Agricultural research to grow food security

by Nick Austin, Chief Executive Officer of the Australian Centre for International Agricultural Research

Half the world's poor are smallholder farmers, with another 10 per cent of those living in poverty relying on fisheries, forestry or pasture resources. In many cases, these farmers have not benefitted from technological advances that have raised yields in the developed world.

The potential to raise yields is great despite the barriers that must be overcome. Agricultural science has already demonstrated its potential through the Green Revolution of the 1960s.

This revolution introduced improved crop varieties in India and elsewhere, lifting the yields of smallholder farmers. It was led by scientists and contributed to a transformation of agriculture that significantly lifted food production.

Agricultural science has continued to lift yields since the 1960s. Most of the advances that have lifted yields since the Green Revolution have not reached many of the world's poor smallholder farmers.

With limited technologies and knowledge flowing to developing country agriculture, growth has been at a slower rate than in western countries. Smallholders miss out and the potential for agriculture to become a catalyst of broader growth is lessened.

Broad-based economic growth in developing countries is achieved by focusing on the largest sector—agriculture. In most developing countries, between 60 to 80 per cent of the population are employed in, or reliant for their livelihood on, agriculture.

Achieving productivity gains in this sector lifts incomes, reduces poverty and creates opportunities in other sectors, through freeing up of labour and generating growth in communities.

As Australian history has shown, the benefits of investment in agricultural research can be substantial. Productivity growth has accounted for the entire increase in output by the Australian agricultural sector over the last 30 years and has produced sizeable benefits—an estimated productivity dividend of more than $170 billion.

A number of drivers have underpinned this growth. New knowledge and technology is one. The spillovers from this knowledge and technology may have also contributed to the ability of farmers to better organise production—another driver of productivity.

The challenges that prompted the Green Revolution, and demonstrated the role of agricultural research as a powerful driver of poverty reduction, are greater and more complex today. They include climate change impacts, the increased pressures on available land, and increasing competition for inputs such as water. At the same time, demand for outputs is rising with competition from biofuels and changing dietary preferences.

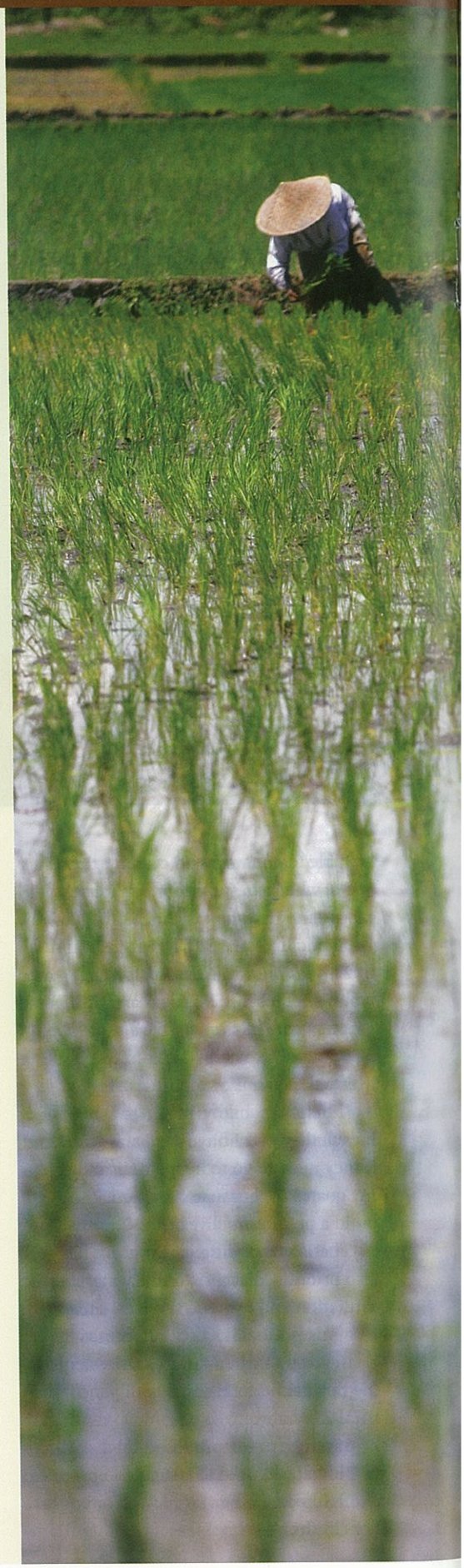
These factors all impact on those least able to adapt—smallholder farmers.

Helping lift these people out of poverty requires the delivery of productivity gains without imposing additional costs. Science must lead this challenge, leveraging scientific knowledge and developed-world expertise.

Agricultural research, appropriately targeted to the needs of developing countries, can lift production. Designing the appropriate response allows the technology and knowledge developed in Australia to be transferred to those smallholders who can benefit from it, throughout the Asia-Pacific region and Africa.

The Australian Centre for International Agricultural Research (ACIAR) facilitates partnerships between Australian research experts, and their counterparts in developing countries, to identify the problems holding back agricultural growth and transfer the knowledge and technologies that overcome those problems.

ACIAR is making a genuine contribution to meeting this challenge, in our region and beyond. Through this cooperative effort, Australian science—a vital driver of achieving food security, contributing to the Millennium Development Goals and ending poverty—is making a difference.



RIGHT: Farmers work in a rice field in Lombok, Indonesia. Photo: Josh Estey/AusAID