







# MEDIUM-TERM PLAN

2015 /// 2020

### ACKNOWLEDGMENTS

The Technical Administrative Secretariat (TAS) would like to acknowledge the support of the Board of Directors (BoD) and sponsors, the Inter-American Development Bank (IDB), the Inter-American Institute for Cooperation on Agriculture (IICA), and several FONTAGRO friends and partners, which have helped prepare the 2015-2020 Medium-Term Plan (MTP) from its inception.

In particular, we acknowledge Priscila Henríquez, PhD, and Salvador Fernández Rivera, PhD, from IICA; César Falconí, PhD, from the IDB; Nicolás Mateo, PhD, former Executive Secretary of FONTAGRO; Engineer Eugenia Saini, and María Gabriela Tercero, MBA, from the TAS, who worked with the Executive Secretary from the beginning, planning and implementing the activities that resulted in this document.

#### Dear members of the Board of Directors, sponsors, and friends of FONTAGRO:



**Dr. José Luis Repetto**PhD, President of FONTAGRO

We are proud to present FONTAGRO's 2015-2020 Medium-Term Plan, which has been prepared through a highly participatory process. The document includes a review of the progress FONTAGRO has made, FONTAGRO's revised vision and mission statements, and a testament to our renewed commitment to improving family farming in member countries through agricultural innovation. The 2015-2020 MTP also establishes our commitment to consolidate FONTAGRO by developing new partnerships and memberships, allocating the necessary investments, and setting specific resource mobilization goals with our partners and members.

Thank you.



**Dr. Hugo Li Pun** PhD Executive Secretary

On behalf of the Technical Administrative Secretariat, we are pleased to present FONTAGRO's 2015-2020 MTP. The document describes how our organization has evolved in recent years to become a unique cooperation mechanism among its members, aimed at the innovation of family farming. External evaluations have underscored the progress made by FONTAGRO and have pinpointed areas that may be strengthened. Extensive consultations and a SWOT analysis have enabled us to identify a roadmap for the years to come. FONTAGRO has a solid foundation to fulfill its mission and we are looking forward to working hard to consolidate it.

Thank you.

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## ACRONYMS

APLARI Asociación de Productores de Plátano y Guineo de Rivas

BoD Board of Directors

CATIE Tropical Agricultural Research and Higher Education Center

CC Climate Change
CG Consultative Group

CGIAR Consultative Group on International Agricultural Research

CIAT International Center for Tropical Agriculture

CIMMYT International Maize and Wheat Improvement Center

CIP International Potato Center

CIRAD French Agricultural Research Centre for International Development

CT&I Center for Technology & Innovation

FF Family Farming

FonTC Competitive Fund for Technical Cooperation IICA

ICARDA International Center for Agricultural Research in the Dry Areas

ICT Information and Communications Technologies

IDB Inter-American Development Bank

IDRC International Development Research Centre

IFAD International Fund for Agricultural Development

IICA Inter-American Institute for Cooperation on Agriculture

INIA National Agricultural Research Institutes

IPCC Intergovernmental Panel on Climate Change

IRR Internal Rate of Return

ITDG Intermediate Technology Development Group

LAC Latin America and the Caribbean

MTP Medium-Term Plan

PROCIANDINO Cooperative Agricultural Research and Technology Transfer Program for the Andean Region
PROCISUR Cooperative Program for the Development of Agricultural Technology in the Southern Cone

PROINPA Promoción e Investigación de Productos Andinos

R&D Research and development

SWOT Strengths, Weaknesses, Opportunities, and Threats analysis

TAS Technical Administrative Secretariat
TIPS Treasury Inflation-Protected Securities

### EXECUTIVE SUMMARY

FONTAGRO is a unique regional cooperation mechanism to promote agricultural research and innovation among its members. It includes fifteen countries that have contributed a capital of some \$100 million. FONTAGRO is sponsored by the Inter-American Development Bank (IDB) and the Inter-American Institute for Cooperation on Agriculture (IICA), and it operates through a Technical Administrative Secretariat (TAS) based at IDB headquarters in Washington, D.C.

FONTAGRO operates as an endowment fund: it uses interest generated by its capital to cofinance research and innovation projects. Throughout its history, and as of June 30, 2015, FONTAGRO has cofinanced 100 operations for an approximate amount of \$83.6 million, of which \$14.1 million have been provided by FONTAGRO, \$15.6 million by other sources of funding, and \$53.9 million by executing agencies.

This 2015-2020 Medium-Term Plan (MTP) aims to establish a roadmap that will guide FONTAGRO over the next five years. It includes FONTAGRO's revised vision and mission statements in light of the fund's achievements and impact, its member and partner priorities, and the challenges identified. The MTP sets forth strategic guidelines and establishes priorities for allocating resources and mobilizing additional resources.

FONTAGRO foresees the rise of sound challenges and opportunities over the next five years; this justifies adjusting its present MTP. Examples include climate change, which will severely impact the agricultural sector in Latin America and the Caribbean (LAC); changes in food demand and consumption, which open up new market opportunities to high-quality and high-value agricultural products; and poverty and vulnerability in rural areas, as well as their negative effects on small-scale producers.

Since its creation as a traditional fund, FONTAGRO has evolved towards becoming a mechanism for cooperation for solving problems of common inter-

est among its member countries. A recent external evaluation (Saín et al., 2014) underscored that it is a unique cooperation mechanism and a true institutional innovation. It also noted the role FONTAGRO has had in strengthening the quality of its projects' results and encouraging end users to adopt these results, which have been incorporated into national agricultural research and innovation systems.

The 2015-2020 MTP was prepared through a participatory process including the Board of Directors, the TAS, sponsors, and strategic partners. The process involved reviewing documents; making consultations by teleconference; drafting an analysis of the internal and external environment, including strengths, weaknesses, opportunities, and threats; running an ad hoc workshop; and holding discussions over two meetings of the Board of Directors.

FONTAGRO has centered its activities towards agricultural innovation. The Board of Directors defined innovation as "a participatory process through which individuals or organizations generate and/or use technological, organizational, and institutional knowledge that result in new goods and services, which, once used by society, generate social, economic, environmental, and/or cultural benefits." FONTAGRO also agreed to focus its efforts on providing better opportunities to family farming in member countries.

This MTP includes FONTAGRO's newly established vision statement: "To be an internationally recognized mechanism of cooperation for strengthening sustainable agrifood and agribusiness innovation among member countries." FONTAGRO's mission statement is as follows: "To contribute to the innovation of family farming through cooperation among member countries, while promoting competitiveness and food security based on standards of equity and sustainability."

The strategic themes the BoD agreed upon are as follows: (i) technological, organizational, and institutional innovation in member countries; (ii) adaptation

to and mitigation of climate change; (iii) sustainable intensification of agriculture and natural resources management; and (iv) competitive territories and value chains within a framework of equity and sustainability.

Regarding operations, FONTAGRO will continue to carry out annual calls for proposals, because they are open, competitive, systematic, and transparent mechanisms. It will therefore support the issues that have been identified as strategic themes, mainly through calls for proposals. FONTAGRO will also operate through joint projects, in which core funding will be provided by the partners own resources, as well as other donors, and in which FONTAGRO will cofinance the operation of innovation platforms and the support for key activities. Therefore, FONTAGRO will ensure that there be greater continuity and impact in the initiatives it supports. In addition, it will continue to drive the development of new initiatives through small grants, as well as by providing technical and financial support to strategic studies on the region's priority issues, such as strengthening agricultural innovation capacity.

FONTAGRO will continue to strengthen knowledge

management, close project monitoring, regular impact evaluations, result disseminations, and additional resource mobilization to support agricultural innovation in the region.

Consolidating FONTAGRO is a key objective. Therefore, there will be greater emphasis placed on securing new memberships and establishing partnerships with related organizations and with the private sector.

FONTAGRO plans to allocate its resources so as to be able to leverage resources provided by other organizations at least at a 1:1 ratio. It will also require that executing agencies provide at least matching funds to those contributed by FONTAGRO and other organizations.

Funding for FONTAGRO's operations has been secured for the 2015-2020 MTP period. This funding is expected to significantly help the fund's mission to innovate family farming in its member countries.



# I. INTRODUCTION

# [11] PLAN DE MEDIANO PLAZO 2015 - :

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- FONTAGRO is a unique regional cooperation mechanism to promote agricultural research and innovation among its members. FONTAGRO includes fifteen countries that have contributed a capital of some \$100 million. It is sponsored by the Inter-American Development Bank (IDB) and the Inter-American Institute for Cooperation on Agriculture (IICA), and it operates through a Technical Administrative Secretariat (TAS) based at IDB headquarters in Washington, D.C. FONTAGRO operates as an endowment fund: it uses interest generated by its capital to cofinance research and innovation. Throughout its history, and as of June 30, 2015, FONTAGRO has cofinanced 100 operations for an approximate amount of \$83.6 million, of which \$14.1 million have been provided by FONTAGRO, \$15.6 million by other sources of funding, and \$53.9 million by executing agencies.
- 1.2 This Medium-Term Plan (MTP) aims to establish a roadmap that will guide FONTAGRO throughout the next five years. It includes FONTAGRO's revised vision and mission statements in light of the fund's achievements and impact, its member and partner priorities, and the challenges identified. The MTP sets forth strategic guidelines and establishes priorities for allocating resources and mobilizing additional resources.
- 1.3 FONTAGRO foresees the rise of sound challenges and opportunities over the next five years; this justifies adjusting its present MTP. Examples include climate change, which will severely impact the agricultural sector in Latin America and the Caribbean (LAC); changes in food demand and consumption, which open up new market opportunities to high-quality and high-value agricultural products; and poverty in rural areas, which leads to the extreme vulnerability of small-scale producers and their production systems.
- 1.4 There are three other areas of interest to member countries, which will influence FONTAGRO's activities over the coming years. Firstly, the role LAC is expected to play in food production both for the region and globally, as "a Global Breadbasket;" secondly, the key environmental services LAC provides the world with; and thirdly, the crucial role of family farming (FF) in food production and adaptation to climate change, which is a focus for action for FONTAGRO.

These elements will be described in the External Analysis section below

- 1.5 In spite of the challenges mentioned above, investments in research and development (R&D) in LAC show marked differences and some shortcomings. The latest consolidated information dates back to 2006. At that time, it was estimated that the region was investing more than \$3 billion per year in agricultural R&D and employing some 19,000 (full-time equivalent) agricultural researchers. This investment amounts to 1.14% of the total agricultural output. However, these figures hide a significant asymmetry: 76% of this amount was invested by only three countries, Argentina, Brazil, and Mexico. Had these three countries been excluded, regional investment would have totaled only 0.72%. Moreover, there are marked differences among regions: Central America and the Caribbean invest the least amount, reaching levels below 0.5%.
- 1.6 Taking into account the figures mentioned above and FONTAGRO's limited resources, FONTAGRO must play a highly strategic role. It must meet countries' demands, but focus its efforts on a target population and on issues of key importance in the region, while cofinancing priority initiatives related to these issues. FONTAGRO's role is not that of a traditional funder, but rather that of a cooperation mechanism that connects innovation platforms, mobilizes resources to solve high-priority issues present in two or more countries, and mainly produces public goods at a regional level.

<sup>&</sup>lt;sup>1</sup> This includes projects arising from calls for proposals, joint projects agreed-upon among members, initiatives funded through small grants, contests, and strategic studies.

 $<sup>^2</sup>$  This includes contributions from other cofinancing organizations, which either channel resources through FONTAGRO or provide them directly to executing agencies as a result of FONTAGRO negotiations.

# II. FONTAGRO'S BACKGROUND AND INTERNAL ANALYSIS

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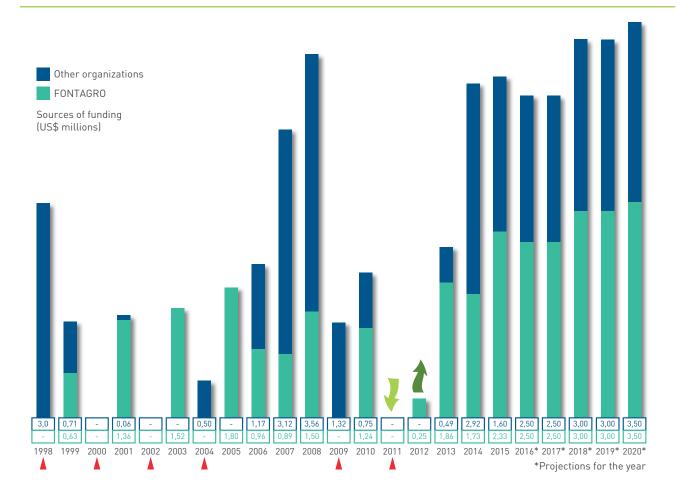
## /// A. FONTAGRO's History and Development

2.1 FONTAGRO was established in 1998 by an agreement entered into by several countries and supported by the IDB and the IICA. At its inception, FONTAGRO received a \$146,701 donation towards its establishment from Canada's International Development Research Centre (IDRC). The IDB then made a \$3 million donation, which supported the first calls for proposals.

**2.2** Chart 1 shows FONTAGRO's development. FONTAGRO has grown slowly, yet steadily, over time as member countries have met their commitments. Over the past five years, its capital has grown by 50% as a result of the consolidation of country contributions. The red arrows at the bottom of the chart show the years in which FONTAGRO did not provide its own resources for new projects.



# CHART 1: FONTAGRO's Development. Funds Allocated per Year for New Projects and Operations



[14] PLAN DE MEDIANO PLAZO 2015 - 2020

- 2.3 The Agreement Establishing FONTAGRO states that FONTAGRO will operate with the surplus interest accrued after protecting the value of contributions from inflation. This prompted the adoption of a conservative financial policy and the purchase of United States Treasury Inflation-Protected Securities (TIPS), which had both advantages and disadvantages. Initially, the value of the capital was protected and when interest was relatively good sufficient resources were generated to support projects carried out through calls for proposals. In general, calls for proposals were irregular; the plan was to implement them every two years and hold extraordinary calls for proposals whenever additional resources were secured. During FONTAGRO's first 15 years of existence, the fund did not have enough income to make annual calls for proposals using its own resources inside of those years.
- 2.4 The situation was aggravated by the 2008-2009 financial crisis, during which interest rates fell significantly, to the point that in 2011 there was not enough interest for FONTAGRO to operate, even though it had nearly \$100 million in capital. Moreover, the TAS estimated that if FONTAGRO did not support any new projects, there would be no more projects in its portfolio by 2015.
- 2.5 The situation called for holding the third Special Meeting of the Board of Directors in Cochabamba in June 2011, to discuss financial constraint issues and consider options. The BoD agreed to establish a Finance Committee to review FONTAGRO's funding strategy and recommended that at least three calls for proposals be carried out over the 2012-2015 period. The discussion continued at the fifteenth Annual Meeting of the Board of Directors held in Panama City, in which it was agreed that the necessary steps would be taken to amend the original charter by eliminating the restriction to maintain the value of FONTAGRO's capital and making its operations more flexible. From March 2012 on, the TAS, BoD members, and IDB and IICA officials worked intensely to secure the signatures of each member country's Minister of Agriculture and/or Minister of the finance authorizing the changes to the original charter. The set of changes was achieved in April 2013, upon receipt of signatures from 13 member countries, which represented 82% of the shared capital. In June 2013, the IDB's Board of Directors resolved that the IDB would continue to support FONTAGRO and remain its Administrator until June 30, 2016. In addition, in 2014 the IICA and the IDB agreed to continue to jointly support FONTAGRO until that date.

2.6 During the restructuring period, but despite its working capital constraints, FONTAGRO continued to operate and increase its visibility. A financial strategy for achieving long-term operability was designed. It enabled FONTAGRO to carry out annual calls for proposals as of 2013 and at least double annual contributions for new projects. Knowledge management and communication were promoted and project results were published in several media outlets. Several efforts provided FONTAGRO with exposure, among them: ex-post evaluations of projects completed as of 2012, a contest on impactful innovations on family farming in LAC, and four projects for disseminating results. New initiatives were also negotiated with the New Zealand's Government and the IDB. During the restructuring period FONTAGRO's monitoring system was also strengthened. This system supports FONTAGRO's technical and financial management and has helped achieve the goals established for several projects that had experienced delays. The joint-project mechanism was also established. This mechanism allows for developing partnerships with new partners that provide cofinancing for initiatives.

# III B. Progress within the 2015-2020 Medium-Term Plan

2.7 The 2010-2015 MTP was approved at the Annual Meeting of the Board of Directors held in Punta Cana in October 2010, with the purpose of strengthening three main areas of family farming: opportunities for links to markets, adaptation to climate change, and the sustainable use of natural resources. The MTP did not take into account the full extent of the financial situation FONTAGRO was undergoing; therefore, the resources that would be invested during the period were not estimated accordingly.

However, FONTAGRO was able to carry out calls for proposals on links to markets in 2013 and on adaptation to climate change in 2014; a call for proposals on the sustainable use of natural resources was carried out in 2015.

2.8 Between 2010 and 2014 FONTAGRO supported 14 projects totaling \$4,217,090 (see Table 1), with the participation of 17 countries; it also developed three new partnerships.

TABLE 1: Projects Approved during the 2010-2014 Period					
Number of new projects	14				
Number of completed projects	8				
Total amount of new projects	US\$4.217.090				
Number of participating countries	17				
Number of new partnerships	3				

2.9 Table 2 summarizes the investments FONTAGRO has made in all three main areas since its inception. The area that has received the most investments has been adaptation to climate change: 16 projects have been funded for a total amount of \$7,035,610, of which \$2,658,500 in financing were allocated to seven projects after 2010.

**2.10** In the area of opportunities for linking producers to markets and to knowledge flows and value creation, FONTAGRO has funded 15 projects for a total amount of \$6,230,777. Five projects totaling \$1,590,590 were funded after 2010.

	Investments Made by FONTAGRO and Its Partners, n Area, in the 2010-2014 and 1998-2010 Periods						
Area	2010- 2014	Amount	%	1998- 2010	Amount	%	Total
Adaptation to climate change	7	\$2.658.500	61	9	\$4.377.110	20	\$7.035.610
Productive and sustainable use of natural resources	3	\$120.000	3	16	\$5.138.077	23	\$5.258.077
Opportunities for linking producers to markets	5	\$1.590.590	36	10	\$4.640.187	21	\$6.230.777
Other	0	-	-	33	\$7.934.450	36	\$7.934.450
Total	15	\$4.369.090	100	68	\$22.089.824	100	\$26.458.914

**2.11** The last call for proposals made at the end of the 2010-2015 MTP focused on projects about the sustainable management and productive use of natural resources. Three projects about water management, integrated pest

management, and bioproducts use were also financed in 2012, totaling \$120,000. Within this area, a total of 19 projects, totaling \$5,258,077, have been financed.

**2.12** Table 3 includes examples selected from projects financed by FONTAGRO and its partners.

### TABLE 3: Examples of Results from Selected Projects Supported by FONTAGRO and Its Partners

#### ADAPTATION TO CLIMATE CHANGE

#### DROUGHT-TOLERANT MAIZE

CIMMYT Honduras Colombia Peru Nicaragua CGIAR Hybrids, drought tolerant and ear-rot resistant varieties and lines.

Performance of up to 20% more than the traditional commercial control and less than 12% ear rot.

Generation of 5,000 inbred maize lines using doubled haploid technology.

TEN VARIETIES RELEASED

HONDURAS 4 NICARAGUA 2 PANAMA 3 COLOMBIA 1



#### LIVESTOCK SYSTEMS IN THE TROPICS FACING CLIMATE CHANGE

CATIE
Panama
Nicaragua
Costa Rica

Pastures, depending on their state of degradation, have a reduced income of up 40% of their potential.

Farms with predominating silvopastoral systems and other technological innovations have an **improved economic performance**.

In addition, silvopastoral **systems have a lower water footprint and a higher biodiversity** index than traditional farms, with landscape implications.



## SUSTAINABLE AND PRODUCTIVE USE OF NATURAL RESOURCES

#### CHANGES TO WATER PRODUCTIVITY IN THE SOUTHERN CONE

Chile Argentina Bolivia Uruguay ICARDA PROCISUR Ten watersheds were characterized.

Twenty production functions of the most important crops in watersheds were determined.

Improvements in water productivity (kg/m3) for the most important crops in watersheds were estimated:

**↑147**% CHILE

Grapes

↑624%

BOLIVIA

Potatoes

↑67%
URUGUAY
Potatoes

↑72%
ARGENTINA
Olives



#### PRO-POOR IMPACT WITH POTATO VARIETIES

CIP
PROINPA (Bolivia)
Peru
Colombia
Ecuador
CONGELAGRO
/McCain

The time in selecting new varieties has been reduced from 10 years to 5 years and access to these varieties for farmers in extreme poverty has been accelerated.

The 8-12 multiplication rate of basic-seed microtubers was increased to 60-70 through the aeroponics system, with a return of more than 100% and an internal rate of return (IRR) of about 50%.

### THE SUPPLY OF QUALITY SEEDS WAS IMPROVED, both regarding quantity and cost reduction.

165,200 pre-basic minitubers and 347.74 metric tons of new-variety seeds were produced.

+2.000 LOW-INCOME FAMILIES BENEFITED



#### AREA 3: OPPORTUNITIES FOR LINKING PRODUCERS TO MARKETS

#### BANANA AGROPROCESSING AND MARKETING

Bioversity Int. APLARI (Nicaragua) Panama Dominican Republic Venezuela **CATIF** Costa Rica

Three beneficial fungi selected.

Management of key diseases: Erwinia and Black Sigatoka.

-30% Loss reduction

Three manuals on agribusiness and cluster management.

Validation of six elite lines with

dation of six elite lines with additional benefits totaling US\$1.500-2.000/HA.

#### **TRAINING**

**100+ small-business entrepreneurs** on efficient and safe processing. 300+ producers and technicians on production, agroindustrial processing and alternatives, and business ventures.



Ecuador Colombia Peru Venezuela ITDG CIP **IICA-PROCIANDINO**  573 native varieties characterized.

Technologies developed: disease control, virus-free seeds, and agronomic management.

#### **ADD VALUE**

Gourmet potato Naturally Colored chips

#### **INNOVATIVE PRODUCTS**

Price increase of 2 to 2.5 times.

Producer organization and cooperation platforms among value chain members established in four countries.

20-24% Increase in productivity

2.500

beneficiaries trained



## C. Previous FONTAGRO Evaluations and Return on Investment

- During the life of the 2010-2015 MTP two external evaluations were completed: one on the mechanisms used by FONTAGRO for carrying out its mission (Ávila et al, 2010) and an ex-post evaluation of projects completed up to 2012 (Saín et al, 2014). The evaluation on mechanisms included 28 consortia belonging to projects from the calls for proposals carried out between 2003 and 2008; six project leaders from the Andean region and the Southern Cone were interviewed. Also a of 45 researchers (19 project leaders and 26 coexecuting agencies, representing an 86% sample of the universe of analysis) was carried out. The evaluation's conclusions were as follows:
- Regional consortia significantly contribute to

FONTAGRO's objective that seeks to establish a cooperation platform for technological integration in the region.

- Consortia have helped increase the institutional and national capacities of FONTAGRO's member countries, obtain better results, increase rapid knowledge dissemination, and establish more research, development, and innovation networks.
- Private sector participation in the projects evaluated has been inconsistent, with approximately 25% of participating institutions. It was determined that there is no private sector participation in projects that are more basic in
- Thirteen projects reported that they generated innova-

tive results to reduce production and marketing losses, and create new varieties and breeds and new production practices. Eleven project leaders stated that their projects had had positive economic, environmental, and social impacts.

- The concept and practice of innovation processes in projects have not become systematic yet, given the type of results achieved and the private sector's limited participation.
- The evaluation included recommendations for promoting innovative projects, such as adding eligibility criteria for consortia and projects to focus on innovation by including stakeholders from the value chain in all different stages of the project, as well as clearly establishing intellectual property management within FONTAGRO.
- The evaluation indicated that FONTAGRO had to focus on the stages of experimental development, completion, and transfer of technologies, rather than on basic research.
- **2.14** All three latter recommendations have been incorporated in the calls for proposals carried out during the 2010-2015 MTP.
- 2.15 The ex-post evaluation considered a universe of 44 projects completed up to 2012; seven of these projects were analyzed in detail. The impact evaluated involved: (i) innovation systems in participating countries, regarding the scope of technologies and knowledge generated; (ii) participating institution strengthening and cooperation platform development; (iii) scientific publication production and collaborative network creation; and (iv) an indicator of how FONTAGRO is viewed by institutional leaders. The main conclusions were as follows:
- FONTAGRO is a model for the hemispheric agricultural research system and a true institutional innovation.
- FONTAGRO's investments play an important role in generating knowledge and incorporating new technologies to LAC's available technology. However, the scale of FONTAGRO's investments is limited, which prevents it from achieving a greater impact on agricultural production in general.
- FONTAGRO has a significant multiplier effect. At the time of the evaluation, for every dollar invested, cofinancing organizations and participating entities provided five dollars, 3.7 of which were matching funds.
- Innovation generated by FONTAGRO mostly had a regional scope in 35% of cases, followed by a national (27%), international (26%), and local (12%). Direct and indirect results from projects supported by FONTAGRO have been adopted by end users in the field (69%), while 77% of these results have been incorporated by national innovation systems to further their research.

- Most projects have had a positive impact on increasing returns, reducing production costs, or adding value. In addition, 74% of declared results are considered regional public goods.
- The calls-for-proposals system and the evaluation of proposals have helped identify production problems and research needs with more certainty and have therefore been conducive to generating solutions to specific problems and obtaining results that can be adopted by end users.
- Projects have had a significant impact on capacity building at several levels, judging by the number of bachelor's, master's, and doctorate theses that have been included in projects, as well as other training activities aimed at technicians and producers.
- Eighty-six percent of leaders stated that FONTAGRO's projects had had a positive influence on their production of technical, scientific, and academic information.
- The participation of international centers was positive and resulted in joint research and publications registered on the Web of Science. Leaders interviewed believe that partnering with renowned regional and international centers has been beneficial.
- Researchers from nonmember countries have joined projects; this proves that FONTAGRO is a valuable mechanism. It is appropriate to discuss new opportunities for cooperation and dialogue with nonmember countries, so as to expand the cooperation mechanism and achieve greater impact and exposure.
- **2.16** These results confirm that FONTAGRO is a crucial element in the hemispheric innovation system and that investments provided by member countries are being employed appropriately and are recognized by all project participants.

# III. METHODOLOGY FOR DEVELOPING THE 2015-2020 MTP

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- 3.1 The methodology for producing the 2015-2020 MTP began with a consultation with the BoD within the framework of a meeting held in Montelimar, Nicaragua, in April 2014. The BoD expressed the need for an internal analysis of FONTAGRO and the external environment, including the outlook of member countries and the strategic plans of sponsoring organizations and other key stakeholders in the agricultural sector. However, the BoD strongly recommended that the process be highly participatory and inclusive.
- 3.2 Following this mandate, the TAS began to analyze the external environment by carrying out individual consultations by teleconference with members of the BoD, to outline future strategic objectives and priority activities of the organizations represented on the BoD, as well as each country's agricultural environment for the coming years. Each consultation included four basic questions and some complementary questions. Other key issues mentioned and described in the External Analysis section below were also considered.
- 3.3 These efforts to analyze the internal and external context allowed for the preparation of a draft SWOT Table, which was shared with members of the BoD and international experts renowned for their knowledge of LAC and FONTAGRO. Ideas gathered throughout this process were incorporated into a revised SWOT. The MTP task force, which comprised TAS, IDB, and IICA members as well as a consultant, assigned scores to the "importance" and "impact" elements of threats and opportunities identified. This enabled it to identify key issues and, in turn, priorities and strategies for FONTAGRO to consider over the new five-year period. Chapter V below includes the result of the SWOT matrix and explains how FONTAGRO's proposed priorities were established.

- 3.4 Subsequently, videoconferences were held with the BoD on September 24 and 25, 2014, to discuss the summary of individual consultations, the revised SWOT analysis, and the next steps to be taken. A preliminary draft of the MTP was shared with the BoD for consideration before its Annual Meeting.
- 3.5 The MTP task force then proposed initial versions of the 2015-2020 Vision and Mission statements, Objectives, Strategies, Action Plans, and Operating Mechanisms, for the BoD to consider and decide on within the framework of the October 6 Workshop in Medellín. Changes, adjustments, and decisions made by the BoD led to the preparation of a second draft, which was considered by the BoD at its fifth Special Meeting, held in Panama City on February 23 and 24, 2015. This version included an initial proposal for allocating resources to FONTAGRO's several operations. Lastly, the final version of the MTP was approved at the sixth Special Meeting of the Board of Directors, held in Santiago de Chile in July 2015.

# IV. FONTAGRO'S EXTERNAL ANALYSIS, 2015-2020 PERIOD

# IV. FONTAGRO'S EXTERNAL ANALYSIS, 2015-2020 PERIOD

## A. Intervention Areas, Strategic Objectives, and Priority Activities of FONTAGRO's Member Countries

- **4.1** FONTAGRO's external analysis considered the topics summarized below:
- 4.2 Intervention areas, strategic objectives, and priority activities of FONTAGRO's member countries were analyzed from conference calls held with 14 of FONTAGRO's 15 member countries, based on four basic questions and exploring other characteristics present in each country. Summary tables by subregion were prepared and frequency tables were drafted to analyze major issues and substantive investments FONTAGRO member countries plan to make over the coming years.
- 4.3 During these efforts, issues emerged regarding organizations' internal matters as well as matters from the viewpoint of research, innovation, and development. The analysis of future priority investments shows broad agreement across the region; however, the purposes and expected impacts differ significantly among countries. Another important notion is that all 14 countries indicate that the assumptions and objectives set forth in the 2010-2015 MTP remain valid. Table 4 summarizes the topics raised by members of the BoD from the point of view of major investments planned, different mechanisms or strategies to be employed, and purposes and impacts expected from the investments. Not all countries will make the same investments, employ the same mechanisms, or have the same purposes; however, the table reflects the large variety of options that will be considered. Countries that have strengths in a specific field, such as water management or climate change modeling, have indicated their willingness to share knowledge and technologies and support FONTAGRO member countries

that may need help. This opens an interesting range of technological cooperation and complementarity among FONTAGRO's members.

**4.4** FONTAGRO's major strategic question relates to resources and funding. It is clear that available resources, even if used intelligently to leverage other resources, would not be enough to cover the large number of opportunities and needs that have been identified in the region. **Therefore, one of the strategic objectives of the 2015-2020 MTP will be to strive for FONTAGRO's financial consolidation.** 

TABLE 4: Major Future Investment Topics for FONTAGRO Countries, Mechanisms to Achieve Them, Purposes, and Expected Impacts. Information gathered at conference calls with member countries.

#### **MAJOR INVESTMENT TOPICS**

(they vary by country)

#### A productive sector level

#### **CLIMATE CHANGE**

- Adaptation to and mitigation of CC
- Vulnerability
- Socioeconomic impact
- Production impact

#### **NATURAL RESOURCES**

- Water management
- Soil management
- Biodiversity

#### **GENETIC RESOURCES**

- Collection and conservation
- Characterization
- Use

#### SUSTAINABLE INTENSIFICATION

- Genetic improvement
- Agroecology
- Integrated management
- Diversification
- Border expansion
- Precision agriculture
- Bioproducts

#### At the Institutional Level

#### **HUMAN RESOURCES**

- Generational replacement
- Graduate education
- Training
- Engagement and retention

#### **FINANCIAL RESOURCES**

- Government support
- Investments from other sources
- Loans

#### **OPERATIONS MANAGEMENT**

- Long-term vision
- Policies
- Law of establishment and legal framework
- Procedures
- Monitoring and evaluation
- Salaries

#### MAIN **MECHANISMS**

(they vary by country)



- Value chain management
- Territorial approach
- National innovation systems
- Direct work in communities
- Links to extension, academia, the private sector, etc.
- Added value with access to markets
- Policy changes and adjustments
- Investments from several sources
- Human resource management

#### **PURPOSES** AND EXPECTED **IMPACTS**

(they vary by country)



- and sovereignty
- Opening up markets
- Increasing competitiveness
- Increasing sustainable productivity
- and engagement

# B. Intervention Areas and Strategic Objectives of Sponsors and Strategic Partners

**4.5** FONTAGRO is highly interested in the main priorities and activities of its sponsors and strategic partners for the coming years. On the one hand, they enable FONTAGRO to analyze cooperation and cofinancing opportunities, and on the other hand they allow for FONTAGRO to define in which opportunities it can invest its own resources in a more strategic and complementary manner.

#### THE IICA'S 2014-2018 STRATEGIC PLAN

- 4.6 The IICA, like the IDB, is not only a FONTAGRO sponsor, but also an important partner for many activities. In its new 2014-2018 Strategic Plan (IICA, 2014), the IICA considers the following challenges that face the agricultural sector: productivity and competitiveness; sustainability and climate change; inclusion; food and nutritional security; innovation; and water resource management. The IICA has delineated several cooperation mechanisms to address these challenges: flagship projects; externally funded projects; rapid response actions; and pre-investment initiatives of its Competitive Fund for Technical Cooperation (FonTC). The organization has agreed on the following strategic objectives:
- Improving the sector's productivity and competitiveness.
- Enhancing agriculture's contribution to territorial development and to rural well-being.
- Enhancing agriculture's capacity to mitigate and adapt to climate change and make better use of natural resources.
- Enhancing agriculture's contribution to food security.

#### THE IDB'S STRATEGIC PLAN

- 4.7 In addition to its role as sponsor, the IDB administer FONTAGRO and provides it with a significant amount of services and an excellent means of establishing links with other partners and sectors. The IDB's strategic role in regional development and, specifically, in the agricultural sector provides the setting for production growth and efficient and sustainable natural resource management. Through sustained growth in the sector, the IDB contributes to improve food security, raise incomes, and reduce poverty for the rural population.
- **4.8** The IDB helps farmers who seek increased productivity, access to markets, better services, and higher investments. It particularly supports improvements in:
- · Modernization of agricultural services
- Access to markets
- Investments in rural infrastructure
- Cash transfers to farmers
- 4.9 In the Sector framework document on agriculture and natural resource management (IDB, 2013), the IDB has set forth three "Dimensions for Success" and their corresponding action plans:
- **i.** Agriculture in the region reaches high productivity and climate impacts in the sector are managed.
- **ii.** Income from agriculture in rural households increases steadily.
- **iii.** Natural resources in the region are exploited sustainably and the carbon footprint in the region is reduced.

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# INTERNATIONAL CENTERS OF THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH (CGIAR)

**4.10** The International Centers supported by CGIAR (www.cgiar.org) play an active and significant role in the region. FONTAGRO has maintained a close relationship with them, both for conducting scientific research and for cofinancing initiatives. The Consultative Group (CG) has had a significant evolution of mandates assigned to its several research centers, towards structuring priority programs and interdisciplinary task forces of a global nature that address limitations and consider critical opportunities for the sector. In its most recent reform, the objectives and expected impact of CGIAR's work were defined as follows:

- Reducing rural poverty
- Improving food security
- Improving nutrition and health
- Managing natural resources sustainably

**4.11** These objectives will materialize in six major programs:

- i. Improving yields and profits of crops, fish, and livestock
- **ii.** Improving sustainability and environmental integrity adapting to and mitigating climate change
- **iii.** Improving the productivity, profitability, sustainability and resilience of entire farming systems
- iv. Improving policies and markets
- v. Improving nutrition and diets
- vi. Managing and sustaining crop collections

## TROPICAL AGRICULTURAL RESEARCH AND HIGHER EDUCATION CENTER (CATIE)

**4.12** CATIE plays an integral role in the region regarding research, innovation, education, training, and external projection (www.catie.ac.cr). CATIE and FONTAGRO have worked together on several initiatives to benefit member countries.

CATIE's strategy is to promote the development of climate-smart territories as a tool to achieve sustainable and inclusive human well-being and the effective integration of actions in education, research and innovation for development, in alliance with multiple public and private partners.

It mainly works on: (1)

- Food security
- Forestry and agroforestry
- Climate change
- Watershed management
- Value chains and agribusiness
- Sustainable livestock production
- Gender
- Environmental economics and development
- Territorial approaches

<sup>1 (</sup>www.catie.ac.cr/en/what-is-catie/)

# FRENCH AGRICULTURAL RESEARCH CENTRE FOR INTERNATIONAL DEVELOPMENT (CIRAD, FRANCE)

**4.13** CIRAD has occasionally worked with FONTAGRO; however, its regional presence and capabilities in tropical areas are important and joint actions could be intensified in the future. The organization currently has approximately 50 senior scientists (Henry, 2014) in the region and its priority lines of research have been defined as (1):

- Ecological intensification
- · Biomass energy and societies
- Accessible, quality food
- Public policy, poverty, and inequality
- Agriculture, environment, nature, and societies

**4.14** CIRAD works on all continents; specifically, in Latin America and the Caribbean it leads several platforms (partnerships) for research and training, namely:

- Agroforestry systems
- International Consortium for Advanced Biology
- Forests, agriculture, and territorial development in the Amazon
- Public policies and rural development
- Caribbean Animal Health Network

**4.15** The visions and programs of FONTAGRO's member countries are closely linked with those of its sponsors and key partners. Therefore, there will be significant cooperating and complementing options in the future that shall be defined and carried out case by case.

1 (www.cirad.fr/en/)



## C. Current Status and Developments of Regional Philanthropy and Options for FONTAGRO

**4.16** The accumulation of wealth and resources worldwide, despite current inequality, is soundly robust. LAC is no exception. The knowledge and negotiation of some of these sources may be of interest to future FONTAGRO negotiations.

**4.17** Accumulated wealth in the world and specifically in Latin America (WWR, 2014):

- The world has 14,600,000 millionaires with an accumulated wealth of \$56.4 trillion.
- Latin America has 530,000 millionaires with an accumulated wealth of \$7.7 trillion. Last year's growth rate in LAC—although lower than in other regions—was 3.5% in terms of the number of millionaires and 2.1% in terms of total wealth.
- The LAC region has the largest overall percentage (32.9%) of ultra-millionaire individuals (defined as those with more than \$30 million available wealth). The total number of ultra millionaires worldwide is estimated at 128,000; however, they control 34.6% of global wealth.
- Brazil has 172,000 millionaires with an accumulated wealth of \$4.03 trillion.
- · According to projections, millionaires' wealth will con-

tinue to grow. By 2016 it is estimated to reach \$64.3 trillion (a 22% increase compared with 2013).

**4.18** Most new philanthropy resources, originated in LAC, have been provided by the business world in Brazil, Chile, Peru, Colombia, Ecuador, and Mexico, in which companies and business leaders are the principal promoters of new foundations and of nonprofit organizations in the region. Support for these organizations has been gaining strength and entrepreneurs are channeling their philanthropic contributions through these organizations into such sectors as education, health, humanitarian aid, social investment, and the environment. Nowadays the social impact of these efforts is measurable, while resource management and distribution are overseen by donors and third parties.

**4.19** In addition to the new resources the philanthropic sector could provide, it should be emphasized that some countries in the region plan to invest millions of additional dollars into developing the agricultural sector, employing their own resources. Among those countries, Peru, Colombia, and Ecuador provide concrete examples.



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# D. Institutional Capacities for Research and Innovation in LAC

- 4.20 Capacities refer not only to the number of professionals and publications or the academic level of an institution. They also refer to the capabilities that these professionals have regarding biological, economic, social, environmental, and managerial aspects. They also include interaction with other specialists and sources of information their ability to lead (financial and infrastructure) processes and resources, disseminate results and achievements, and negotiate for the necessary resources and support from the authorities. Other aspects, refer to the institutional legal and administrative framework that will enable them to work efficiently. Very little is known about these elements. In a recent study conducted for Central America and the Caribbean (CIAT/IICA, 2013) the following opportunities and limitations were identified, among other elements:
- **a.** Researchers in the public sector of the eight countries considered totaled 629 in 2012, a slight increase compared to ten years before. However, resources and other necessary elements to achieve lasting results and impacts have not experienced the same growth rate.
- **b.** Public sector organizations themselves (with two exceptions) perceive that their capacities have declined over the past ten years.
- **c.** There is a significant presence of highly qualified professionals from regional and international organizations—estimated at 485 in 2012—; however, the long-term agendas of public research and innovation systems are not necessarily well aligned with the capabilities available in the region.
- **d.** A discussion about capacities was held in Montelimar, Nicaragua, in early 2014 with the participation of key agricultural sector stakeholders. It reached the following conclusions:
- → There is an imperative need for an increase in political advocacy regarding capacity building for the agricultural sector, including a forward-looking approach by 2025, for example.
- → There is also the urgency of establishing a new strategy for university curriculum development that fits a

- renewed vision of the sector as well as new opportunities.
- → It is important to advance towards knowledge-intensive agriculture, emphasizing productivity and sustainability, with innovation occupying a central role.
- → Regional integration and cooperation should be leveraged as strategies to solve common problems and seize opportunities, based on networks or consortia that include all relevant stakeholders (a roadmap).
- **4.21** There is an undeniable need for capacity building and it is prominently considered in FONTAGRO's MTP, since it entails a great opportunity for FONTAGRO to promote and call for concrete actions to improve the current situation, in coordination and collaboration with its sponsors and strategic partners. In addition, during consultations, FONTAGRO countries that have greater relative technological development expressed their willingness to cooperate with member countries in need; this is an example of another great opportunity.

## E. Current Status of Negotiations and Membership Options for Brazil, Mexico, Guatemala, El Salvador, and Others

4.22 Throughout the years FONTAGRO has negotiated with Ministries of Agriculture and National Agricultural Research Institute (INIA) authorities of nonmember countries to encourage them to become members of FONTAGRO. To date, there is no clear roadmap on how to achieve this because of several issues, such as frequent changes in authorities and difficulty in identifying sources of funding in the countries that would become members. There is also a recognized need for greater involvement in the negotiations by members of the BoD and sponsors. It is undeniably essential to involve Brazil and Mexico in FONTAGRO's activities, both for their marked technological capacity and for their potential contribution to consolidation. FONTAGRO should also strive to incorporate other important countries in the region such as Guatemala

and El Salvador. Even though they are not members of FONTAGRO, these countries have participated in several projects, either by contributing their own resources or with external funding.

- **4.23** FONTAGRO has also explored partnerships with organizations in such countries as Canada, the Republic of Korea, China, and Israel.
- **4.24** FONTAGRO has made the changes that have returned its ability to operate, and it is in the process of strengthening communication and knowledge management. Therefore, under this new MTP it is essential to continue searching for new partnerships and memberships, such as those mentioned above.

## F. Analysis of Specific Limitations and Their Potential Impact

**4.25** Recent project evaluations and systematizations emphasize that LAC's production has severe limitations, which reduce the opportunities to specifically impact family farming. These limitations are mentioned because FONTAGRO will pay special attention to them and ensure that they are properly considered in calls for proposals and joint projects.

## region moves eastward and hits South America's Pacific coast.

- **4.28** According to Japanese scientists, when El Niño appears, there is an expected fall of 2.3% in global maize yields, 1.4% in wheat yields, and 0.4% in rice yields (Bello, 2014).
- **4.29** During El Niño in 1983 (the temperature of the ocean increased by 2.2 °C), the loss of housing, infrastructure, and production was estimated at 13.4% of GDP in Bolivia, 9.3% in Peru, and 4.9% in Ecuador (it also had a harsh impact on Central America and Brazil). During 1997 and 1998, El Niño caused similar damage; however, that time Ecuador was hit the hardest.
- **4.30** According to the World Bank, losses from natural disasters in Latin America have been estimated at \$50 billion between 2001 and 2010 (Bello, 2014). However, now the region is better prepared: there are better insurance policies and governments can mobilize emergency funds

#### CLIMATE CHANGE

- **4.26** In Central America—one of the most vulnerable regions among FONTAGRO's member countries—recent impacts on the dry corridor in the region have been dramatic. In Guatemala alone, damages to maize production due to drought are estimated to have affected eight departments and 1,200,000 family farmers (La Nación, 2014).
- **4.27** Moreover, severe occurrences of El Niño happen every 15 to 20 years; 2014 and 2015 have not been an exception. El Niño occurs when higher-temperature water from the Pacific Ocean that collects in the Western Pacific

#### GERMPLASM AND SEEDS

**4.31** Recent evaluations have shown that having enhanced or higher-quality seeds does not guarantee that there will be a positive impact on productivity. A significant limitation is the production, quality control, and seed distribution mechanism. Therefore, large investments in genetic improvement and years of work are often overshadowed by administrative, management, legal, or infrastructure reasons.

**4.32** In addition, taking into account the nature of FONTAGRO's work, which involves consortia or platforms, the exchange of germplasm among countries has been difficult and this has hindered collaboration and complementarity among members. There are many reasons for the above, but the most significant one possibly stems from the existing legal framework. In some cases, countries do not have in place the appropriate mechanisms (Genetic Material Transfer Agreements, or MTAs); they have adopted restrictive measures, in particular regarding native germplasm; or they have not ratified international protocols governing the access to and benefits of cultivated biodiversity.

# G. Analysis of New Initiatives: South-South (Africa, Asia) Cooperation

**4.33** Cooperating among different regions is another aspect that has been gaining momentum. FONTAGRO participated in an initiative organized by the IDB and the Global Harvest Initiative (2014) with more than 30 public and private international organizations, aimed at encouraging governments to increase investments in key agricultural sectors. As an initial result, the publication The Next Global Breadbasket: How Latin America Can Feed the World: A Call to Action for Addressing Challenges and Developing Solutions (IDB/Global Harvest, 2014) (http://publications.iadb.org/handle/11319/6436) mainly under-

scores the need to increase investments in research and innovation, given LAC's importance in addressing global food security. FONTAGRO, the IDB, and the IICA's documenting of successful cases of family farming innovations has sparked the interest of several organizations in replicating this experience and sharing lessons learned among LAC, Asia, and Africa as an initial step towards interregional cooperation programs.

## H. Analyses and Implications of Modern Technologies regarding FONTAGRO's Work

**4.34** Technological advancements continue to develop rapidly and they cannot be ignored in the new MTP, because of the opportunities and benefits they can bring FONTAGRO's members. Some of these developments are outlined briefly below:

#### PRECISION AGRICULTURE

**4.35** New technologies and communication systems have had a positive impact on agriculture by developing innovative strategies that improve productivity, enable the adaptation to and mitigation of climate change, and im-

prove sustainable natural resource management.

**4.36** Precision agriculture involves a comprehensive approach to natural resource management strategies and primary production, towards sustainably meeting food needs in the region. Therefore, the users of these technologies and new knowledge need key information and, in many cases, they need it in real time.

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#### BIOTECHNOLOGY

**4.37** Even though the use of biotechnology did not start recently, this MTP should establish certain guidelines to direct FONTAGRO's decisions. Agricultural biotechnology includes longstanding, noncontroversial research topics with significant benefits, such as in vitro cultivation of plant species, traditional genetic improvement assisted by molecular markers, cryopreservation, pathogen removal, high-value clone production, and new biopesticide development. FONTAGRO will continue to support development and innovation resulting from this type of biotechnology.

**4.38** There are more controversial elements in modern biotechnology, regarding which FONTAGRO will abide by the legislation that prevails in its member countries; some of these countries have a favorable view on the matter

while others do not. The most notable cases are transgenesis and marketing genetically modified organisms.

## INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT)

**4.39** These technologies have continued to evolve rapidly and they are valuable tools regarding knowledge management, modern education, agricultural extension, database protection and use, and information and result dissemination. Within the framework of its projects, FONTAGRO will use these tools diligently to maximize its investments' usefulness and impact.

## I. Innovation and FONTAGRO

4.40 The most simple and straightforward definition of innovation considers how new products, processes, and results benefit society. In the Minutes of its Eighteenth Annual Meeting held in 2014, the Board of Directors stated that "innovation is a participatory process through which individuals or organizations generate and/or use technological, organizational, and institutional knowledge that result in new goods and services, which, once used by society, generate social, economic, environmental, and/or cultural benefits." That is, for innovation to exist, it must have an impact on people, organizations, communities, and territories.

**4.41** From this perspective, innovation does not comprise the transfer of data and information, but the joint work among different stakeholders—in processes that do not necessarily have to be linear—to benefit target populations. This less linear, highly interactive view is significant when considering agriculture's contribution to addressing threats to food security, incomes, and employment for both producers and consumers. These cases require innovation processes based on schemes that include a focus on value chains from a territorial perspective and the direct attention and participation of key stakeholders within the framework of appropriate, inclusive policies.

4.42 FONTAGRO has adopted innovation as a goal in its work (Henríquez and Li Pun, 2013). Therefore, FONTAGRO's support will primarily target: a) the most applied research on value chains, in areas where demands are clearly established and where all relevant stakeholders, including the private sector, are involved; and b) the validation and promotion of knowledge and organizational schemes that ensure their widespread use.

"Innovation is a participatory process through which individuals or organizations generate and/or use technological, organizational, and institutional knowledge that result in new goods and services, which, once used by society, generate social, economic, environmental, and/or cultural benefits."

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## J. LAC's Future Role in Food Production and the Importance of Family Farming

- **4.43** As stated in the introduction, some important points are outlined about LAC's role in food production and the opportunities that are being generated and may be generated in the future:
- **a.** Some of LAC's advantages are well-known. The region has a third of the freshwater resources on the planet and 28% of the world's land with medium or high potential for the sustainable expansion of cultivated areas.
- b. If the region maintains its current growth rate for total factor productivity or TFP (estimated at 2.67% per annum), by 2030 production will exceed regional food demand, meeting 166% of it; East Asia will only be able to meet 79% of its demand and Sub-Saharan Africa will meet 25%, all assuming that current TFP remains in both latter cases (IDB/Global Harvest Initiative, 2014). Therefore, LAC could greatly increase its contributions to global agricultural markets. In spite of the above, it is also important to accept that several areas within LAC suffer from severe food insecurity and rural poverty remains at 53%, on average. This dichotomy requires significant efforts and investments that take advantage of the former to solve the latter, keeping in mind that there is a clear correlation between agricultural growth and rural poverty reduction.
- **c.** Even though agricultural research has yielded a very high return on investment, LAC only invests \$1.14 in research for every \$100 generated by the sector's products. In contrast, in more developed economies such investments tend to be three times as large (Stads & Beintema, 2009).
- d. The routes to achieve real impact on the sector can vary. Depending on their capacities, conditions, and resources, countries shall employ different strategies to address challenges and seize opportunities. Highlighted among these are: sustainable intensification of agricultural production, precision agriculture, minimum tillage, bridging yield gaps, traceability and safety, capacity building in a general sense, focus on chains, modern extension approaches, information and communications technology, and knowledge management. FONTAGRO recognizes that in its calls for proposals and joint projects the strategies mentioned can be reduced to one keyword that should

serve as a beacon in its activities: innovation.

- **4.44** FONTAGRO's Board of Directors acknowledges that the fund's scarce resources must be invested carefully. Therefore, FONTAGRO focuses its efforts on family farming, which is a top priority given its importance in LAC. During consultations (see 4.3), almost all members of the BoD stated that the assumptions set forth in the current MTP are still valid. In other words, there is ample justification for continuing to focus on family farming and its market opportunities, its vulnerability to climate change, and the need to rationalize the use of natural resources.
- **4.45** Small-scale agriculture (which is not necessarily synonymous with family farming, as discussed below) generally achieves higher productivity per area, using less capital than large-scale productions and employing manual labor instead of capital-intensive mechanization. It would be unreasonable to "convert" all small-scale farming; however, its prevalence and socioeconomic impact must be acknowledged. For instance, it is estimated that there are 450 million farmers worldwide who have less than two hectares of land each (IFAD, 2014). Consequently, positive policies that promote economic growth, food security, and adaptation to climate change in this sector would have a significant aggregate effect.

- **4.46** Family farming in the region cannot be classified under the two-hectares-or-less category mentioned above; it is much richer and more complex than that. According to a recent study (Berdegué, 2014) three types of family farming can be distinguished in LAC, all of which would require very different policies, strategies, and programs:
- i. Type 1: Small-scale producers in territories and contexts that are unfavorable for economic growth and social development. In spite of its major socioeconomic importance, this group cannot be part of FONTAGRO's main focus, because the primary solution to its limitations does not consist of technology. The benefits of FONTAGRO's activities would provide a more indirect approach (i.e., information and knowledge).
- **ii. Type 2:** Small-scale producers with some limitations regarding territory or resources, but who have opportunities for economic growth and social development. This segment should be part of FONTAGRO's main focus, because better technology, training, and integration into value chains could boost its development.
- **iii. Type 3:** Small-scale producers with rich resources, located in territories that are conducive to economic growth and social development. In this group, as in the first group, FONTAGRO's results could be used indirectly; however, this segment should not be part of FONTAGRO's main focus.

- 4.47 The above study concludes that there are 7.3 million type-2 family farming units in the following countries: Brazil, Chile, Colombia, Honduras, Mexico, Paraguay, and Peru, which account for 14% to 53% of total farms in those countries. Another study cited in the same document states that in six countries (Argentina, Bolivia, Guatemala, Peru, Paraguay, and Uruguay) there are 14 million production units, of which 60% engage in subsistence farming, 28% are in transition (essentially type 2 farms), and 12% are consolidated. Regardless of which numbers are final, there is no doubt that FONTAGRO's niche has been defined properly and its investments would be well justified, given the region's considerable breadth of family farming.
- **4.48** The study also underscores the importance of domestic markets and notes that in 16 countries in the region, accounting for more than 80% of agricultural gross domestic product, domestic markets consume 73% of their countries' production. In summary, domestic markets show the highest growth rate, partly because the current population consumes 22% more food per capita than 30 years ago.

# V. SWOT ANALYSIS

### V. SWOT ANALYSIS

Source: opinion received by videoconference.

5.1 The summary of strengths, weaknesses, opportunities, and threats that resulted from the participatory exercise carried out among members of the BoD, sponsors, international experts, and the TAS is set out below. Sources that support the following statements are indicated in parentheses.

#### **TABLE 5: SWOT** THREATS Some member countries point out the fact that there are limitations in national capacities for funding 01 their research and innovation programs. Therefore, the actual possibility of serving and addressing demands is low. Sources: conference calls with the BoD In some countries there are still official restrictions in place regarding the exchange of genetic resources. This affects cooperation and complementarity in regional projects supported by FONTAGRO 02 Sources: ATN 12913/12302 case and unratified UPOV and Nagoya protocols. An additional threat is posed by shortcomings regarding conservation, management, and use of these resources. Sources: conference calls. The negative effects of climate change, especially extreme drought and flood conditions, are affecting production, yields, and the profitability of agriculture in general, but they are impacting family farming even more severely. 03 Sources: opinions received by videoconference. The threat of generational replacement in national research systems can significantly limit development in the sector, as well as FONTAGRO's activities in the region, over the coming years. Sources: opinions received N4 by videoconference.

#### **OPPORTUNITIES**

01	Acknowledgment of the strategic importance LAC's agricultural sector has in the regional and global economy has recently grown. Sources: FAO, IICA, IICA's MTP, IDB, IFAD, and World Bank report.
02	Changes and adjustments in country, sponsor, and strategic partner policies towards innovation promote FONTAGRO's mission. Source: FONTAGRO/IDB/IICA, 2013.
03	Among the institutions represented on the BoD, FONTAGRO is recognized as a significant regional platform for promoting agricultural research and innovation, which translates into greater member country participation. Source: Saín et al. 2014.
04	International organizations have resources and capacities that can be invested in areas of common interest with FONTAGRO, enabling partnerships in such areas as climate change, family farming, innovation, and biodiversity. Sources: IDB, IICA, CGIAR, CATIE, and CIRAD Strategic Plans.
05	Over the past few years the accumulation of wealth by individuals in LAC has grown substantially and may provide opportunities for public-private partnerships, as well as venture capital and regional philanthropy.  Source: World Wealth Report, 2014.
06	Some organizations consider FONTAGRO to be a model of interest to disseminate innovations in South-South cooperation, which would provide FONTAGRO with new opportunities.  Sources: discussions with the World Bank and the IDB.
07	Strong matches identified (during conference calls) in countries' investment priorities for the next five years provide an additional opportunity for joint work within the framework of FONTAGRO.  Source: opinion received by videoconference.
08	Memberships, particularly those of Brazil and Mexico in FONTAGRO, represent a significant opportunity not only regarding additional resources but also technology and innovation capacities.

WEAKNESSES	
01	FONTAGRO's own operating funds are still insufficient for meeting member countries' expectations, needs, and opportunities. Sources: Financial reports and conference calls.
02	There are still different perceptions among member countries about what FONTAGRO is and what its mission statement entails.  Sources: Saín et al., 2014; consultations with the BoD.
03	In recent years there have been considerable delays regarding project implementation due to legal, administrative, and budgetary management reasons.  Sources: consultations with the BoD and historical information.
04	FONTAGRO's knowledge management, result dissemination, and communication strategy has had a limited scope, which has made it difficult to position FONTAGRO at the regional and international levels.  Sources: Saín et al., 2014, and historical information.
05	There is still a lack of consensus within the BoD regarding the participation of nonmember countries and international organizations in FONTAGRO's activities, which limits cooperation options.  Sources: discussions during Annual Meetings.
06	The latest calls for proposals showed that a large number of proposals had significant weaknesses that affected their eligibility in the selection process.  Source: statistics of the latest calls for proposals.
07	Communication mechanisms used among the Board of Directors, the Technical Administrative Secretariat, and the Executive Board are weak. Sources: opinions received by videoconference.
08	The BoD does not fully understand the IDB's and the IICA's role in FONTAGRO. Sources: opinions received by videoconference.

#### **STRENGTHS** FONTAGRO has made a significant contribution to the quality, results, and impact of regional research 01 and innovation. Source: Saín et al., 2014; Ávila et al., 2010. Consortia supported by FONTAGRO have contributed to sustainably linking researchers in the region, thus strengthening member countries' capacities and increasing FONTAGRO's exposure. 02 Source: Saín et al., 2014. Over the past few years FONTAGRO's bargaining power and leverage has increased, supported largely by the 03 IDB's and IICA's efforts, and nontraditional alliances have been forged. Sources: Saín et al., 2014; FONTAGRO's accumulated capital. The TAS, the BoD, sponsors, and key partners have shown responsiveness to FONTAGRO's restructuring needs; it has therefore been possible to streamline FONTAGRO's operations. 04 Sources: Amendment to the Agreement Establishing FONTAGRO, IDB and IICA renewal agreements, new funding and operations strategy. Consistency among the agendas of member countries, other partners, and FONTAGRO has allowed for significant 05 cofinancing of regional initiatives. Sources: Saín et al., 2014; statistics. FONTAGRO's location at the IDB, particularly in the Office of Outreach and Partnerships, promotes 06 the development of new contacts and, in turn, future partnerships with the private sector. Source: historical data.

## VI. FONTAGRO'S VISION AND MISSION STATEMENTS

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6.1 As it has been discussed in the sections above, during its 2014 Annual Meeting held in Medellín, Colombia, the Board of Directors defined by consensus FONTAGRO's vision and mission statements and its objectives as follows:

#### VISION

To be an internationally recognized mechanism of cooperation for strengthening sustainable agrifood and agribusiness innovation among member countries.

#### MISSION

To contribute to the innovation of family farming through cooperation among member countries, while promoting competitiveness and food security based on standards of equity and sustainability.

## VII. 2015-2020 OBJECTIVES AND STRATEGIC PLANS

## VII. 2015-2020 OBJECTIVES AND STRATEGIC PLANS

- 7.1 <u>Likewise, for the life of the 2015-2020 MTP, the Board of Directors agreed on the following strategic objectives:</u>
- i) Strengthening applied research and innovation capacities in family farming within and among member countries.
- **ii)** Consolidating regional and interregional platforms to respond to opportunities and challenges, strengthening the capacity of national systems as well as breaking down barriers that prevent the adoption of new knowledge and technologies.
- **iii)** Improving knowledge management and result dissemination to multiply FONTAGRO's impact, including the intensive use of social networks.
- **iv)** Consolidating FONTAGRO's financial capacity to support and strengthen innovation initiatives in member countries. This involves commitments undertaken by countries, new memberships, and negotiating with other sectors, including the philanthropic sector.
- v) Increasing the BoD's exposure and participation in FONTAGRO's activities to strengthen the fund's vision and mission statements.
- **7.2** The strategic plans agreed by the Board of Directors are as follows:
- i) Technological, organizational, and institutional innovation in member countries.
- ii) Adaptation to and mitigation of climate change.
- iii) Sustainable intensification of agriculture and natural resources management.
- iv) Competitive territories and value chains within a framework of equity and sustainability.

## VIII. FONTAGRO'S PRINCIPLES

#### VIII. FONTAGRO'S PRINCIPLES

**8.1** The principles that frame FONTAGRO's activities in the new MTP are set out below.

#### A. INNOVATION:

FONTAGRO continues to work with the broadest concept of innovation, including applied research, links to markets, social environments, generation and dissemination process management, organization linking small farmers to value and information chains, strategic partnerships, and the use of different support mechanisms (such as calls for projects, joint projects, and small grants).

#### **B. INTERDISCIPLINARITY:**

The promotion of a comprehensive view and greater interaction among disciplines within consortia, including areas of knowledge outside the agricultural sciences, aiming to explore potentially innovative approaches to family farming.

#### **C. KNOWLEDGE MANAGEMENT:**

Taking advantage of the intellectual capital generated, FONTAGRO will be guided by a strategy aimed at (a) strengthening connections among researchers who have worked with FONTAGRO in the past, (b) systematizing knowledge generated through research supported by FONTAGRO's investments, and (c) disseminating knowledge generated in different formats and for different audiences.

#### **D. PROSPECTIVE VISION:**

Given its nature and the importance of employing its resources efficiently, FONTAGRO will monitor trends continuously to adjust its strategic planning when circumstances demand it, and it will support prospective studies both for establishing state-of-the-art areas of knowledge, and for promoting policies to boost agricultural innovation in the region.

#### **E. REGIONAL POSITIONING:**

The next five years will be used to consolidate a well defined niche within the regional Center for Technology & Innovation system, promoting collaboration among organizations in member countries and with other countries.

#### F. INSTITUTIONAL INCLUSION AND EXPANSION:

FONTAGRO will use the consortium mechanism and the new thematic focus to strengthen the link among national research programs and other institutions and sectors, thus expanding innovation opportunities.

#### **G. IMPACT DEMONSTRATION:**

FONTAGRO will consolidate an innovative assessment scheme that transcends the impact of individual projects and exposes concrete progress in the region regarding poverty reduction, food security, and natural resources. These results shall become a cornerstone in FONTAGRO's financial consolidation strategy.

#### H. INTELLECTUAL PROPERTY:

Efforts that had already been initiated will be reinforced—respecting member country legislation—for consortia to be able to agree, a priori, on the protection or appropriation of knowledge generated when deemed necessary or relevant.

### IX. OPERATIONS

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#### CALLS FOR PROPOSALS

**9.1** • Based on consultations and the external evaluations, it has become clear that FONTAGRO should continue to carry out annual calls for proposals, because they are open, competitive, systematic, and transparent mechanisms. It is therefore proposed that issues identified as strategic plans be supported, mainly through calls for proposals.

#### JOINT PROJECTS

**9.2** • During consultations and discussions it also became clear that the greatest opportunity to develop new partnerships and leverage resources from other donors and partners is through joint projects, in which core funding is provided by partners themselves, as well as other donors, and in which FONTAGRO's role is limited to cofinancing the operation of innovation platforms. Therefore, FONTAGRO will ensure that there be greater continuity and impact in the initiatives it supports.

#### SMALL GRANTS

**9.3** • It is also proposed that FONTAGRO continue to support the development of new initiatives through seed fund mechanisms, as well as by providing technical and financial help towards strategic studies on the region's priority issues, such as capacity building.

#### KNOWLEDGE MANAGEMENT

**9.4** • FONTAGRO must continue to strengthen knowledge management, close project monitoring, regular outcome and impact evaluation, results dissemination, and more resource mobilization to support agricultural innovation in the region.

#### LEVERAGING RESOURCES

**9.5** • FONTAGRO plans to allocate its resources so as to be able to leverage resources provided by other organizations at least at a 1:1 ratio. It will also require that executing agencies provide at least matching amounts to those contributed by FONTAGRO and other organizations.

#### ALLOCATIONS OF FUNDS

- **9.6** Charts 2 and 3 show the projection of resources to be allocated over the life of the MTP. The projection takes into account that amounts provided by other organizations are not necessarily channeled through FONTAGRO's management and can reach executing agencies directly. However, it is understood that resource mobilization is the product of a joint effort between FONTAGRO and/or other organizations and executing agencies to finance issues of common interest.
- **9.7** To calculate the allocation of funds it is assumed that FONTAGRO's resources will be invested as follows: 60% in calls for proposals, 30% in joint projects, 5% in small grants, and 5% in other activities. It is also assumed that resources from other organizations mobilized by FONTAGRO will be invested as follows: 20% in calls for proposals, 70% in joint projects, and 10% in other activities.



#### CHART 2: Expected Origin of Financial Resources.



<sup>\*</sup> Assuming a 1:1 leverage between the funds provided by other organizations and the funds allocated by FONTAGRO.

<sup>\*\*\*</sup> Every period comprises 12 months from november 1 to october 31.



#### **CHART 3:** Allocation of Funds.



<sup>\*\*</sup> Assuming a 1:1 leverage between the executing agencies' matching funds and the funds provided by FONTAGRO and other organizations.

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