Background

Since 2004, Colombia’s Ministry of Agriculture and Rural Development (Ministerio de Agricultura y Desarrollo Rural – MADR) has implemented a strategy of Competitive Funding or public call for proposals for the allocation of public funds for Research, Technological Development and Innovation (RTDI) programs and projects targeting the agricultural sector. This strategy capitalizes on the experience of other Colombian institutions, such as the Colombian Institute for Science and Technology Development “Francisco José de Caldas” (Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología – COLCIENCIAS) (1990), the National Learning Service (Servicio Nacional de Aprendizaje – SENA) (2000), and the Ministry itself, through the Program for the Transfer of Agricultural Technology (Programa Nacional de Transferencia de Tecnología Agropecuaria – PRONATTA) (1997 – 2001).

The call for proposals was designed within the framework of a World Bank loan agreement, which led to the implementation of the Agricultural Transition Project (PTA, in Spanish, see Box). This strategy considers science and technology as core elements of agricultural sector policy, and the allocation of funds is governed by principles of cost-effectiveness and transparency.

The fact that Latin American (LAC) countries, especially Colombia, are commonly endowed with a high concentrations of biodiversity (habitats and species) compared to other regions of the world, generates significant opportunities for RTDI. These projects offer a systematic way of making use of biodiversity in life sciences aimed at solving problems (e.g. a new disease-resistant variety of a traditional crop) or generating commercial returns (e.g. a native fruit that can be domesticated, harvested and industrialized).

What is the Agricultural Transition Project (PTA)?
The MADR began to implement calls for proposals while negotiating a loan with the World Bank for the execution of the Agricultural Transition Project. The project started on June, 2005 and was funded by a US$30 million WB loan. The project aims to strengthen the National Agricultural Science and Technology and Sanitary and Phytosanitary Systems by supporting the joint participation of both the public and private sectors, through the mechanism of production chains, thereby contributing to the competitiveness of Colombian agriculture and improving the accessibility of export-potential products to international markets.

Prior to the adoption of a competitive system, investments made through direct allocation mechanisms tended to discourage potential developers of RTDI projects, who could be denied the opportunity to participate, regardless of their capacity. In addition, the execution of funds was governed by the Budgetary Law, rather than on the technical requirements demanded by RTDI projects and was constrained by execution periods ranging from 12 to 24 months.

Moreover, proposals were typically submitted by research entities (universities and research centers) that were often disconnected from the needs of the productive sector and which often generated results scarcely relevant to producers.
At the Latin American level, several factors have driven the evolution of agricultural research and extension systems:

- Free trade and globalization has increased competition and required producers to maximize their true comparative advantage;
- Fiscal restraints, due to economic crises, have reduced and required more efficient use of public resources;
- The private sector has taken on a greater role in the provision of specialized services;
- Decentralization, with increased responsibilities and resources being devolved to the local level; and,
- Increased civic participation in decision-making processes at all levels.

The Call for Proposals

The goal of the call for proposals is to “support RTDI activities related to prioritized agricultural production chains, crops or species, in order to: i) improve their competitiveness by addressing the technological constraints of targeted chains (Demand); ii) support the development of new products, services or processes; and iii) improve the quality of life of agricultural producers by selecting and co-financing RTDI programs (clusters of projects) and projects, accompanied by a technology transfer component”. (MADR, 2007).

The rationale behind the strategy for the allocation of public resources is to target production chains which face technological constraints that hinder their competitiveness, and/or areas that generate opportunities for the production chains. Following this rationale, the first step to identify technological constraints. This was accomplished through a series of regional workshops held between 2003 and 2006, with the participation of production chain actors that, jointly, constitute the S&T Agenda.

There are, however, two kinds of technological constraints: those for which a solution already exists, and those that pose an unsolvable problem. This recognition leads to the second step in the process: to identify whether or not the technological constraint can be overcome by generating processes for the acquisition or dissemination of technology. If, however, the constraint has no immediate solution, it is necessary to take the final step - to seek solutions.

The third and final step refers to the call for proposals itself. This call extends an invitation to potential bidders to submit proposals for programs and projects aimed at overcoming those technological constraints on competitiveness for which no solution is immediately identifiable. Once the project’s results have been obtained, the technological constraints on competitiveness can be (partially or fully) overcome and, at the same time, the knowledge generated will become an integral part of the technological offering available to solve new problems.

Since 2005, the MADR has pooled efforts and resources with the agricultural sector’s parafiscal funds (government instruments created by law to finance the implementation of initiatives that target a producer organization) in order to co-finance projects. These funds respond to unique processes and instruments, thus avoiding delays throughout the process. Parafiscal funds –jointly with the MADR- can undertake the follow-up of those projects that are an integral part of their chain. All bidders are treated equally, and the costs of a call for proposals performed jointly are less than if each fund seeks and finances projects individually.

Pre-call for proposals

Based on the results of the Science & Technology Agenda, the MADR prepares the terms of reference, the form agreement to be used for approved projects, and the project presentation formats. The instruments and terms are approved by a Committee that coordinates the entire process.

The bidders can only submit their proposals through a consortium. This consortium must guarantee –from the moment the proposal is submitted and throughout the execution of the project- the counterpart contribution of those entities that comprise the consortium, the delivery of the proposal, the administration of the co-financing resources by a sole Representative Entity, and the execution of the project by the consortium’s entities.

The project consortium must include:

- At least one entity of the productive sector
- At least one research entity

Besides these two entities, other partner entities can contribute to the development and implementation of a RTDI proposal by providing additional funding, for instance, provincial governments, municipalities, SENA or chambers of commerce.

Each proposal should include:

- An analysis regarding the project’s contribution to the production chain competitiveness, taking into consid-
eration cost reductions, access to market, and/or quality improvements. The work plan should also answer the technology constraints on competitiveness.

- A project work plan, including specific tasks aimed at improving competitiveness, methodology, schedule and budget. The project follow-up shall be based on this work plan.
- A proposal of expected outcomes and impacts to be derived from the project’s implementation.

The presentation documents and forms should readily demonstrate compliance with the criteria of the screening process and the ex-ante assessment.

### Opening of the Call for Proposals

Once the instruments and terms have been approved, the opening process begins. This process consists of the publication of documents to disclose to potential bidders the terms and conditions, thus enabling them to submit their proposals. The call is publicized through a newspaper, the MADR’s Website, and mailing lists and publications aimed at the pertinent stakeholders (National Councils of Chains, networks of researchers and entrepreneurs).

Regarding the deadlines of a given call, there are two opposing options. The option adopted by the MADR responds to the need to address –timely and relevantly- the technological constraints. The first option is to leave the call open for an indefinite period of time. The second option –adopted by the MADR- is to define short proposal submission deadlines and centralize the reception of proposals.

It has been emphasized that proposals should be developed jointly with producers. This falls within the context of what is known as Good Research Practices (see Box) since both the researchers and the productive sector should be ready and willing to seek RTDI resources.

### Screening Process

The MADR and the parafiscal entity involved in the call are in-charge of the screening process, thus ensuring that the proposals submitted comply with the requirements set forth in the terms of reference. The outcome of the screening process is that projects are classified into two categories: accepted or non-accepted. The accepted projects undergo an evaluation process, while the non-accepted are returned to the bidders.

Since the call for proposals is aimed at identifying project implementors with the capacity to provide answers to the technological constraints on competitiveness, and since the fundamental criteria should be the technical soundness of the proposals, mechanisms have been established to enable bidders to previously verify their compliance with such requirements.

One such mechanism involves the use of standard presentation formats with automatic validation (Project Management and Information System - Sistema de Información y Gestión de Proyectos – SIGP) and checklists applied at the time of proposal drafting. By applying these mechanisms, the acceptance rates during the screening process have risen from 50-60%, to nearly 90% in 2007.

### Ex-ante Assessment

The assessment of proposals that have been screened and accepted, is performed by a panel of experts that reviews the portfolio of projects deemed worthy of funding, and makes recommendations to the decision-making authority within the MADR. This panel is convened according to the depth of evaluation needed for those projects that have been accepted during the screening process.

The National Science and Technology System, managed by Colciencias, works with a platform that supports a curriculum database known as CvLac. This platform has at least 25,000 records of researchers in all the relevant fields of knowledge. This provides the pool from which the evaluators are selected, and matched against the technical nature of the proposals.

Each evaluator makes an individual evaluation of the different proposals -thereby acquiring a thorough knowledge of their content- drafts a written abstract, and rates them. In addition, the evaluator establishes if the proposal is eligible for approval and whether or not the
individual evaluation has undergone a review by a professional association or panel of experts. Evaluators of related chains and fields of knowledge, representatives of production chains, and other observers that oversee the transparency of the process, participate in a peer review panel meeting, with care taken to ensure that they are operating independently and free of external pressure. The outcome is a prioritized portfolio of projects deemed eligible for approval.

As a result of the evaluations and discussions, the panel can then define and recommend to the MADR, certain conditions to bear in mind when dealing with projects deemed eligible for approval. The issues raised by the panel, and its contributions, enhance the quality of the evaluation process, rendering it considerably more demanding.

**Adjustment and Approval of Proposals**

The MADR approves the projects to be co-financed based on the results of the assessment made by the expert panel, and the resources available. The percentage of projects deemed worthy of approval by the panel is typically between 20 and 30% of those submitted.

A Project Assessment, comprising the observations made by the panel to each project or consolidated concept proposal is sent to the bidders who respond by providing a detailed explanation of any negative observations, or makes the adjustments in the concept proposal necessary to address these observations.

The second factor that comes into play for the MADR to approve a proposal is the budget available for contracting. If the resources available are less than the value of the project portfolio, the MADR retains “the right to seek alternative sources of funding to co-finance approved projects”.

**Execution of sub-projects**

Execution of sub-projects encompasses the contracting process, implementation of the project by the consortium, the follow-up, evaluation and monitoring stages. The project contracting entities are the parafiscal funds, the resource managers (Trustees), and those entities with which MADR enters into special cooperation agreements (international organizations in Colombia).

After four years of issuing calls for proposals, the MADR is scaling-up intervention capacities and discussing follow-up and evaluation mechanisms that will allow it to comply with the commitments ensuing from the approval of nearly 400 projects. The follow-up mechanism—in addition to overseeing compliance with the work plan—enables consortia to ensure that the outcome of the projects effectively permeate the production structure of the producer.

**Lesson Learned and Challenges**

The calls for RTDI proposals represent a strategy widely used in a significant number of Latin American countries due to the limited public resources available to sustain traditional agricultural research and extension systems, and the need to allocate such resources in an efficient manner.

Streamlining policies and the ongoing improvement of public entities, including MADR, has led Colombia to put into effect increasingly complex schemes reflecting their past experience. The scheme followed by MADR, although not yet completely polished, has enabled it to reduce the risks encountered in previous plans.

A 20-30% allocation of funds to proposals submitted through calls, even though it implies that the best proposals receive support does pose some social risks. These include the potential focusing of resources on a few institutions or regions, or excluding socially relevant proposals. In practice, the solution to these challenges are, for the former, to consolidate partnerships between high-capacity institutions and others with lesser capacity, to develop and execute joint proposals, and for the latter, to continue issuing new calls to provide an opportunity to improve proposals that were not been approved in a prior call.

During the last four years, the amount of investments made by the Ministry has increased, although it is still low. The challenge now is to find new sources of funding to benefit society and drive this aspect of the knowledge economy.

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