous aid agency in the donor world.

ACIAR was envisaged as, and has remained, a small entity with a dozen or so highly qualified professional staff experienced in agricultural research who act as program coordinators across the major areas of agricultural research (including fisheries, forestry and natural resources). In essence, ACIAR is a research broker. Its modus operandi is to commission research groups in Australian universities, the CSIRO, state agriculture, forestry and fishery departments and, if appropriate, industry, to carry out research projects in joint partnership with analogous public agencies in developing countries.

Beyond the professionalism, enthusiasm and dedication of its staff, the essence of ACIAR's success has lain in the ground rules which it follows. First and foremost, ACIAR-sponsored research must be conducted on a partnership basis between the commissioned parties in Australia and overseas. The developing countries are equal partners. They are not clients; they contribute their fair share both intellectually and financially to the research. Worldwide, ACIAR has led the way in fostering such a partnership approach to agricultural research for development. Second, ACIAR only considers research topics that are proposed at the official request of a developing country as a priority need. Third, the proposed research must be in an area of agricultural research for which Australia has competence and comparative advantage. Fourth, the research must involve problems whose solution will provide benefits to both Australia and the partner country, and preferably will also provide spillover benefits to other developing countries. Fifth, the research topic must be such as to attract the participation of relevant Australian institutions on generally no more than a marginal cost basis so that they too, just as the developing country partner institutions, contribute not just intellectually but also financially to the research.

In consequence, because of the financial contributions of its commissioned research agents in Australia and in partner countries, ACIAR has been able to leverage at least an extra dollar if not two dollars of research investment for every dollar of its own outlay on research. Sixth and lastly, the research projects must fit ACIAR's own priorities and guidelines in terms of research priority (based on expected payoffs), research-portfolio balance both geographically and scientifically, and environmental and gender impact considerations.

To ensure all these considerations are met in the choice of commissioned research projects, ACIAR has established a set

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of four complementary mechanisms: country consultations which are held every three years or so with the partner countries in Asia, the South Pacific and Africa to determine country priorities; world state-of-the-art procedures for in-house priority setting and ex-ante evaluation of benefits; strict project-cycle procedures running from the ideas stage to completion of the final report with ongoing monitoring and regular peer review; and, lastly, regular reporting to (and, as need be, approval by) ACIAR's Board of Management at its quarterly meetings on all projects through all stages of their project cycle.

So it is no wonder that ACIAR has continuously had a portfolio of research projects that are well managed, tightly focused on priority problems and balanced across both its geographic regions of interest and across program areas. Nor is it any wonder that ACIAR received high praise when it was reviewed by the Joint Committee on Foreign Affairs, Defence and Trade in 1992. Among the many complimentary remarks made about the Centre from all sides of the House following the tabling of the report was that of the committee's chairman, Senator Chris Schacht, who said: 'In my view ACIAR is one of those good news stories that does not get the coverage in the Australian media that organisations like it should get' and the committee's deputy chairman, Hon. Michael Mackellar, who said: '[ACIAR's] work has great benefit and should be more widely publicised. Furthermore, the high level of ACIAR's performance sets an example for other statutory bodies to try to match'.

The Minister for Foreign Affairs, Senator Gareth Evans, described it as a 'lean professional organisation with an excellent approach to its task'. These remarks were reiterated, along with other complimentary comments, by Minister Gordon Bilney and Mr Andrew Peacock when ACIAR's Annual Report for 1992-93 was tabled in the House of Representatives on 3 February 1994.

Since its establishment in 1982, ACIAR has commissioned some 250 research projects, usually of three years' duration, some 180 of which have been completed. Without doubt ACIAR has generated a very handsome return both to Australia and to its partner countries on the taxpayers' funds invested in its bilateral research activity. This is specifically evidenced by the two substantial benefit to cost ratio studies measuring returns to Australia which have so far been carried out on ACIAR's commissioned research.

The first, finalised in 1991, was of a diverse subset of five projects covering crops, livestock and fisheries (Menz 1991).

Without doubt ACIAR has generated a very handsome return both to Australia and to its partner countries.

The total research cost to ACIAR of those five projects was \$12.5 million in 1990 dollars. Their estimated payoff in terms of 1990 dollars was \$132 million, of which nearly \$14 million was estimated to accrue to Australia, indicating a benefit to cost ratio of 10:1 overall and of 1.1:1 for Australia itself. Though not well justified statistically because of the small sample size, extrapolation from this analysis of five projects to all of ACIAR's projects suggested that, as compared to a total appropriation to ACIAR of \$198 million (in 1990 dollars) from 1981–82 to 1990–91, Australia would receive benefits of \$270 million (in 1990 dollars).

The second substantial benefit to cost study was conducted in 1993 (Davis and Lubulwa 1994). It covered six tropical fruit postharvest research projects that had been commissioned by ACIAR. In 1991 dollars, these projects had a total research cost of \$6 million and a total estimated benefit of \$230 million, of which \$46 million accrued to Australia, again indicating very favourable benefit to cost ratios of 30:1 for ACIAR's partner countries and nearly 8:1 for Australia.

From these two studies it is clear that the expected benefits of ACIAR's commissioned research far exceed the cost of ACIAR. Whether considered globally or merely in terms of profit to Australia, ACIAR pays a handsome dividend on taxpayers' investment in it. Indeed there must be few such attractive investments available to the Government—and that is without any consideration of the very substantial benefits we receive from our investment in the CGIAR and other multi-lateral international agricultural research.

Finally, to give you some feeling for the type and variety of projects commissioned by ACIAR, let me list a few that have clear and significant benefit to Australia as well as to the partner country for which they were a priority need.

Of benefit to our agriculture:

- Canola/rapeseed genetic improvement
- Sulfur soil-test development
- Genetic engineering for resistance to Barley Yellow Dwarf disease
- Banana improvement to overcome Black Sigatoka disease.

Of benefit to our trade:

- Foot-and-mouth disease and blue tongue virus tests for rapid diagnosis and control
- Banana skipper control
- Honey bee mite control
- Postharvest technology for grains and fruit

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ACIAR is a stand-out success in international agricultural research and as an investment for our taxpayers' funds.

- Wool quality improvement
- Bee pollination of forest plantations
- Control measures for Newcastle disease of poultry and nematode worms leading to commercial joint ventures.

Of benefit to our environment:

- Trees for salty land
- Biological control of *Mimosa pigra*
- Soil erosion management
- Integrated pest management of fruit fly.

Detailed information on these and other projects is available from ACIAR.

Let me conclude by emphasising again that ACIAR is a stand-out success in international agricultural research and as an investment for our taxpayers' funds. It is highly cost-efficient, well led, totally professional. It provides a substantial profit to Australia in both financial and scientific terms. Not least, it has substantially enhanced Australia's image among both developed and developing countries and is providing the model that others are attempting to follow. In the words of Derek Tribe, Executive Director of the Crawford Fund, ACIAR—through both its bilateral and multilateral activities—does well for us by doing good (Tribe 1991).

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