

RESPONDING TO NEW TECHNOLOGICAL DEMANDS: AGRICULTURAL RESEARCH FOR AGRO-INDUSTRY AND THE ENVIRONMENT

Willem Janssen¹, Claudia Forero², and Jaime Tola³

A. SUMMARY

1. **Title:** Responding to new technological demands: agricultural research for agroindustry and natural resource management
2. **Duration:** 1997-1998
3. **Objectives:** To strengthen the capacity of national research systems in management approaches for agroindustrial and NRM-based research
4. **Activities:**
 - A. Analyzing the change in technological demands for agricultural research organizations in Latin America and the Caribbean and the implications for research management and policy.
 - B. Developing and publishing methodologies to manage agroindustrial and environment based research
 - C. Developing and applying training material on managing agroindustrial and NRM-based research across all countries of Latin America and the Caribbean.
 - D. Raising awareness on the relevance of agroindustrial and NRM-based research for the sustainable development of the agricultural sector.
5. **Areas:** Policy and Institutions, focusing on NRM and Commodity Chains.
6. **Region:** Latin America and the Caribbean

B. STAKEHOLDERS

The INIAs-BID-ISNAR Project “*Responding to New Technological Demands: Agricultural Research for Agroindustry and Natural Resource Management*” was an attempt to identify responses to the new technological demands that are being expressed for agricultural research in Latin America. It was jointly executed by the following institutions: CORPOICA – Colombia (J. Plaza, jplaza@corpoica.org.co, NRM); EMBRAPA – Brazil (L.F. Vieira, lfvieira@cnps.embrapa.br, agroindustry research); FONAIAP – Venezuela (J.C. Rey, jcreyb@reacciun.ve, NRM); INIA – Chile (S. Gálvez, sgalvez@presidencia.inia.cl, agroindustry research); INIFAP – México (E. Valenzuela, evalez@pitic.uson.mx, NRM); INTA – Argentina (G. Ghezán, gghezan@inta.gov.ar, agroindustry research), and ISNAR – The Netherlands (W. Janssen, w.janssen@cgiar.org, project leader; J. Tola, j.tola@cgiar.org (regional project coordinator; and Z. Franca, z.franca@cgiar.org, training officer). The organizations involved have come together in a collaborative effort to develop and diffuse methodologies for research management. The results of the project not only serve the six participating countries, but have been shared with the other countries of the region. The project counted with the support of PROCANDINO (N. Rivas, prociand@colomsat.net.co, (NRM), and PROCISUR (R. Bocchetto, sejecutiva@procisur.org.uy, agroindustry studies) to ensure regional coordination and diffusion. In addition there was more informal collaboration with a number of universities (Colegio de

¹ Senior Officer and Project Leader, ISNAR

² Office assistant, ISNAR

³ Senior Officer and Regional Project Coordinator, ISNAR

Posgraduados de Chapingo, Mexico; Universidad del Mar del Plata, Argentina) and other international centers (CIAT).

The financing of the project came approximately for 39% from BID, 28% from the INIAs' participants; 28% from ISNAR; and 5% from the Dutch Government. Total funding amounted to USD 1.3 million.

C. PROJECT BACKGROUND

Research has had great impact on the development of the agricultural sector in the past. Nevertheless, it is not possible to live on past results. Following reforms in other parts of the public sector, agricultural research must redefine its role and responsibility, in line with changing agricultural demands. Today trade and liberalization are important factors in economic development; a competitive agroindustrial sector is essential to benefit from the new developments. At the same time, there is more environmental awareness and it is no longer acceptable to increase yields at the cost of the natural resource base.

Based on these considerations, the agricultural research leaders of six large Latin American countries selected agroindustry and environment as two main themes that influence the future development of agricultural research. ISNAR took responsibility to develop a project according to the described delineation, and to search for financial aid. The project was initiated in 1997. In the first meeting of the project team, the team members decided to focus on strategic, programmatic and operational implications of the new themes. Table 1 shows the methodological framework that guided the project.

Table
Methodological Framework of the INIAs-BID-ISNAR Project

1

Dimension	Agroindustry	Environment
Strategy	Brazil	Venezuela
Program	Argentina	Colombia
Operation	Chile	México
<i>Coordination</i>	PROCISUR	PROCIANDINO

D. PROJECT RESULTS AND IMPACT

The project developed research management methodologies at three levels. First of all, methodologies to define *strategic*, long term answers with respect to the new technological demands; secondly approaches to integrate the new technological demands in the *research agenda*; and thirdly tools for the *operational management* of research in these topics (linkage units for agroindustry, and simple assessment tools for environmental impact). These methodologies are now being applied in the countries that participated in the project, and are being diffused to other countries of LAC by means of publications and action oriented training workshops.

The direct beneficiaries of the project are the agricultural research systems in LAC. The consolidated LAC research system has a budget of over USD 730 million (in constant 1985 USD), and employs over 5000 scientists. The indirect beneficiaries are the participants in the agricultural and agroindustrial sector, in their function of producers, processors and traders as well as in their capacity as resource users. The agricultural and agroindustrial sector together represent between 15 and 25% of GDP in most Latin American countries. The indirect beneficiaries will start benefiting from the project if the agricultural research systems will effectively integrate agroindustrial and environmental demands in their research agenda and if this leads to an improvement of the performance of the sector. At present it appears that the project has contributed to more attention to agroindustry and

NRM-based research, but it will be difficult and it is too early to trace the impact on the performance of the sector.

A series of nine publications has been produced by the project team members, based on the pilot case studies in their countries. These publications have been widely distributed throughout the countries of LAC using the networks of all the participating institutes. Training materials have been developed and tested and are being distributed within each LAC country. We now receive information that the methodologies are starting to be applied outside the case studies and that training events using the materials of the project are being held.

An impact assessment is hard to make in quantitative terms at the moment and in the future, because of the interweaving of project initiatives and other initiatives in the target organizations. In qualitative terms, the project objectives centered on: 1) the generation and diffusion of knowledge among agricultural research organizations in LAC, 2) the strengthening of the capacity to respond to the new technological demands within the participating institutes, and 3) the establishment of a mode of operation based on equality between international and national centers and the consolidation of a Latin-American wide research team. In terms of generation and diffusion of knowledge, the distribution of 9 research reports and the participation of 80 decision makers and senior researchers indicate that this objective has been met. In terms of strengthening of capacity, within three of the participating countries and one of the regional organizations, concrete evidence of follow-up activities is in place. We have not aimed to obtain information in a systematic manner as yet, and other initiatives may be underway. As far as the consolidation and the effectiveness of the team, the project clearly proved the potential of building on the intellectual strength that has grown in the research organizations of the region. The best evidence of the success of the mode of operation is that a second phase project based on the same principle was requested by national representatives from 14 countries within the region.

In methodological terms, the challenge of an impact assessment would be to isolate the impact of the project on the research organizations from other influences, an heroic task! Both of the fields concerned are areas of growth in the NARS where total spending may quickly rise to some 30 to 40% of the overall budget. If the project would lead to a 2% more efficient use of resources in these new fields within all Latin American agricultural research organizations (a conservative estimate), the annual benefits of the project would be USD 5 million. It must be observed however, that making such estimates is extremely pretentious. The numbers are hard to validate, the “without” case is impossible to establish, and the causality between project activities and impacts is known to be highly complex, interactive and fuzzy.

E. PARTNERSHIP

Organization model. The organization of the project responds to several considerations: ISNAR as an international center with a global mandate must collaborate with many countries, but counts with limited resources and staff. Within many countries, with which ISNAR collaborates, the internal capacity has grown significantly. ISNAR is aware that direct bilateral expertise-based advice is expensive and less effective than multilateral, collaborative, research-based interactions. This is most so in countries with large research systems (Table 2). In these countries, ISNAR’s advisory capacity would be lost in the magnitude of the research system. Furthermore, ISNAR believes that collaboration between countries is a useful mechanism to learn from first-hand experience and to efficiently develop research capacity.

Table 2
Distribution of agricultural researchers through Latin American countries

Countries ¹	Agricultural researchers	Population (1994, millions)
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		(1992-1993)	
Total in Latin America	18	7500	471
Countries within the project team (%)	33	79	74
Other countries (%)	67	21	26

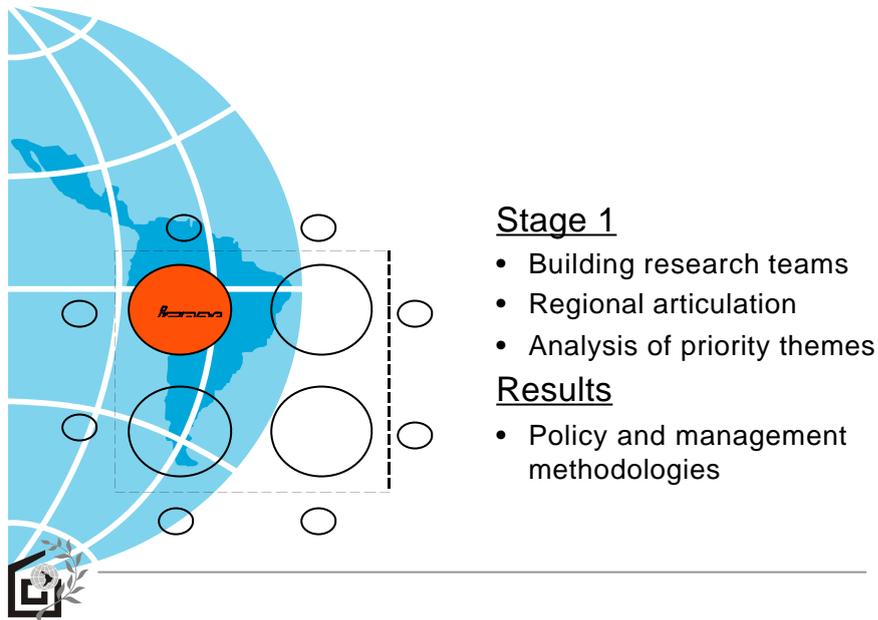
¹ Argentina, Brazil, Chile, Colombia, México and Venezuela

Source: Tabor, S. , W. Janssen y H. Bruneau. 1998. Financing Agricultural Research: a Sourcebook. The Hague, The Netherlands, ISNAR and the World Bank. 1998. Tables of the World Development Report. Washington, D.C.

Following these considerations ISNAR had been developing a collaborative model for working and interacting with big countries, also in support of other countries. The model has been baptized "FIC " (Formal Intercountry Collaboration). Applying the "FIC" approach in Latin America, ISNAR, a group of countries and the PROCIs committed themselves to participate in an international research team to develop international public goods for the benefit of the whole continent (Figure 1).

Figure 1
Project organization during the research stage of the project

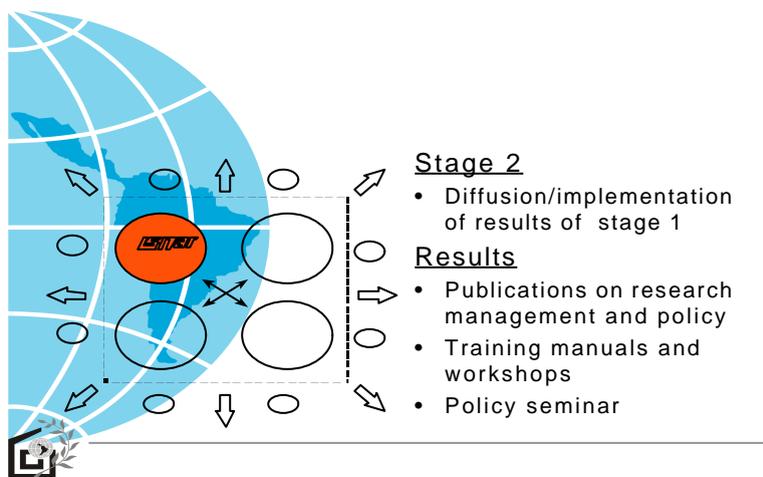
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The participant countries have assigned one or more of their professionals to work in the project team for a minimum of 50% of their time. The project team was not only in charge of research, but also of the diffusion of results to other countries (Figure 2).

Figure 2
Project organization during the diffusion stage of the project

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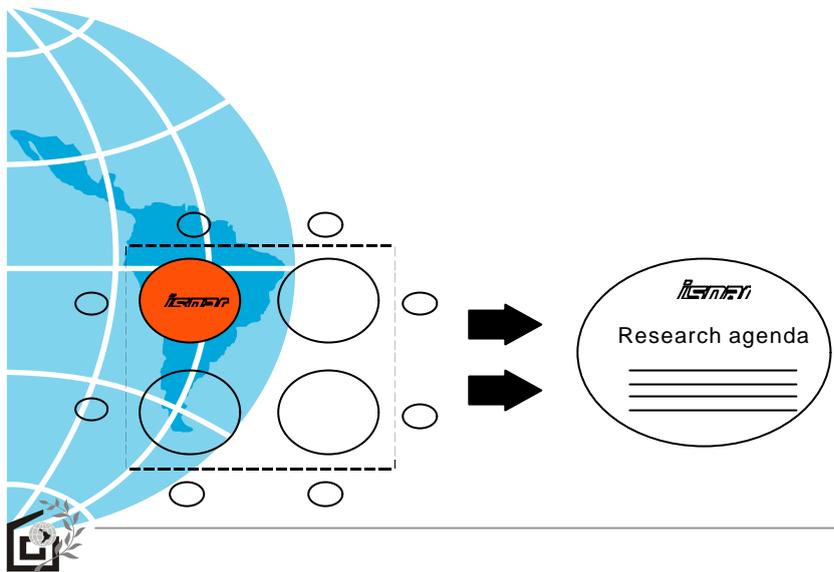
With this model several benefits have been obtained. For ISNAR there are four: first, research studies have been made in more fields than ISNAR or any institute would have been able to do alone. Second, results of the studies are diffused to more countries, not only within but also outside the

group of countries that made up the project team. Third, working together with other countries has helped ISNAR to prioritize its agenda and to modify its approaches (Figure 3).

Figure

The impact of the project on ISNAR's agenda

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Four, results will be internalized more easily by the participating countries, allowing ISNAR to be more effective in achieving its mandate. For the participating countries the benefits are as follows: first, the approach allows them to give international projection to outstanding researchers. Second, it has increased their research management capacity. Third, it allows them to develop better management solutions within a perspective wider than would have been obtained within the country. Four, it gives them direct access to expertise in other countries. The non-participating countries benefit by obtaining access to management tools tested within the region. More tools are put at their disposal than if ISNAR would have worked alone. They obtain access to new sources of institutional support. The PROCIs have confirmed their pivotal role by entering into a partnership with international centers on equal terms. In addition they have been able to interact with each other, thus allowing the exchange of results across the whole LAC regions and not only the sub-regions.

F. CONCLUSIONS

The partnership approach in this project has been very effective for generating and diffusing new results. It has mobilized more capacity than any country would have been able to do on its own, and it has overcome part of the diffusion barriers by working from within the target organizations. It has also recognized that International Centers and National Organizations must operate on an equal footing to be successful, rejecting any notion of being more or less advanced. The qualities and efforts required to coordinate this type of partnership are certainly not to be underestimated. Personal characteristics (maturity, language skills, ease of communication and flexibility) were as essential to most of the key players in the partnership as their intellectual ability. Electronic communication (e-mails, web-page, faxes) was key to having sufficiently intensive interaction. Meeting each other was central to building the project. What started as a commitment became a partnership and then turned into friendship.

A new phase of the project has been prepared and is submitted for external funding. The new project emphasizes agroindustry since this is the theme that has drawn most attention. The new project will

continue to diffuse and integrate the management tools obtained up to now in agricultural research organizations, but at the same time it has put its ambition higher and further. It aims to develop and apply knowledge on public-private partnerships for agroindustry. This follows from the recognition that many of the innovations that are presently observed in the agricultural and agri-business sector stem from combining sources of knowledge (public partners) with hands-on practical experience (private partners). Following the principles of the FIC model as described earlier, in the new project the large countries involved in the project team will support the smaller countries of the region in the implementation of the new management tools. The range of partners will be expanded and organizations experienced in the management of public-private partnerships will join the project.

The sustainability of the international collaboration model applied in this project depends on finding the financial resources that allow the personal interaction to turn a group of good-willing people into an effective team, and on having a balanced leadership of the project. Such leadership may be provided by International Centers but also by PROCI's or other regional organizations. It is more difficult to see how a National Organization would be able to provide sufficiently balanced leadership. Finally we feel that sustainability is not a real concern for these type of projects. The project and the partnership respond to a clearly defined need, that has been translated into a clear set of objectives and aspired outputs. Once these have been achieved no further efforts have to be made to maintain the partnership. The involved organizations should then go their own way and define their new strategic fields for collaboration and the partners implied.

A more extensive summary of the project and of its results may be found in the following document: Janssen, W. and J. Tola. 1999. Integración de Demandas Agroindustriales y Ambientales en la Investigación Agrícola para el Siglo 21: Memorias de un Seminario Internacional. The Hague: International Service for National Agricultural Research.