Multilateral program

AOP budgeted expenditure in 2003–04	$9,676,128
Actual expenditure in 2003–04	$10,200,514
Expenditure in 2002–03	$9,827,219
Expenditure in 2001–02	$10,460,768
Proportion of total ACIAR expenditure 2003–04	20.4%

Position

ACIAR administers, on behalf of the Australian Government, Australia's contribution to the internationally funded independent non-profit international agricultural research centres (IARCs). The IARCs carry out research and related activities to help achieve sustainable food security and reduce poverty in developing countries through scientific research-related activities in agriculture, forestry, fisheries, policy and environment.

The goal of ACIAR's multilateral program is to ensure the effectiveness of, and benefits to, developing countries and Australia from agricultural research conducted by the IARCs with funds provided by Australia.

ACIAR's policy position towards contributions to the IARCs involves:

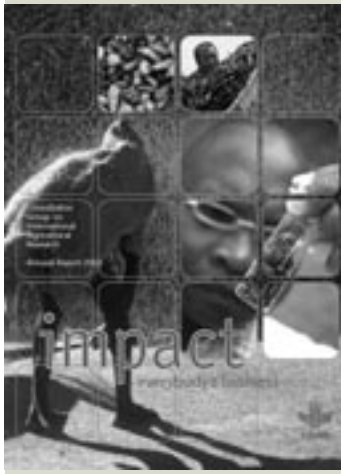
- allocating around 20 per cent of ACIAR's total appropriation to the IARCs
- allocating between one-third and half of ACIAR's annual IARC investment as project-specific funding
- focusing its unrestricted (non-project specific) funds on a reduced number of centres, based on comparative research advantages.

Disbursement of multilateral funds, 2003–04

Unrestricted contributions to IARCs amounted to 54 per cent and project-specific funding to 45 per cent of total multilateral research funding in 2003–04. The remaining 1 per cent was spent on other multilateral activities. Fifteen IARCs received funding, 13 of which received core funding (untied to specific projects). Allocations are based on the comparative advantage of individual IARCs to deliver research applicable to Australia's regional priorities. Five of the 13 centres receiving core funding are located in the Asia-Pacific region and another six have a mandate that covers staple crops in the region. The remaining two, CAB International (CABI) and IFPRI, are responsible for research information systems and food policy respectively.

All 15 funded centres received project-specific funding through ACIAR this year. Fourteen of the centres are associated with the Consultative Group on International Agricultural Research (CGIAR), while one (CABI) works in an area of agricultural development of particular interest to Australia.

Project-specific research funding aims to build tripartite research linkages between IARCs, advanced research institutions in Australia and national



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ACIAR provides support to relevant CGIAR systemwide initiatives (cross-centre programs that link research complementarities of different centres to address and resolve global and regional issues through strategic research approaches). Support was provided to the following initiatives:

- Sustainable endoparasite control for small ruminants in Southeast Asia
- Technical support for regional plant genetic resources development in the Pacific
- Alternatives to slash and burn in Southeast Asia, phase 3: Facilitating development of agroforestry systems
- Integrated nutrient management in tropical cropping systems: Improved capabilities in modelling and recommendations
- Fish in food: The critical role of fish in world food issues

Other support activities include contributions to the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the Asia-Pacific Association of Forestry Research Institutions (APAFRI) and to the Crawford Memorial Lecture at the CGIAR Annual General Meeting.

agricultural research institutes in developing countries, particularly those that are ACIAR bilateral partners. Project-specific funding supports projects that are developed and managed as part of ACIAR's 11 discipline-based research programs, complementing and adding value to the bilateral programs run by the discipline areas. In 2003–04, five new activities were initiated and eleven completed. Including these, a total of 29 projects were active in 2003–04.

Project examples

In conjunction with the **WorldFish Center** a project has been reviewing optimal release strategies for restocking juvenile sandfish and cucumber. Juvenile sandfish (*Holothuria scabra*) produced in 2002–03 and 2003–04 have been used in experiments to determine the necessary conditions to yield high survival rates after release into the sea, with good early results. Using aquaculture ponds to rear young fish and tagging these fish on release to track their survival rates are also being trialled, again with promising results.

A two-year project with **CABI** to develop an Aquaculture Compendium is progressing well. The Compendium will include a number of case studies of specific aquaculture industries in different locations. Several Australian scientists have been engaged to write case studies and this will strengthen linkages between Australian institutions and IARCs as well as increase the Compendium's relevance to Australia.

In many tropical regions, organic materials are an important component of soil fertility, often providing greater benefits than fertilisers. Current fertiliser recommendations and most crop models do not take account of these organic inputs. An **International Center for Tropical Agriculture** (CIAT) project successfully developed a modelling capability by improving the APSIM Manure and Soil Phosphorus modules so that APSIM can be used to explore improved soil fertility management scenarios in low fertiliser input systems in the tropics.

The **Center for International Forestry Research** (CIFOR) has carried out research on the initial impacts of decentralisation of forest administration and management in Indonesia following 30 years of centralised administration by the Ministry of Forestry in Jakarta. The project revealed this shift has intensified pressures on forests, but has also in some other areas made government decision-making more responsive to communities whose livelihoods depend on forest resources.

The **International Maize and Wheat Improvement Center** (CIMMYT) in collaboration with the Agricultural Research Institute of Afghanistan, Ministry of Agriculture and Animal Husbandry, and with local and international NGOs has distributed improved wheat and maize varieties to farmers. Seed multiplication of the best lines is underway, along with training of Afghan wheat and maize scientists. AusAID funds this project, which ACIAR administers.

An **International Potato Center** (CIP) project on sweet potato–pig farming systems in West Papua (Indonesia) has selected three new sweet potato clones for registration, based on their protein and dry matter content. Modified diets for pigs based on these varieties have achieved growth rates of 200 g/day, compared with less than 30 g/day in pigs fed traditional diets.

A project implemented by the **International Center for Agricultural Research in the Dry Areas** (ICARDA) is conserving, evaluating and utilising the unique plant genetic resources found in Central Asia and the Caucasus. An important facet of the work is increasing the capacity of partner country scientists to collect, conserve and use unique plant genetic resources within their countries.

Another **ICARDA** project has made good progress on the identification of new sources of disease resistance in chickpea, faba bean and lentil. The understanding of the epidemiology and virulence of the diseases has been expanded, and development and testing of integrated disease management packages carried out at ICARDA's headquarters in Syria.

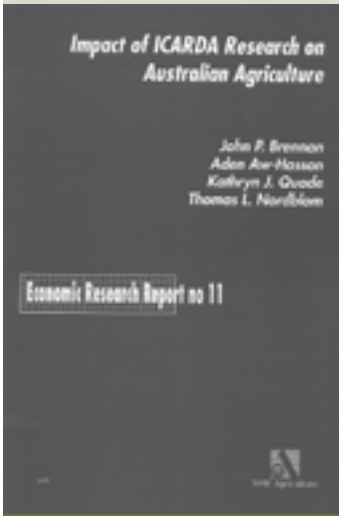
In South Africa yields of maize on smallholder farms average less than 1 t/ha, partly due to limited or no fertiliser use. A key factor in the limited use of fertilisers are that recommendation rates are too broad and do not cater to local conditions, rainfall and other aspects of climate variability. The **International Crops Research Institute for the Semi-Arid Tropics** (ICRISAT) is working with national agricultural research system scientists, extension specialists and market and policy analysts in Limpopo Province to develop and disseminate more appropriate fertiliser management recommendations for smallholder farmers and improved fertiliser policy analyses.

Power of partnerships

In conjunction with Chinese government agencies and Gansu Agricultural University, the **International Food Policy Research Institute** (IFPRI) is undertaking multi-level analysis of the impact of WTO entry on western area smallholders, and offering policy options, particularly in public investment, to achieve economic growth and poverty alleviation as well as to buffer adverse shocks.

In conjunction with Australian and in-country partners, the **International Livestock Research Institute** (ILRI) has carried out surveys of smallholder farms in the Philippines and Indonesia to determine levels of parasite resistance in sheep and goats. The survey has found that resistant parasites are not yet common in either industry.

An **International Plant Genetics Resources Institute** (IPGRI) project involving Australia, Thailand, Vietnam and the Philippines is developing new techniques to conserve germplasm in a range of priority Asian tropical fruits. The initial stages of the project involved developing micro-propagation systems for mango, papaya, Australian native fruits, *Nephelium*, citrus, persimmon, litchi and longan, and developing successful tissue culture systems to provide plant material for cryo-preservation work.



Heather Crompton oversees the Multilateral Program

In China, the **International Water Management Institute** (IWMI) and the **International Rice Research Institute** (IRRI) have made progress in growing rice crops without continuous flooding ('aerobic rice'). Trials with farmers were initiated so that direct feedback could be obtained. Early results offer promise, but further research is needed to validate these findings.

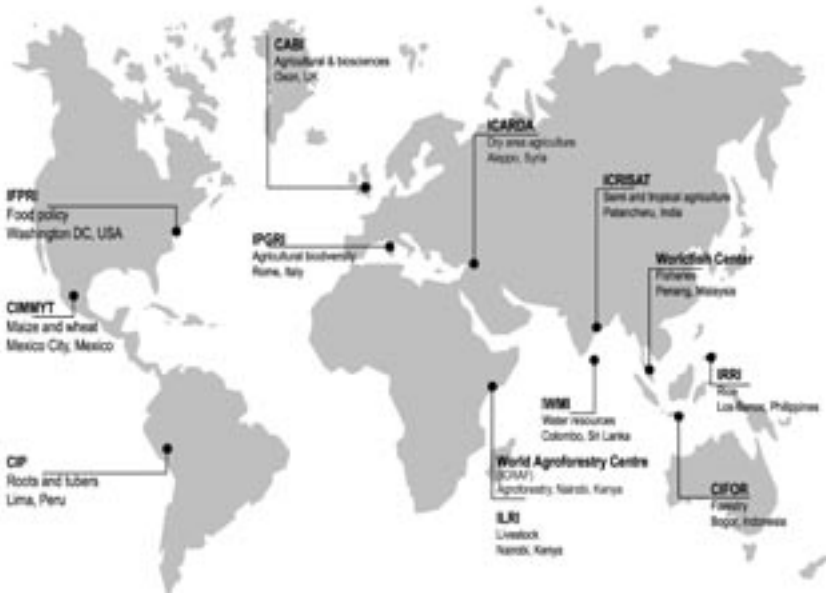
The **World Agroforestry Centre** is working with national institutions and communities in Southeast Asia to identify agroforestry land use systems as alternatives to traditional slash and burn agriculture, to reduce impacts on soil and water in catchments. Computer modelling of soil and water movement is a vital technology in the research and is used to develop tools to facilitate negotiation between farmers and government catchment managers.

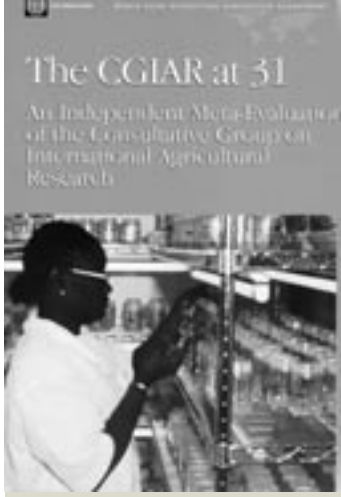
Funding to IARCs for 2003–04

Acronym	Centre title and location	Core funding (A$)	Project-specific funding (A$)	Total (A$)
CABI[1]	CAB International, United Kingdom	300,000	282,838	582,838
CIAT	International Center for Tropical Agriculture, Colombia	0	55,000	55,000
CIFOR	Center for International Forestry Research, Indonesia	300,000	220,378	520,378
CIMMYT	International Maize and Wheat Improvement Center, Mexico	700,000	841,331[2]	875,381
CIP	International Potato Center, Peru	330,000	216,977	546,977
ICARDA	International Center for Agricultural Research in Dry Areas, Syria	250,000	464,006	714,006
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India	550,000	439,029	989,029
IFPRI	International Food Policy Research Institute, United States of America	450,000	199,528[2]	569,528
IITA	International Institute of Tropical Agriculture, Nigeria	0	97,338	97,338
ILRI	International Livestock Research Institute, Kenya	300,000	106,151	406,151
IPGRI	International Plant Genetic Resources Institute, Italy	300,000	452,194	752,194
IRRI	International Rice Research Institute, Philippines	850,000	244,845	1,094,845
IWMI	International Water Management Institute, Sri Lanka	500,000	305,581	805,581
World Agroforestry Center	World Agroforestry Centre, Kenya	250,000	331,404	581,404
WorldFish Center	WorldFish Center, Malaysia	450,000	298,111	748,111
Total funds to IARCs		**5,530,000**	**4,554,711**	**10,084,711**

[1] Centre not associated with the CGIAR.
[2] Includes funding from AusAID, provided through ACIAR.

Location of international centres receiving core funding from ACIAR





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Delivering benefits internationally—and to Australia

New sources of germplasm are the lifeblood of plant breeding, but finding and collecting these can be difficult. ACIAR, in collaboration with ICARDA and Australia's Grains Research and Development Corporation, have been supporting work to collect, for conservation and utilisation, a wide variety of field crop genotypes from Central Asia and the Caucasus. Ken Street, an Australian scientist based at ICARDA in Syria, has been leading the collection efforts. "The Central Asian and Caucus region is a treasure trove of genetic material for many cereal crops and legumes. But the danger is that this unique source of genes will be gone before we know it and that's where our collecting comes in."

The similarity of cropping lands in central Asia to many other countries, including Australia, makes the region ideal for collecting genetic material. Dr Street believes the genetic answers to many diseases and soil problems may already exist. "Many of the plants are tolerant to stresses like drought and diseases, offering great potential for incorporation into breeding programs to overcome these and other problems." The seed collected by Dr Street and his colleagues will end up in international gene banks, and be freely available for use in breeding programs to benefit developing countries and Australia.

In addition to collecting new material, the ACIAR program in Central Asia and the Caucasus is also facilitating the development of national genetic resource conservation programs. This activity has included development of genetic resource units with controlled temperature storage facilities, ensuring each country in the region can better conserve their rich but threatened genetic resources. The international plant breeding community also benefits as the improvements will help facilitate productive germplasm exchange programs.