



## CSIRO abroad

Australia is geographically similar to many of the world's poorer nations. But, crucially, it differs in the expertise that years of research have given it; it is unusual in being a 'first world' country in a 'third world' setting.

As a result, Australian scientists are well equipped to tackle many of the problems in agriculture, water resources, and conservation that face so much of the developing world.

For a long time they have been extensively involved in co-operative scientific work with other countries. From tiny landlocked Bhutan in the Himalayas to subSaharan Africa, as well as in countries closer to home in the Asian and Pacific regions, Australian scientists are using their know-how and experience in specific research projects that tackle some of the problems of these regions.

As well, many scientists and administrators from overseas come to Australia either to collaborate with our scientists, often as part of exchange programs, or to attend training courses here.

The Centre for International Research Co-operation (CIRC) is a small group within CSIRO that has the responsibility for co-ordinating the Organization's participation in international science.

CIRC also assists many overseas visitors to CSIRO, helping to organise their time in Australia, and if necessary arrange meetings with their

counterparts here. As well, CIRC helps to prepare agreements between CSIRO and equivalent overseas institutions, such as the Japanese RIKEN (the Institute of Physical and Chemical Research), and aids in negotiating bilateral agreements for co-operation in science and technology with other governments.

Researchers from CSIRO are often in demand for consultancies, which are generally negotiated with the assistance of CIRC. The Organization is reimbursed for the services of its scientists; in the case of many poorer countries the money is paid by a funding agency designed to help the third world, such as the United Nations' UNESCO and FAO, or Australia's ADAB (Australian Development and Assistance Bureau) or ACIAR (Australian Centre for International Agricultural Research). A more wealthy country will itself pay.

In 1984/85, consultancy work took CSIRO scientists to 28 different countries. The topics on which they advised ranged from the reproductive physiology of domestic animals in Peru to suspected iodine deficiency in the population of a part of India: from developing mathematical models of water use in Ethiopia to tracking down the origin of a bitter taste in some Fijian citrus fruit juices.

Most consultancies are short-term, but many of CSIRO's Divisions are also involved with longer-term overseas projects. These are also often ADAB- and ACIAR-funded.

For example, the CSIRO Division of Entomology's Brisbane laboratories, in collaboration with many State government departments, James Cook University, and a university and an agricultural research centre in Sri Lanka, are working on the biological control of salvinia, a floating

fern that is now a major pest (see *Ecos* 42). The weed clogs irrigation channels, paddy fields, slow-moving rivers, and lakes.

A Brazilian weevil released by the Division of Entomology has successfully controlled salvinia in a number of places both in Australia and in Papua New Guinea, and the work aims at improving our knowledge of the biology of pest and predator, and so increasing our chances of achieving biological control of the runaway fern in Sri Lanka and elsewhere.



Australia's economic health still rests heavily on cattle and sheep. Consequently our scientists have made large advances in understanding and controlling the parasites and diseases of these animals, as well as the problems associated with farming them in marginal areas. Much help can be given to third world countries, where the health of their livestock can literally mean the difference between life and a slow death by starvation for many people.

Cattle and sheep ticks, and the diseases they may carry, pose tremendous problems in many areas, but they have their greatest impact in the tropics. Ticks are estimated to affect 800 million cattle world-wide. However, relatively little research on tick ecology has been done outside Australia.

Accordingly, the Division of Entomology in Brisbane is extending its studies on two tick species in Australia to African ticks and tick-borne

diseases. In collaboration with institutes in Ethiopia, Kenya, Zambia, and Zimbabwe, researchers hope to develop biological methods of tick control and integrate these with chemical control.

It may seem silly to say it, but trade cannot take place unless both partners agree on how much they are exchanging. For that reason the regional metrology project is important.

Metrology is the science of measuring and quantifying. An effective, standardised, national measuring system is essential for any developing country, and is necessary for international trade. But the equipment and techniques used in calibrating measuring instruments are often lacking.

Australia has much experience in this field, putting it in an ideal position to help the developing countries in the Asia-Pacific region.

In an ADAB-funded project, covering many countries in South-East Asia together with India and Sri Lanka, the CSIRO Division of Applied Physics is giving advice on the establishment of national measuring systems and helping with the calibration of national standards, as well as offering training for scientific staff.

The projects discussed briefly here, and many others under way, may seem trivial in terms of the problems besetting the world, but viewed from a more positive perspective they are examples of the practical benefits that can follow when nations make a commitment to help one another.

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