Are the international agricultural research centres tackling the crucial issues of poverty and sustainability? Robert Chambers and Jules Pretty express some doubts

Will tbe opportunity be seized?

The International Agricultural Research Centres (IARCs) of the Consultative Group for International Agricultural Research (CGIAR) have a professional influence out of all proportion to their size and budgets. The IARCs expenditure is less than 4 percent of the global expenditure on agricultural research. Nevertheless, agricultural scientists worldwide see the IARCs as centres which embody and set standards of professional excellence.

Through their training of national scientists, their international networking of research programmes, their publications, and their prestige, the IARCs spread and sustain the dominant concepts, values, methods and behaviour of agricultural science. Still basking in the afterglow of the green revolution, they still predominantly accept and propagate the transfer of technology paradigm.

The rhetoric of past IARC mission statements have been criticized for hiding weaknesses and distortions. Those about poverty and sustainability stand out.

First, it can be argued that the poverty focus has had less substance than claimed. Early critics of the green revolution pointed out that the new technologies were not scale-neutral, that the larger and better endowed farmer areas and farmers gained most, that others often lost, and that income disparities were often accentuated.

While subsequent studies showed increasing spread of high-yielding varieties (HYVs) and benefits among smaller farmers in green revolution areas where they had access to irrigation, disparities remained, and perhaps more significantly, the third, complex, diverse and risk-prone agriculture remained poorly served by the transfer of technology approach. The Technical Advisory Committee (TAC) of the CGIAR said in 1985 "all the commodities research by the CGIAR Centres are relevant for the low-income group, since they comprise their basic foods."

But choice of commodity does not in itself ensure benefits to the poorer. Whether research leads to adoption, who adopts and where, and who gains and who loses—women, men, the better off, the poorer, producers, consumers.... these are pertinent questions not answered simply by the choice of crop. The centralized technology transfer approach practised and propagated by the CG centres, rhetoric notwithstanding, has tended to be insensitive to local contexts and to the needs and interests of their poorer clients.

Sustainable?

A second weakness can be seen in the claim of a focus on sustainability. The TAC view has been that traditional production systems provide limited opportunities for intensification since they use only small amounts of external resources. In this view, it would appear that external inputs have to play a major part in relieving the pressure on natural resources and ensuring sustainable agricultural development.

The 1988 review of the CG centres, describing the CG Centres contribution to research, related to sustainability, states that "none of the concepts described are new, nor call for work that is qualitatively different from a great deal of work that has been done in the past", and cites all the centres for their efforts in regard to low-input farming. However, the equivalent of 5 per cent of the system's total budget was expended on research on inorganic fertilisers, with much less on research on organic fertilisers. This imbalance undervalues low external input farming, and overlooks the striking potential for intensification through labour and through interrelating biological resources and enterprises to diverse and complicated farming systems.

The CGIAR system has responded to the increasing priority attached to the environment, the management of natural resources, and sustainability in agriculture. Following the Brundtland Report it set up a committee on sustainability.

The shortcomings of commodity-based research have been increasingly recognized and much discussion has focused on the ecoregional approach to research in the CGIAR to complement or replace it. In a 1993 Report, a second green revolution is seen to be needed to double food supplies in the next 25-40 years. For this the challenge is: "to develop food production systems on existing farm land that will double present output levels without degrading the natural resource base on which sustained production depends, without negative effects on environmental quality, and with positive effects on the welfare of rural and urban communities".

The new approach proposed seeks to achieve this by focusing on ecoregions, by better and more equal collaboration with national agricultural research systems (NARS), and by cooperation between IARCs. In sum, no single organizational model is foreseen, but there are a valuable set of organizational principles.

The new approach will operate on a regional basis; focus on an important agroecological zone with a serious degradation problem; combine natural resources management and production objectives; employ a multidisciplinary approach; include both natural and social sciences; involve national research institutions and other partners in a synergistic way; adopt flexible systems of governance and priority setting; and ensure global coherence and flexible funding mechanisms.

These would "provide a pragmatic, non-overlapping set of coordinated programs, and a new dimension to the CGIAR".

At face value the ecoregional approach appears good. The rhetoric, however, masks some likely problems. The ecoregional approach appears to shift attention upwards and away from people, farmers and the farm-level. It is recognized that it will require an unprecedented level of collaboration, negotiation and coordination, particularly between IARCs themselves and between IARCs and NARSs.

This will involve transaction costs. Especially, it will draw and hold scientists away from farm-level realities; coordination traps scientists in offices and meetings and keeps them from farmers.

Combined with GIS (geographic information systems), dynamic modelling and other aspects of the computer revolutions, the ecoregional approach is liable to raise even higher the ratio of time scientists spend in the company of computers to that spent in the company of farmers. It is perhaps in honest recognition of this that farmer participation is not listed among the organizational principles for the ecoregional approach.

"Powerful case"

There is a powerful case, though, that a second green revolution can only be achieved through decentralization, farmer participation, and diversification, and through scientists coming closer to farmers.

The CGIAR exists to fill global gaps. Yet it does little, as a whole, about two major gaps the filling of which, we would argue, are basic for a second green revolution.

The first gap is the development and dissemination of methods for analysis conducted by farmers themselves. The assumption has been that farming systems research has to be done by professionals. Yet recent experiences with participatory rural appraisal (PRA), including innovations by ICLARM, indicate that farmers have a far greater ability than agricultural or other professionals have supposed to conduct their own appraisal, analysis, experimentation, monitoring and evaluation.

The second gap is approaches and methods for changing the behaviour, attitudes and beliefs of scientists. A striking finding of recent experience with participatory methods is how powerfully inhibiting is the normally dominant behaviour of professionals with farmers—lecturing, criticizing, advising, interrupting, "holding the stick", and "wagging the finger". The astonishing time it has taken to realize the analytical capabilities of farmers can be attributed to this almost universal tendency of outsiders. The gap, then, is experiential training approaches and methods to enable scientists to change. The CIAT video of the IPRA method stands out as a contribution, but is far from being in the mainstream of CGIAR work.

Since these two gaps remain largely unrecognized and neglected by the CGIAR, they are liable to persist as major impediments to a second green revolution. The danger is that those who are already pioneering the new paradigm within the system will remain marginal, and others will be discouraged from joining them or starting up on their own. If this occurs, the prestige and influence of the CG system will have an adverse conservative effect, inhibiting change, and discouraging innovation. On the other hand, if the IARCs were to take a lead in developing and disseminating the new participatory approaches, their impact could be vast, and could both support and gain from those in national systems and in those NGOs which are working in the same direction.

To support the development and dissemination of participatory approaches and methods within and outside the CG system, there is a need to form new alliances and to strengthen those that already exist.

Alliances

Groups of professionals within some IARCs have already been conducting successful participatory research in partnership with

The system explained

The Consultative Group on International Agricultural Research (CGIAR) is "a worldwide network of research centres supported by an international donor group". Based in Washington, it was set up in 1971. Donors number 43; they are mostly Western governments and international agencies. From the start of 1995, they will support the work of 15 international agricultural research centres (a slim down from 17 centres). Most of the centres focus on rainfed or non-irrigated agriculture. A CG publication says "with the impact of environmental degradation more evident each day, the CGIAR has made development of sustainable farming systems a major objective".

The centres are:

Centre for International Forestry Research (CIFOR), PO Box 6596, JKPWB Jakarta 10065, Indonesia

International Centre for Agricultural Research in Dry Areas (ICARDA), Aleppo, PO Box 5466, Aleppo, Syria

International Centre for Living Aquatic Resource Management (ICLARM), MC PO Box 2631, 0718 Makati, Metro Manila, Philippines

International Centre for Research in Agroforestry (ICRAF), PO Box 30677, Nairobi, Kenya

International Centre for Tropical Agriculture (CIAT), AA 6713, Cali, Colombia

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru P.O. A.P. 502324, India

International Food Policy Research Institute (IFPRI), 1200 Seventeenth Street, N.W. 20036 ,Washington D.C. USA

International Institute of Tropical Agriculture (IITA), PMB 5320, Ibadan, Nigeria

International Irrigation Management Institute (IIMI), PO Box 2075, Colombo, Sri Lanka

Interntational Livestock Research Institute, (ILRI), PO Box 30709, Nairobi, Kenya. (From 1st January 1995, this centre will integrate the work of the International Livestock Centre for Africa, and International Laboratory for Research on Animal Diseases)

International Maize and Wheat Improvement Centre (CIMMYT), Lisboa 27, PO Box 6-641, Mexico, 06600 D.F.

International Plant Genetic Resources Institute (IPGRI), Via delle Sette Chiese 142, 00145 Rome, Italy

International Potato Centre (CIP), Apartado 5969, Lima, Peru

International Rice Research Institute (IRRI), PO Box 933, 1099 Manila, Philippines

International Service for National Agricultural Research (ISNAR), PO Box 93375, 2509 AJ The Hague, The Netherlands

West African Rice Development Association (WARDA), BP 2551, Bouaké 01, Cote d'Ivoire.

other organizations and groups. These include or have included:

- Post-harvest potato technology research with Peruvian farmers, from CIP
- Bean research with Bolivian, Colombian and Rwandan farmers and NGOs, from CIAT
- Aquaculture systems research and development with Malawian and Filipino farmers, from ICLARM
- Women in rice systems programme, from IRRI
- Upland conservation research and development in the Philippines and elsewhere, from IRRI
- Pigeon pea research with women farmers in Andhra Pradesh and pearl millet research in Rajasthan

How much are they involved in research?

- Soil and water conservation research with Indian NGOs and farmers, from ICRISAT
- Countrywide network for potato research in Philippines, UPWARD
- Continent-wide network for farmer participatory research for alley farming and agroforestry, AFNETA, supported by IITA, ILCA and ICRAF (AFNETA 1993).

These programmes are, however, not the norm. Those individuals who have succeeded in developing and using participatory approaches have tended to be isolated and marginalized within their institutions. Given the few female scientists in the system, it is especially striking how many of the pioneers are women. At least until recently, they have been more recognized and respected in the outside world than by their colleagues.

The neglect and the need and opportunity to adopt, develop and spread participatory approaches and methods can be interpreted in terms of earlier CG strategy. The IARCs have engaged primarily in basic and strategic research (to generate new understanding and to identify solutions for specific research problems) and applied research (to create new technology); while the related role of NARS has been to undertake adaptive research (designed to adjust technology to the specific needs of particular environments).

The TAC Review of 1985 argued in favour of maintaining this as a status quo, opposing the prevailing view that decentralization was important. But since then much has happened. Enhancing the role of farmers in local analysis, in setting priorities, in experimentation, and in other research and extension activities, is now widely recognized as a prime professional challenge and methodological frontier.

Closer

Solutions could be sought through working more closely with field organizations which are closer to farmers. This coincides with donor pressure for the IARCs to work more with NARSs and NGOs. This raises two questions about the institutional culture and setting, and the willingness to be open to learning.

First, is there a danger that IARCs with their greater prestige, will pass on an inappropriate culture of behaviour and attitudes, or even stifle national or local participatory initiatives? There is perhaps not much risk of a repetition at the institutional level of the cost of creating the antecedent organization to CIMMYT, which effectively suffocated a national institution that had been conducting participatory research in the 1930s. But where behaviour, attitudes and personal interactions are so critical, care will be needed in the selection and training of IARC staff who work on participatory approaches, to ensure that they have a positive, not negative, influence.

Second, how willing will IARC staff be to learn from others? Often to date (though with exceptions such as those listed above) it has been the NARs, and even more so NGOs, that have been in the lead methodologically with participatory approaches, and with training. These have been pioneered in India by MYRADA, AKRSP, Action Aid, OUTREACH, SPEECH, Seva Bharati and other NGOs, and by agricultural universities, such as the Narendra Deva University of Agriculture and Technology, and the Tamil Nadu Agricultural University; in Kenya by CARE, World Neighbors, Action Aid and other NGOs, and by the Ministry of Agriculture; and in the Philippines by the University of the Philippines, Los Banos and the University of Visayas.

Initially, most IARC staff will have more to learn than to pass on. Sharing and partnership are called for. The question is whether the CGIAR system as a whole, and the IARCs individually, will embrace participatory approaches and methods, their development, dissemination and use, as core professional activities, or whether these will remain on the fringe. The opportunity is large, but in our view unlikely to be seized (a prediction we invite the IARCs to prove to be self-invalidating).

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