Expl Agric. (2004), volume 40, pp. 159–178 © *2004 Cambridge University Press*
DOI: 10.1017/S0014479703001637 *Printed in the United Kingdom*

TOWARDS A REGIONAL APPROACH TO RESEARCH FOR THE CGIAR AND ITS PARTNERS

By A. DE JANVRY† *and* A. H. KASSAM‡§

†*Department of Agricultural and Resource Economics, 207 Giannini Hall, University of California, Berkeley, CA 94720, USA and* ‡*CGIAR Science Council Secretariat, Research, Training and Extension Division, Food and Agriculture Organization, via delle Terme di Caracalla, Rome-00100, Italy*

(*Accepted 16 October 2002*)

SUMMARY

At its International Centres Week in October 2000 (ICW2000), the Consultative Group on International Agricultural Research (CGIAR) adopted a new Vision and Strategy. This paper is about Plank 4 of the CGIAR's Vision and Strategy which calls for the adoption, in collaboration with national and regional partners, of a regional approach to research planning, priority setting and implementation. Given the poverty and impact focus of international public goods research, both national agricultural research systems (NARS) and the CGIAR have advantages in pursuing a regional approach as a component of their respective activities. For the NARS in the region, this means seeking advantages at the regional level that they could not derive solely from a national-level approach. For the CGIAR, this means seeking complementary gains that it could not achieve exclusively through a global or ecoregional approach. These mutual advantages open the door for partnerships in regional research between NARS and their regional organizations, and the CGIAR. The paper highlights the advantages as well as risks and limitations of a regional approach to research. Since ICW2000, all regional and sub-regional organizations and CGIAR Centres have taken action to facilitate consultation processes that could eventually lead to the establishment of a regional approach to research for the CGIAR and NARS. The paper notes some emerging lessons, and takes a forward look.

INTRODUCTION

In 2000, the Consultative Group on International Agricultural Research (CGIAR) adopted a new Vision and Strategy recommended by its Technical Advisory Committee (TAC). It defined its Vision as 'A food secure world for all'. Its overall goal was defined as 'to reduce poverty, hunger and malnutrition by sustainably increasing the productivity of resources in agriculture, forestry and fisheries'. Its mission was defined as 'to achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, livestock, forestry, fisheries, policy and natural resources management'.

To implement the new Vision, the CGIAR endorsed the idea of developing a two-pronged approach for the future in support of research and research-related activities to contribute both to the reduction of poverty and to improving food security and natural resources management. This entails supporting research to address the needs

§ Corresponding author: amir.kassam@fao.org

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

of the poor in the more favoured environments to ensure food security and prevent future poverty, while at the same time tackling the more complex problems of poverty in the marginal and 'hard'[1] areas. This strategy entails clearer targeting of the needs of people and how they will benefit from the research supported by the CGIAR and its partners. The focus of the CGIAR is on the rural and urban poor, including farmers, fishermen, forest dwellers and on-farm workers and poor urban consumers.

To implement the new Vision, an integrated Strategy of seven nested Planks was endorsed (TAC, 2000). Plank 1 (People and Poverty Focus) calls for the CGIAR research agenda to be focused on people and the reduction of poverty, hunger and malnutrition in the developing world. Plank 4 (Regional Approach to Research) calls for the adoption by the CGIAR, in collaboration with its national and regional partners, of a regional approach to research planning, priority setting and implementation in order to address the heterogeneous nature of the causes of poverty and food insecurity in different regions[2] and integrate these priorities with global priorities in international agricultural research.

A regional approach to research is not completely new for the CGIAR and its partners. The CGIAR has sustained extensive and highly fruitful collaboration with national agricultural research systems (NARS) in basically every region of the world. However, such collaboration is not part of a comprehensive approach to poverty reduction. The renewed attention to a regional approach, with region defined in a geo-political sense, would increase the possibility of integrating the regional and national research plans into development plans and comprehensive poverty reduction strategies, and improve the impact of agricultural research conducted by the CGIAR and NARS.

This paper provides an elaboration of the rationale for a regional approach to research for the CGIAR and NARS. The first section describes the nature of CGIAR research and Plank 4 of its new strategy, followed by a section that highlights the advantages of a regional approach to research. Risks and challenges of this approach are then presented, and followed by a section that describes the action underway, and some emerging lessons. The paper ends with a section that takes a forward look.

THE NATURE OF CGIAR RESEARCH AND PLANK 4 OF THE NEW CGIAR VISION AND STRATEGY

The CGIAR's business is to conduct international public goods (IPGs) research that is consistent with its goals and where it has a comparative advantage. IPGs that are of interest to the CGIAR are those which benefit many countries and would not attract private sector investments. Past CGIAR research shows that the spread of technologies across country borders can be large (Pinstrup-Andersen, 2000; Dalrymple, 2001), and that no single country may be able to capture enough of the benefits to fully recover the costs needed to produce such public goods. Under these conditions, an international

[1] Hard areas are those where poverty is extensive and either increasing or not declining. Such areas may not necessarily be inherently marginal in natural resource endowment or in biophysical and social potentials.

[2] A region comprises a number of nations.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

approach to the creation of IPGs is more cost effective and efficient than national approaches.

While the term IPG was not mentioned in the early years of the CGIAR, it did feature as a key character of CGIAR research during the 1989/90 debate on the expansion of the CGIAR System. Since then it has become an important criterion for judging the appropriateness of research. IPG research in the CGIAR by definition must have a strong focus on strategic research[3] (mission-oriented basic research). Knowledge gained from such research with advanced institutions forms the basis, through applied research with national partners, for generating products (generally referred to as 'technologies') that have the potential of wide applicability across and within nations. Such products are converted into national and local public goods through adaptive research, in partnership with local extension groups, farmers and post-production stakeholders in the private sector. However, few such IPG agricultural and NRM (natural resources management) proto-technologies can be immediately used by farmers because they usually need to be adapted to a range of local conditions and this requires a counterpart national or regional research and development capability (Rosenberg, 1982). Where this capability is lacking or weak, or there is some other limiting factor, as in many developing nations, IPGs may not be adopted or remain under-utilized. This is why weak national capabilities in adaptive research have received huge attention from the CGIAR in the form of training and capacity building over the last 30 years.

It was in the 1990s that the CGIAR formally incorporated poverty alleviation and sustainable food security into its mission. This marked an increasing recognition of the importance of the 'context', both physical and socio-cultural, and of the variability and diversity of sociological contexts, in addressing rural poverty through improved agricultural productivity. Poverty can be defined narrowly in terms of income poverty or it can be defined broadly in terms of economic and social deprivation. Poverty alleviation as a development process is normally mediated through economic growth and diversification of the productive sectors of national economies in which wealth is created, mainly through the private sector (including farmers), and distributed as widely as possible through social services. When the CGIAR claims to be engaged in poverty reduction through agricultural research on food commodities, its contributions are essentially towards raising incomes of producers and generating rural employment. It also 'raises' real incomes of poor consumers through reduced prices for food, leading to increases in access to cheaper food for a greater proportion of the poor. This is especially important for the poor who spend a large portion of their meagre incomes on food. This role of agricultural technology in reducing rural and urban *income* poverty has been well documented (IFAD, 2000).[4]

[3] Strategic research is defined here as mission-oriented basic research that aims at discovering and generating IPG knowledge about the principles and processes underlying a phenomenon; applied research aims at applying such knowledge to generate IPG proto-technologies and know how that has wide applicability potential; adaptive research aims at generating production technologies and practices suited to national and local situations.

[4] However, in many circumstances, rural economic growth and social development is led and sustained, not by agriculture, but by non-agricultural sectors which provide the markets for additional biological production and

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

In addition to incorporating a poverty focus into its mission, the CGIAR introduced a project-based research management system to improve the impact of its research. Poverty and food security issues are generally conditioned by the national and regional political and investment environment and cannot be addressed directly through IPG research. The CGIAR therefore must reconcile the divide that exists across the three elements of its research strategy – the IPG nature, the poverty focus and the impact orientation – if it is to remain an effective player in the international agricultural research system. To achieve such reconciliation, the CGIAR must get the context of its research right; it must generate the most critical IPGs; and it must have impact on income poverty and NRM. In the new CGIAR Strategy, it is the regional approach to research as envisaged by Plank 4, if accepted by all parties which critically include the NARS, that has the potential to facilitate the needed reconciliation and improve partnership linkages across the research-to-development continuum.

In justifying the need for a regional approach to research planning, priority setting and implementation in the CGIAR (Plank 4, TAC, 2000), TAC stated the following:

> 'The causes and appropriate means of reducing poverty and improving food security depend on the heterogeneous regional, social and institutional contexts within which poverty exists. Contributing through research to reducing poverty will depend on identifying researchable issues, and developing appropriate technologies and positive institutional and social environments in the regions where the poor live. Thus, the CGIAR should adopt a regional approach to research planning, priority setting and research implementation to complement its global approach to priority setting in order to increase the effectiveness with which it addresses the heterogeneous nature of poverty in different geographic regions. This will be particularly important where comprehensive development efforts are needed in order for agricultural innovations to have an impact on poverty. The present priorities of the CGIAR have been determined more on the basis of commodity and activity than on reducing poverty and improving food security. Social science concepts and methodologies can assist in setting and pursuing the research priorities that will have most impact on poverty and food security, and in customizing the resulting technologies to particular situations.'

Priority setting for regional research starts with a participatory poverty assessment for the region; understanding the location of poverty, the nature of poverty, and the determinants of poverty; and identifying possible strategies to escape poverty. The objective is to clearly identify the potential role and also the limits of agricultural technology in attacking poverty. Analysis of the linkage between technology and poverty has shown that there are many direct and indirect channels through which technology can help reduce poverty (de Janvry and Sadoulet, 2003). But, while agriculture research is a necessary condition for reducing income poverty, it is not a sufficient condition (Bunting 1984, 1992; Bonte-Friedheim and Kassam, 1994). A host of other factors play a role in promoting or constraining changes in productivity and biological output of production systems. Thus, the definition of the constraints or problems and what possible technological solutions might be relevant can be made

alternative employment opportunities for rural people (Bunting 1984, 1992; Bonte-Friedheim and Kassam, 1994). Effective demand for surplus goods and services from the agricultural and rural sector can only exist when the urban population has money to purchase them at prices acceptable to both producers and consumers. If this population is not only proportionately small but also poor, the market is inevitably limited. Rural and non-rural development, in practice, are two sides of the same coin: the one does not progress without the other.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

more effectively through a bottom-up planning process in which the CGIAR and regional stakeholders including policy and development planners are 'jointly' engaged. This would increase the relevance and probability of success of CGIAR research (Kassam *et al.*, 2004). Also, the emphasis on people is germane to the argument that region-specific perspectives will be apt to reflect better the context specificity, highlighting cultural diversities even when physical parameters are similar. Social structures and institutions vary by region even when functionally they perform similar tasks. Therefore, priority setting must shift from the diffuse global commodity focus to households as managers of farming systems and to a diversity of households and social institutions by region. Thus, a focus on people and poverty gains in sharpness and clarity in a regional setting rather than at a global level. Within a bottom-up priority setting process, global priorities will be based on complementarities among regional priorities, the poverty criterion being the common objective pursued.

ADVANTAGES OF A REGIONAL APPROACH TO RESEARCH FOR NARS AND THE CGIAR

Both NARS and the CGIAR have advantages in pursuing a regional approach as a component of their respective activities. For the NARS, this means seeking advantages at the regional level that they could not derive solely from a national-level approach, thus complementing and supplementing the national approach. For the CGIAR, this means seeking complementary gains that could not be achieved exclusively through a global or ecoregional approach. These mutual advantages open the door for partnerships in regional research between NARS, regional organizations and the CGIAR. At the regional level, research opportunities can be identified that satisfy both the NARS' objectives and the CGIAR's own objectives. It is identification of these win-win opportunities that provide the basis for a regional cooperative research programme between NARS and CGIAR, helping reduce costs in NARS and achieve greater efficiency in the CGIAR System.

Reasons to go from a national to a regional approach

Achieve economies of scale in research. Research activities typically involve high startup costs and critical levels in the size of teams and laboratory and field investments. Small and poor countries have difficulties in achieving these economies of scale, particularly in the many dimensions where agricultural research needs to be sustained. A logical response to this difficulty is to seek a regional division of labour, locating particular research activities in particular countries and exchanging results, or organizing research as a regional network. In both cases, regional coordination is necessary to capture these economies of scale.

Internalize the international externalities of investment in research and development. The high rates of return to agricultural research show that countries tend to under-invest in agricultural research (Alston, *et al.*, 1998). The most powerful explanation of this tendency is that research creates positive international externalities that the

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

investing country cannot capture. Externalities are larger relative to direct benefits if the country is smaller and other countries are more similar, allowing them to derive gains from that country's research. Central America is a good illustration of this situation. Cooperation to plan investment at the regional level and internalize regionally a larger share of the externalities is a logical approach to reducing under-investment in research.

Elevate the game to maintain longer term continuity. A difficulty in securing high returns from investment in research and rural development is the discontinuity in programmes implied by short duration political and funding cycles. Where government bureaucracies are not strong enough to maintain continuity, short term political cycles (including changes in leadership) can imply sharp discontinuities in priorities, budget allocations, and teams in command. This is detrimental to research that typically requires long maturation periods, as well as to rural development initiatives that seek long-term environmental objectives or the development of human and social capital. Defining research priorities at the regional level serves as a commitment device to strengthen political will by elevating research priorities and rural development initiatives above short term political and funding cycles.

Give coherence to donor-driven projects. In poor countries, the development agenda is often set by international donors' projects. This results in a multiplicity of projects with insufficient coordination and continuity. These projects are donor-driven as opposed to being driven by a comprehensive development framework that gives them consistency. Central America and sub-Saharan Africa are living examples of this problem, for instance for projects offered in response to natural disasters. A regional development framework that includes regional agricultural research priorities would:

- Give coherence to donor-driven projects in relation to national and regional objectives.
- Provide an objective basis for countries to negotiate projects.
- Allow investments to be shifted from a project-driven to a strategy-driven approach.

Provide accountability and resilience to capture. All projects are exposed to capture by local elites and political interests. A regional approach helps create greater visibility and accountability to the use of funds. More impartial external audits can be used to track use of funds and impacts achieved.

For the above reasons, it can be concluded that elevating the game of agricultural research from a national to a regional approach has many advantages for NARS and the CGIAR. At the regional level, research priorities need to be established as part of a shared comprehensive development framework. This framework needs to be widely owned by stakeholders in the region. To achieve this, it has to be developed through inclusive consultations and dialogue with regional stakeholders. Because this involves more than agricultural research, the appropriate institutional mechanisms to conduct these consultations need to be clearly defined, and certainly go beyond

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

regional agricultural interests. In addition, securing a meaningful participation for poor stakeholders requires sufficient prior investments in their empowerment and in the capacity of their representative organizations.

Reasons to go from a global-ecoregional approach to a regional approach

Principles of a regional approach – coordination, participation and partnership. Most of the CGIAR's programmes are defined on a global basis, either by commodities, activities, or ecoregions. Only WARDA (West Africa Rice Development Association) is defined explicitly at the regional level, but confined to only one commodity, rice. Most Centres have regional activities, but they are not part of comprehensive development approaches for the corresponding region, with the possible exception of ICARDA (International Center for Agricultural Research in the Dry Areas) with its strong focus toward the Central and West Asia and North Africa region. In particular, there is little coordination with a regional poverty reduction strategy, even though poverty reduction is the central goal for the CGIAR's actions in the region.

Lack of a coordinated regional approach is not problematic in regions where the mechanisms for adaptation of newly released technologies are in place. In this case, the release of technology is sufficient to secure its subsequent diffusion and adoption, even by poor farmers. This is not the case in 'hard' areas where the complementary conditions for adoption are not in place. In these areas, this is typically due to:

- Lack of assets held by the rural poor.
- Market failures that prevent the poor from engaging in transactions to sell products, acquire inputs, and buy consumer goods.
- Institutional gaps, whereby access to essential services such as credit and insurance is missing, and organizations for collective action are not present.
- Public goods deficits, such as the provision of health, education, infrastructure, and information.
- Policies that are biased against agriculture and more specifically against smallholders.

If these determinants of adoption are not put in place, technological innovations have no chance of impacting on poverty. Since the CGIAR has no or little comparative advantage to invest in putting these conditions in place, partnerships with regional development agents that have this capacity are essential. Otherwise, the CGIAR can simply write-off the region as one where it cannot have impact. It is this coordination with development agents in 'hard' areas that provides the most fundamental meaning to a regional approach. *Coordination* is thus the first guiding principle for a regional approach.

Involving more stakeholders in the regional priority setting exercise is fundamental for this purpose. Only through their participation will there be shared ownership of the regional approach. A second guiding principle for a regional approach is thus the importance of a broad *participation* of stakeholders involved in the struggle against poverty.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

Finally, a regional approach allows identification of areas of win-win between the NARS of the region and the CGIAR. Even if objectives are not coincident, since the NARS have broader economic and political objectives than the CGIAR, which is principally motivated by poverty, food security, and sustainable resource use, there are ample opportunities for win-win research initiatives. It is the identification of these win-win opportunities, while capitalizing on the unique comparative advantages of NARS and the CGIAR in research, that provides the third guiding principle for a regional approach: *partnerships* between CGIAR and NARS in the region.

Heterogeneity and local information. Regions are heterogeneous and, within regions, poverty is itself highly heterogeneous. As a result, a regional approach will differ across regions according to the specificity of the region and, within the region, it will have to deliver instruments for poverty reduction that cater to the heterogeneity of poverty.

A logical scheme to achieve impacts via investments in agricultural research is as follows:

Objectives

Productivity, poverty, food security, sustainability

⇓

Instruments

Technology, other instruments

⇓

Context

Assets, markets, institutions, public goods, policies

⇓

Processes

Pathways through which technology affects productivity, poverty, food security, sustainability

⇓

Implementation

Role of CGIAR, NARS, and partnerships

⇓

Impacts

Changes in productivity, poverty, food security, sustainability.

What are the advantages of a regional approach for the CGIAR in each of these steps?

(i) Objectives: The generic objectives of poverty reduction, increased food security, and improved natural resource management for sustainability may be the same across regions, but the specific forms that each of these objectives take at the regional level

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

differ widely. In regions like Latin America, poverty is mainly urban. In Africa, most poverty is associated with smallholder farming. In South Asia, poverty is mainly rural, and the landless figure prominently among the rural poor. The dimensions of poverty also vary across regions, with income poverty being compounded with other region-specific dimensions. In Asia, the qualitative dimension of food diets is an important dimension of poverty. In the CWANA (Central and West Asia and North Africa), chronic income poverty is not as prevalent as vulnerability and exposure to transitory poverty and dislocation. The objectives of research consequently need to be adapted to the heterogeneity of poverty. Because information about the nature of poverty, and what research can do to reduce poverty, is local, formulating research objectives needs to be done through participation of local stakeholders. Hence, a regional approach is necessary to adapt the research priorities to the objectives sought through research for the region.

(ii) Instruments: Agricultural technology is only one instrument among a panoply of tools that can be used to attack poverty. If the CGIAR works alone, it needs to take these other instruments as given. In regions where these other instruments are not in place (e.g. infrastructure, health, education, organizations, agrarian institutions, policies favorable to agriculture), the role of technology will be severely limited. This has been the case for 'hard' areas like sub-Saharan Africa and Central America. If the CGIAR works in conjunction with the other development agents in the region, it can seek coordination in delivering technology that can capitalize on complementarities between instruments. A regional approach thus greatly enhances the likelihood that technology can be effective in poverty reduction. At the same time, it allows the CGIAR to disengage itself from adaptive research activities in rural development, and to confine itself in the activities where it has unique comparative advantage, namely agricultural research for IPGs that cannot be done alone by NARS in the region. However, while this is vital to the cost-effectiveness of the future CGIAR, this strategy can only work if NARS capacities are built within revitalized national institutions.

(iii) Context: The likelihood that assets and technology improve livelihoods depends on the quality of the context where they are used. This context is characterized by:

- How markets work.
- How complete and effective are the institutions in support of economic activity in the region.
- Whether public goods and services are complementary to public investments and provide the dimensions of welfare that cannot be achieved through income.
- Whether policies are supportive of agriculture and of economic activity in rural areas.

(iv) Processes: There are many pathways through which technology can help reduce income poverty. This includes direct effects on the income and consumption levels of poor adopting smallholders. It also includes indirect effects through employment creation in agriculture and higher wages, lower prices of food for consumers and net buyer farm households, linkages between agriculture and other sectors

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

of economic activity, and overall economic growth effects (for instance through improved foreign exchange earnings created by agricultural exports). These effects are highly complex, and not yet fully understood (Hazell and Haddad, 2002). They are certainly highly specific to each region, and maximizing the poverty reduction effect of technology through these pathways requires defining a research strategy at the regional level.

In this regard, new approaches to technology generation allow research outcomes to be customized to the heterogeneity of poverty. These new approaches include precision farming, scenario assessment (crop simulation models, decision support systems, bio-economic modeling, and multi-agent systems), biotechnology (introduction of new traits) combined with local breeding and agroecology, and integrated natural resource management. Hence, advances in agricultural research increase the payoffs from a regional approach by allowing cheaper customization of research outcomes to the heterogeneity of regional contexts and to intra-regional heterogeneity. Customization requires participatory research and an understanding of the systems being operated by local farmers in order to elicit revelation of the local information needed to guide research.

(v) Implementation: The CGIAR has always worked in coordination with NARS. In some regions, NARS have become stronger, and can absorb functions previously fulfilled by the CGIAR, allowing the latter to move upstream. In many regions, however, NARS have been weakened by austerity policies and descaling of the role of the state, and the private sector has hardly emerged. This is the case for 'hard' areas. In this situation, partnerships with NARS need to be much more hands on, even for downstream research activities. A regional approach greatly facilitates this collaboration. Division of labour among NARS at the regional level and coordinated complementarities with CGIAR research are essential for cost effectiveness.

In many developing countries, National Agricultural Research Institutes (NARIs) have been marginalized because they have not adapted their delivery of technology to shifting demands. This includes consumer demands for safer and more nutritious foods and for environmental amenities. It also includes defining modalities to collaborate with the private sector in a context of intellectual property rights (IPR) and market integration. Regional partnerships between CGIAR and NARS can help reposition NARIs in relation to changing effective demand and upgrade their relevance and performances.

(vi) Impacts: Impacts of adoption on the objectives sought tend to be interactive and cumulative, not simply additive. Hence, a coordinated approach to research and a 'big push' effort at delivering technological innovations can have payoffs that are greater than the sum of individual effects. A coordinated regional approach to research is important to achieve these cumulative effects. In regions where poverty remains extensive and has failed to decline (as in Central America and sub-Saharan Africa), and where agriculture remains directly or indirectly the most important source of livelihoods for the poor, a comprehensive attack on poverty that coordinates agricultural technology with other interventions is one of the most promising instruments available.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

RISKS AND LIMITATIONS OF A REGIONAL RESEARCH APPROACH

A regional approach is beset with risks and limitations arising from several unknowns that need to be addressed.

Lack of experience. There is little experience in planning and implementing regional research priorities in the manner and scale envisaged by Plank 4 of the CGIAR's Vision and Strategy. There are no blueprints available on the management of the planning process, including the regional research priority-setting approaches and methods to be used. Overall, only a start has been made in setting up initial consultation processes in the regions. There is some way to go before multi-stakeholder priority-setting processes are established and a regional research priority-setting process can begin. The main gap in the approach still remains the link with the non-agricultural dimensions of regional poverty. The regional groups apparently tend to do a reasonable job at bringing the agricultural stakeholders together, but they rarely manage to forge institutional linkages with policy planners and the political machinery that makes decisions about development and investments. Whether the 'multi-stakeholder' extension of the regional planning process will bring in the non-agricultural dimensions of poverty remains to be seen.

In the regional consultation meetings that have been conducted so far, CGIAR Centres have offered strong presence and good cooperation. However, as each Centre in the past has largely done its own research planning with NARS in the region, there has been little cohesive inter-Centre experience in regional research planning. There is even less experience in joint research planning by Centres as a group with regional organizations/sub-regional organizations (ROs/SROs), with NARS as a group and other stakeholders, particularly the policy and development planners (agricultural and non-agricultural), and with private corporations, NGOs (non-governmental organizations), and development and financial institutions, including ministries and donors. This is plainly evident in the sub-regional meetings that have taken place so far. However, Centres have begun to take steps to come together at the sub-regional level to: inform each others about their activities; discuss the opportunities and challenges for joint work in the context of major constraints (technology, natural resource, policy, institutional) to address poverty; establish a dialogue for joint research planning with ROs/SROs and NARS, and expand consultation processes to be inclusive and multi-stakeholder. On the side of NARS, the lack of trust between countries and competition among countries is a serious stumbling block and must be addressed. The ROs and SROs, under the leadership of GFAR (Global Forum on Agricultural Research), have begun to facilitate progress in this area with improvement in their priority setting and resource mobilization capability.

Lack of effective traditional partners. A regional approach presumes that the CGIAR will find the necessary complementary partners and be able to work effectively with them. This may not be satisfied. In several regions, NARS have been debilitated by transitions in economic regimes and by structural adjustment. Since a regional

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

approach is based on a division of labour between IARCs (International Agricultural Research Centres) and NARS, what the IARCs will need to do in the region will depend on what the NARS can do. In some cases, this may place undue burden on the CGIAR, or put pressure on it to accept functions for which it is not prepared, and which it should not assume.

The question of the catalytic institution for a particular region. Partnerships for poverty reduction need to go beyond traditional NARS. This raises the question of identifying the catalytic institution for a particular region. This institution needs to have widely accepted leadership in the region, a credible commitment to poverty reduction, and the ability to work *pari passu* with others. Clearly, an institution with recognized regional authority is needed. If this is missing, how far can the CGIAR go in assuming or catalysing this role? There are issues of political economy, legitimacy, and ownership that need to be resolved in each case, and this may fail.

There are several potential candidates that could play a catalytic role in the different regions. These include: the Regional Agricultural Research Fora or Organizations; the Food and Agriculture Organization (FAO) Regional Offices; the regional political entities if any (e.g. The New Partnership for Africa's Development – NEPAD; the Association of Southeast Asian Nations' Ministers of Agriculture Conference; the West Africa Ministers Council of WARDA; Inter-American Institute for Co-operation on Agriculture in Latin America); regional banks (e.g. Asian Development Bank; African Development Bank; Inter-American Development Bank; The Regional Fund for Agricultural Technology – FONTAGRO). In practice, the catalytic role could also be implemented in a shared or differentiated manner, i.e., specific areas of research could be assigned primarily to specific actors, and CGIAR Centres could also play a catalytic role in such shared arrangements.

Regional ownership of the process and outputs. A regional planning process and the desired products, e.g. a regional research strategy for poverty reduction, must be owned by regional actors – NARS, policy planners and decision-makers, CGIAR Centres, development agents and stakeholders. Building multi-stakeholder ownership of the regional planning process and products is a challenge which cannot be taken lightly nor can the solution be taken for granted. The process will need to be organized and run efficiently to ensure that stakeholders maintain interest and confidence.

Data and information. A regional approach to research makes a heavy demand on regional data and information. Weakness in the database coverage and quality and in the understanding of the poverty processes and impact pathways specific to the region will limit the effectiveness of the regional approach. It is thus urgent that this regional information be made available in support of the regional planning exercise.

Transactions costs. Transactions costs in coordinating with other development partners may be excessively high. Working with regional organizations and GFAR

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

is essential to reduce these costs. Innovative solutions to reduce transactions costs will have to be experimented with to identify best practices for each particular context.

Lack of donor support. Establishing and sustaining the regional planning process will require resources and donor participation. Availability of support can make or break the regional initiative in a particular region, despite the potential of the regional process to add value to the effectiveness of a large range of research and development institutions and regional stakeholders. To secure the interest of governments in the region and of donors with presence in each particular region, participation of these agencies is needed from the outset.

Further, the implementation of the defined regional research priorities will need to be implemented through cooperative research between the CGIAR and NARS in the regions. Call for proposals and selection of submissions could be done in accordance with the regional research priorities. However, donor support and ownership will be essential to ensure that the regional research agenda is funded and implemented over time through cooperative projects. Cooperative research undertakings could be funded through competitive grants from a special fund supplied for this purpose. This has been proposed by the Challenge Programme for integrated natural resources management research and development in sub-Saharan Africa, an initiative led by the Forum for Agriculture Research in Africa (FARA) that is expected to be launched with SROs (Association for Strengthening Agricultural Research in Eastern and Central Africa, ASARECA; Le Conseil Ouest et Centre Africain pour la Recherche et le Développement/West and Central African Council for Agricultural Research and Development, CORAF/WACARD; Southern African Development Commuinty's Directorate of Food and Natural Resources, SADC-FANR), NARS and CGIAR Centres as research partners.

TOWARDS A REGIONAL APPROACH TO RESEARCH

The adoption of a regional approach to research had been widely recommended in the broad consultations that were part of TAC's development of the new CGIAR's Vision and Strategy document, which was approved by the Group at ICW2000. Considering the flurry of activity that followed this decision, the proposed regional approach (Plank 4) seems to have been well received by GFAR, the various ROs/SROs, and the NARS. Steps have been taken to move from vision to action in all regions where GFAR, ROs/SROs and the CGIAR Centres have held meetings (Asia-Pacific Association of Agricultural Research Institutions, APAARI, for Asia/Pacific; Foro de las Americas para la Investigación y el Desarollo Technológico Agropecuario, FORAGRO, for Latin America and the Caribbean; FARA/CORAF/WECARD for West and Central Africa; and FARA/ASARECA/SADC-FANR for East, Central and Southern Africa; Association of Agricultural Research Institutions in the Near East and North Africa, AARINENA, for the CWANA region) to discuss organization of the proposed regional approach.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

Roles of TAC/SC[5], GFAR and CGIAR Centres

As can be appreciated from the preceding sections, Plank 4 of the CGIAR's operational strategy is extremely complicated and sensitive. Two phases to the process were envisaged: the first, led by NARS in the region, has to do with overall planning and priority setting that defines priorities for the region as a whole (facilitated by GFAR with technical advice from TAC/SC); the second identifies the CGIAR's role within a broader regional agenda (facilitated by TAC/SC in consultation with relevant Centres and partners), i.e., with the subset of the total regional agenda in which the Centres would play a direct role.

TAC/SC and GFAR: For phase one, TAC/SC provided advice and information on topics related to CGIAR priorities and strategies and kept itself appraised of the progress of regional planning exercises through its Secretariat and selected TAC/SC Liaison Members.[6] GFAR is playing a coordinating role in calling meetings, helping set agendas, facilitating participation of national and regional representatives, and mobilizing resources.

It is in the second phase where previous experience is limited and TAC/SC would help to link regional priorities from phase one with CGIAR priorities. Such an exercise, led by the SC, is currently ongoing through stakeholders and scientific consultations organized thematically and regionally. The criteria used by TAC/SC to assess opportunities for strategic choices in shaping the CGIAR's global research agenda are: contribution to CGIAR goals, production of international public goods, CGIAR's comparative advantage and alternative sources of supply, probabilities of success, and cost effectiveness. TAC/SC can employ these criteria, suitably adapted to specific regions, to select regional priorities identified through the bottom-up priority-setting process. The results of TAC/SC analysis will eventually have implications for its recommendations to the Group on regional investments in research through all three CGIAR programme modes – Centre Core programmes, System-wide Programmes and Challenge Programmes.

CGIAR Centres: To facilitate the participation of the CGIAR Centres in the regional planning processes, the Centres have agreed among themselves to the following initial 'assignment' of regional responsibilities, namely: West and Central Africa, IITA (International Institute for Tropical Agriculture)/WARDA; Eastern and Southern Africa, ICRAF (International Centre for Research on Agroforestry); Central and West Asia and North Africa, ICARDA; South Asia, ICRISAT (International Crops Research Institute for the Semi-Arid Tropics); Southeast and East Asia, IRRI (International Rice Research Institute); Latin America – Lowlands and Central America, CIAT (Centro International de Agricultura Tropical); Latin America – Andean Highlands, CIP (Centro International de la Papa). In undertaking these responsibilities, Centres will, as always, need to collaborate closely with national

[5] TAC was transformed into an interim Science Council as of January 2002, and into a Science Council (SC) as of September 2003.

[6] In collaboration with ISNAR, TAC also suggested a possible approach to facilitate cross-region comparability in output (Janssen, *et al.*, 2001).

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

and regional partners in keeping with the decentralized regional planning and participatory approaches envisioned by the new CGIAR strategy.

The CGIAR Centres may relate to regional priorities in a variety of ways at different stages in the planning process. During phase one, Centres with capacity in the social sciences and policy research such as IFPRI (International Food Policy Research Institute), ISNAR (International Service for National Agricultural Research), and others can contribute individually and collectively to the in-depth analysis of the key regional issues. Should they choose to do so, it would be ideal to see a joint effort with the stronger NARS, ROs/SROs, GFAR, regional development banks, FAO regional offices, universities, bilateral agencies, and other stakeholders. Such an effort would help to build ownership and win financial support.

The CGIAR Centres active in their respective regions could play a pivotal, back-up role in the regional planning exercises, given their research capacity and databases as well as experience in convening and organizing regional activities. However, the Centres should not be expected to take the lead. The regional planning exercises will identify many vital complementary activities (research, extension, investments, policies, and legislation) that will require support and commitment from other regional stakeholders. It is important, therefore, that these exercises be seen as joint, collective efforts rather than purely CGIAR-driven activities.

Some lessons from the regional consultation processes underway

Since November 2000, a series of regional/sub-regional consultations have taken place, among regional and sub-regional organizations (ROs/SROs), NARS, CGIAR Centres and other IARCs and other stakeholders of agricultural research, in which the topic of regional priority setting was discussed. ROs/SROs have undertaken priority setting exercises in the past as part of their mandate of promoting regional and sub-regional cooperation. This function is now gaining a new dimension, with the CGIAR decision to take into consideration regional priorities as an input in its strategic planning process and research implementation. Strong interest was expressed by all participants to see how these two processes could be closely linked in order to provide an input into the CGIAR process.

To assure full participation of all stakeholders in the regions/sub-regions, the exercise needs to be further publicized and opened up to broad participation. In addition to GFAR, which has been supporting the process of consultation among stakeholders, all CGIAR Centres have provided strong cooperation and support to this endeavour and are expected to continue to do so[7]. However, it must be pointed out that the dynamics of the process is being generated by the regional stakeholders and by the ROs/SROs which are clearly leading the process, with the support that GFAR is providing. The discussions that have already taken place on the regional approach

[7] CGIAR Centres in all regions have taken steps to work together with ROs/SROs. Also, Centres have held several regional integration meetings, e.g., organized by IITA/WARDA for West and Central Africa, by ICRAF for Eastern and Southern Africa, by ICRISAT for South Asia, by ICARDA for CWANA, and by IRRI for Southeast Asia and the Pacific.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

to research for the CGIAR and NARS have raised a number of considerations that indicate the beginning of a learning process towards regional priority setting and regional research partnerships. The following are some of the issues and lessons that need to be noted.

(a) The value added to NARS of determining and implementing regional priorities. An important question that has been raised by NARS is what is the added value of determining and implementing regional research priorities? In discussing this point, four factors were mentioned as bringing a clear added value: (i) a better understanding of regional development needs and the development of consensus and ownership of these ideas based on a common perception by the main stakeholders; (ii) the identification of what each stakeholder can do within the common framework defined by the regional priorities, facilitating synergies among them; (iii) the possibility of assuring complementarity among the main stakeholders to develop a critical mass of researchers and greater development impact; and (iv) the avoidance of wastage of very scarce resources for regional NARS to undertake strategic research necessary to solve a problem which all have high on their priority list. On the basis of these ideas, it was felt that it would be useful to spell out these advantages in a more systematic way, identifying how to carry out this process in order to make sure that this potential added value becomes a reality.[8]

(b) Weaknesses in the earlier efforts by ROs/SROs in determining regional priorities. The efforts of regional priority setting that ROs/SROs have undertaken during the past few years have generated an important learning process, as well as basic information on regional research needs. At the same time, these efforts of determining regional priorities have three weaknesses. The first is that participation in the process of determining the priorities of ROs/SROs has been limited in some cases to NARIs, with little participation of other stakeholders (NGOs, private sector, donors, etc.) and research providers (universities, state or provincial ROs). A second weakness is that the regional priorities quite often only refer to crop and sometimes to animal production, with little or no reference to forestry and fisheries or natural resource management, policy and capacity building. Thirdly, the regional priorities will have to be more sharply focused if they are to have an impact on the programme orientations of the various stakeholders involved. These factors should be taken into consideration in the process of determining the regional priorities. On the basis of these considerations, all regions have expressed a clear interest to review their priorities while addressing these weaknesses, and to carry out a joint effort with the IARCs of the region to identify those that are more relevant to the CGIAR.

[8] The advantages of the regional approach were elaborated by de Janvry and Kassam (2001a and 2001b), and a joint ISNAR-TAC discussion paper was prepared on possible guidelines for regional priority-setting for the CGIAR Centres and their regional partners in implementing the regional approach to research planning and implementation (Janssen *et al.*, 2001).

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

(c) Partial coincidence between regional research objectives pursued by NARS and the CGIAR. The main objective of many NARS in pursuing agricultural research is sustainable competitiveness of agriculture and contributions of agriculture to national economic and social development, and this is to be achieved through the delivery of national public goods. The CGIAR's mandate is to seek the sustainable reduction of poverty and improved food security, and to achieve this through the delivery of international public goods. Also, the CGIAR gives itself a longer time horizon than national research systems, implying a lower discount rate in projects that generate future benefits. This is particularly important for the complementarity between agricultural research and natural resource management, where NRM considerations may consequently have more weight for the CGIAR than they have for NARS. Because there are large areas of coincidence between these objectives and *modus operandi*, there is ample scope for collaboration between NARS, regional organizations, and the CGIAR in the definition and implementation of research agendas.

Each group of organizations is, however, also pursuing objectives that are not the same. In addition to regional objectives, the CGIAR is pursuing objectives at the global level, which are not simply the aggregation of regional research needs. Within a region, the CGIAR will be pursuing objectives that are partly, and potentially largely, coincidental with national and regional objectives, but also partly distinct. For example, commodities that pertain to the CGIAR mandate are only a subset of those on which NARS in the region are working. On the other hand, more explicit poverty reduction objectives for the CGIAR imply greater concerns for the multidimensionality of poverty. For the CGIAR, the art of regional priority setting and research implementation will be to seek maximum overlap with the objectives and programmes of partners in the region, but without compromising on the specific mandates of the NARS and ROs, and of the CGIAR. Participation of NARIs in developing regional research agendas will also draw them toward the delivery of international public goods (or at least regional club goods), helping narrow down the gap between CGIAR and NARIs research instruments.

(d) Importance of regional ownership for areas of coincidence. For that part of the CGIAR's regional agenda that is coincidental with the research pursued by NARS and ROs, priority setting should be developed as a bottom-up process with participation among equals. This includes NARIs, universities, the private sector, NGOs, and producer organizations preferably engaged in participatory agricultural research. Hence, there is a need for broad coalitions that should be more inclusive than the current practice of regional forums. Organizing this process requires giving time to local partners to: mobilize participation of stakeholders; establish leadership roles at the regional level and procedures in the process of consultation and decision-making; consolidate strength in the capacity for priority setting and implementation of research at the national and regional levels; and effectively engage in institutional learning as the process unfolds.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

(e) The CGIAR's poverty objective requires a broad regional approach to coordinate the use of research for poverty reduction. In seeking to improve the poverty reduction impact of its research, the CGIAR needs to coordinate its programmes with those of development agents in the region (international development agencies, regional development agencies, national and local governments, NGOs, etc.) that are pursuing poverty reduction on a variety of fronts. This includes health, education, and institutional development in support of competitiveness of smallholders, infrastructure development, and regional policies. This is particularly important in the regions where the conditions for diffusion of technological innovations are largely not in place, and hence where a research effort will only bear fruit on poverty reduction if accompanied by these other interventions.

A regional approach to poverty reduction using the instruments of agricultural research must consequently: (i) start with a characterization of poverty in the region including its mapping, the identification of its determinants, the nature of its dynamics, and alternative options to escape from poverty; (ii) identify the potential role of agricultural technology in reducing poverty directly (adoption by poor farmers) and indirectly (employment and wage effects in agriculture, reduction in the price of food for net buyers and non-farm consumers, linkage effects with non-agricultural activities, and overall economic growth); and (iii) co-ordinate the delivery of research results with the delivery of the other determinants of adoption and dissemination of technological innovations.

Hence, the CGIAR either needs to work with broader regional coalitions than those that are currently in place in support of agricultural research, or make sure that existing regional organizations are broadened to include meaningful representation of development agents beyond agricultural research. It should be clear, however, that each region will evolve its own distinct approach to research according to the specificity of its objectives, constraints, and capacities.

LOOKING FORWARD

All the developing regions have shown strong interest in participating in the implementation of Plank 4 of the new CGIAR Vision and Strategy. The ROs/SROs have emphasized the importance of regional priority setting and of strengthening their capacity to do so. Further, they see the opportunity for organizing action in terms of responding to areas where the CGIAR may become more active in the sub-region/region. They consider it more practical to move forward step by step with sub-regions, rather than whole regions, where there can be relatively greater homogeneity.

The main challenge now faced by ROs/SROs and the CGIAR Centres in proceeding with the regional planning process is that of revisiting regional research priorities in order to improve their focus, and to do so in such a way that the various stakeholders are involved. Secondly, ROs/SROs and the Centres must define how to approach the task of identifying regional priorities that are relevant for the CGIAR, within the broader framework of regional priorities. On the basis of the work GFAR did

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

with ROs/SROs and with TAC immediately after ICW2000, four perspectives were proposed as possible future steps in the identification of regional priorities relevant for the NARS and the CGIAR.

(i) Revisiting of regional priorities and discussion with all stakeholders, including NGOs, and farmers.

(ii) Analysis of the interaction between poverty eradication on the one hand, and economic growth and competitiveness of the agricultural production on the other. The objective of this analysis is to look for win-win situations, where increasing the competitiveness and sustainability of key areas of agriculture can significantly contribute to poverty eradication by generating direct benefit for the rural poor, through employment, income generation and other means.

(iii) Analysis of the production systems that predominate in the peasant or smallholder economy of sub-regions, their technological constraints, their environmental linkages, and the population of the rural poor that are related to these systems. This includes issues related to the use of local knowledge and the management of agroecosystems.

(iv) Analysis of comprehensive poverty reduction strategies. Identification of the determinants of poverty, of options to escape poverty, and of the role of agricultural technology and development in reducing poverty in the region.

The second perspective above is the most innovative one that could lead to the identification of areas of common interest and how to develop complementarity of effort, facilitating the synergism and a greater development impact. Further, the above four types of perspective analysis can complement each other. The analysis of the third and the fourth perspectives are important for the provision of baseline information required for the analysis of the second perspective and for revising existing regional priorities. Various actors in the sub-regions can cooperate in putting the information together for these four types of analytical steps. This cooperation would also allow a sub-regional mapping of institutions to identify national components of NARS, regional networks and organizations (including NGOs), and development agencies that are making investments in regional poverty reduction and sustainable NRM through agricultural research.

Although consultations have been initiated after ICW2000 in all regions, no region as yet has fully embarked on the four step process of identifying priorities. The consultation processes in all the regions are moving forward and could become broad-based and multi-stakeholder in nature over the coming years, if sustained support and participation from regional and international donors and research and development agencies can be mobilized.

Acknowledgements. The content of this paper benefited from inputs from the TAC Chair and members and TAC Secretariat staff. We thank them all. We express our grateful thanks to GFAR and the Regional and Sub-Regional Research Organizations for their leadership and cooperation, and to Drs. Fernando Chaparro and Enrique Alarcon for their infectious enthusiasm and valuable insights. We acknowledge with much appreciation the helpful interactions with the CGIAR Centre Directors

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press

Committee and Committee of Board Chairs, and the enabling support received from the Directors General of the CGIAR Centres in facilitating the implementation of Plank 4. We thank the anonymous referee for helpful comments.

REFERENCES

Alston, J., Norton, G. and Pardey, P. (1998). *Science under Scarcity*. Wallingford, UK: CABI Publishing.

Bonte-Friedheim, C. and Kassam, A. H. (1994). Challenges to the biophysical and human resource base. In *The Future of the Land: Mobilizing and Integrating Knowledge for Land Use Options* (Eds L. O. Fresco, L. Stroosnijder, J. Bouma and H. van Keulen). Chichester, UK: John Wiley.

Bunting, A. H. (1984). Advancing agricultural production in Africa: A personal review. In *Advancing Agricultural Production in Africa* (Ed. D. L. Hawksworth). Proceedings of CAB's First Scientific Conference, 12–18 February 1984, Arusha, Tanzania.

Bunting, A. H. (1992). Feeding the World in the Future. In *Fream's Principles of Food and Agriculture*, 7th Edition. (Ed. C. R. W. Spedding). Oxford: Blackwell.

Dalrymple, D. (2001). *International Agricultural Research as a Global Public Good. Warren E. Kronstad Commemorative Symposium*. CIMMYT Wheat Programme, 15–17 March 2001, Ciudad Obregon, Sonara, Mexico.

de Janvry, A. and Kassam, A. H. (2001a). Regional approach to research for the CGIAR and its partners.TAC Paper presented at the CGIAR Mid-Term Meeting, May 2001, Durban, South Africa.TAC Secretariat, FAO, Rome, Italy.

de Janvry, A. and Kassam, A. H. (2001b). Advantages and added value of the regional approach to research for the international agricultural research system. Invited paper presented at the Multi-Stakeholder Meeting on Sub-Regional Priority-Setting, 2–4 May 2001, FORAGRO, CIMMYT, Mexico.

de Janvry, A. and Sadoulet, E. (2003). Achieving success in rural development: Toward implementation of an integral approach. *Proceedings of the 25th International Conference of Agricultural Economists, August 2003, Durban, South Africa.*

Hazell, P. and Haddad, L. (2002). *CGIAR Research and Poverty Reduction.* Washington, D.C.: International Food Policy Research Institute (IFPRI).

IFAD (2000). The Report of IFAD's Workshop on Rural Poverty. 24–25 January 2000. Rome: International Fund for Agricultural Development (IFAD).

Janssen, W., Kassam, A. H. and de Janvry, A. (2001). A regional approach to setting research priorities and implementation: Towards satisfying national, regional and international concerns. (SDR/TAC:IAR/01/21),TAC Secretariat, FAO, Rome, Italy. (The paper has been accepted by the Journal of Food and Agriculture Information, and will be in print in 2004).

Kassam, A. H., Javier, E. Q., Fereres, E., Gregerson, H., Harwood, R., de Janvry, A. and Cernea, M. M. (2004). A framework for enhancing the relevance and quality of science: the case of CGIAR. *Experimental Agriculture* 40:1–21.

Pinstrup-Andersen, P. (2000). CGIAR: An Instrument for Global Public Goods. Issues Seminar on Frontier Science, Global Public Goods, and the CGIAR. 23 October 2000, ICW2000, World Bank, Washington, DC.

Rosenberg, N. (1982). *Inside the Black Box: Technology and Economics.* Cambridge: Cambridge University Press.

TAC (2000). *A Food Secure World for All: Towards a New Vision and Strategy for the CGIAR.* Technical Advisory Committee to the CGIAR Document No: SDR/TAC: IAR/00/14.1 Rev.2. TAC Secretariat, FAO, Rome, Italy.

https://doi.org/10.1017/S0014479703001637 Published online by Cambridge University Press