Education, science and innovation for development

Annual Report, 2016
Mission
Increase sustainable and inclusive human well-being in Latin America and the Caribbean, promoting education, research and outreach for the sustainable management of agriculture and conservation of natural resources.

Vision
To be an excellent international land-grant type of university specialized in agriculture and natural resources that effectively integrates education, research and outreach in alliance with multiple partners and countries through a solid regional scientific platform.
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CATIE is ready for a new stage of integration and growth. A series of efforts to reorganize the institution has stabilized its operations and laid the foundations to continue working in education, research and development.

In the year 2016, CATIE focused on making decisions based firmly on improving performance. Therefore, it is appropriate in this Annual Report to record the achievements of the Graduate School, Office of Research and Development and all of the other CATIE units that allow us to generate partnerships, agreements and projects to continue working for a better future for farming, livestock and rural communities in the Latin American countries.

This report also presents the efforts of the CATIE staff in human resources, information technology, communication and finances, attributable to the strengthening of talent to improve the well-being of personnel and enhance institutional positioning.

In 2016, CATIE moved forward in its strategic objective to train more professionals by reducing the length of its graduate scientific programs from 24 to 18 months. It also improved processes to optimize academic offerings, the financial model and fundraising for 2017 and 2018.

CATIE now offers a virtual platform with a wide range of graduate programs, diplomas and training courses, facilitating greater accessibility to information and generating an educational process that improves interactivity, communication and knowledge application. Thus, CATIE continues to be one of the best training options in the Latin American region.

Through the updating and development of statistical analysis programs, strengthening of the Institutional Repository, support to country offices, training for producing families through Farmer Field Schools (FFS) and Territorial Business Training Schools, changes in the way it works or creation of Nationally Appropriate Mitigation Actions (NAMAs) in livestock and coffee, among others efforts, CATIE successfully generated a positive impact in policymaking for climate-smart agriculture and conservation of natural resources in the region.

Finally, it is important to note CATIE’s contribution to improving livelihoods, food and nutritional security, agricultural and forestry systems and sustainable territories and value chains through implementation of the climate-smart territory approach (CST) in several countries in the region.

I believe that CATIE has an unprecedented opportunity to chart a course to solve problems and achieve objectives. It is evolving in its organizational culture to advance more rapidly and efficiently in every step, building the foundations for the future. We thank the hundreds of people and international, national and local organizations and strategic partners that make our work possible day by day and that give meaning and purpose to it. In 2017, we will continue working and concentrating on our strategic priorities.

Dr. Muhammad Ibrahim
Leaders capable of managing the complexity of the 21st century

In 2016, CATIE made progress on its strategic objective to offer relevant training processes by reforming the length and content of its scientific master’s degrees from 24 to 18 months. The reform explicitly incorporates—for each one of the areas of specialization—the complex relationships between economic, social and environmental dimensions of production and conservation at the beginning of the 21st century. The process passed the scrutiny of the National Accreditation System for Higher Education (SINAES, Spanish acronym), complying also with the standards of the National Council of Rectors (CONARE), National Council of Private University Higher Education (CONESUP) and Central American University Council (CSUCA) on the educational quality and the required academic loads.

Worth highlighting in this effort is CATIE’s gender approach, begun in 1996, which has had a fundamental effect on our graduates. Up to 1995, only 10.5% of the graduates were women, while from 2006 to 2016, 48.3% of the graduating classes were women. In 2016, the four doctorates and more than half of the master’s degrees were obtained by women from many various countries in Latin America.

The master’s has given me very valuable tools and knowledge for my development as a researcher, taking more into account the inevitable climate change and its impact on agriculture. My mind has been opened to other issues I knew nothing about. I intend to apply what I have learned in further research, in the publication of scientific articles and on my own agroforestry farm. I wish to share my research with national institutions, above all with those interested in the cultivation of coffee.

Marvin Alejandro Brenes Loaiza
Master’s Student in Agroforestry and Sustainable Agriculture
Class of 2015–2016
Costa Rica

Improved institutional processes

During 2016, CATIE relaunched fundamental processes to ensure its financial sustainability and continuous educational improvement that will conclude in 2017. These processes entail optimization of the content of the current academic offer, establishment of a new financial model and a fundraising strategy for the short, medium and long term. Efforts were also continued to recuperate money from the Scholarship-Loan Program, resulting in a reduction of outstanding loans by 11% from 2015 to 2016 and recovery of USD 128,839.1 That recuperation was achieved by offering more information to the graduates about the conditions of their debts and sending account statements and

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1 USD 99,482 from the principal, USD 23,393 from current interest and USD 6,963 from overdue interest.
Participants 630

payment reminders, among other strategies. Finally, the operating and costs structure of the Training Area were improved to encourage the participation of the research programs in the courses and diplomas, both virtual and in the traditional classroom setting.

Master’s and doctoral student body

Expanding virtual education

As an international university, CATIE offers via its website access to a broad range of graduate programs, diplomas and training courses. Some programs, with topics tied to climate change, bioenergy and food security, were created jointly with the Inter-American Institute for Cooperation on Agriculture (IICA) and the Food and Agriculture Program of the United Nations (FAO) to achieve interinstitutional objectives. Others, such as the Virtual Master’s in Integrated Watershed Management and Administration, enabled 21 students to present their preliminary project seminars and take their candidacy examinations from their respective countries: Guatemala, Mexico, Panama, Haiti, Colombia, Ecuador and Costa Rica.

The virtual platform has also been a complement to traditional classroom education, allowing greater accessibility to information and generating an educational process that improves interactivity, communication and application of knowledge. For example, the Academic Master’s in Mitigation and Adaptation to Climate Change includes virtual content.
CATIE continues to be one of the best training options in the Latin America region. The majority of courses are taught at CATIE headquarters, although a significant number are carried out in the member countries, whether linked to research and development projects or strategic alliances with national or regional institutions.

In summary, in 2016, 1421 persons received training (418 women and 1003 men) from 35 countries.

Scholarships for students were available, provided by the Sustainable Agricultural Development Program of the German Technical Cooperation Agency (GIZ/PROAGRO), Inter-American Development Bank (IDB) and Stockholm Resilience Center (SwedBio).

The Biostatistics Unit met its annual goals regarding graduate courses, the International Biostatistics...
Diploma, the Diploma on Research in Agroforestry Systems; support and methodological supervision in master’s and doctoral thesis projects; and participation in presentations, conferences and scientific talks.

**Agreements on knowledge management**

Cooperation with different institutions has helped generate a favorable environment for integrated knowledge management. CATIE has more than 65 agreements in place with academic institutions from around the world, including the following:

- Colombia: National University, Manuela Beltrán University, University of Amazonia and International University Foundation of the American Tropics (Unitrópico)
- Mexico: University of Veracruz
- Peru: National Cultural University of Amazonia, Toribio Mendoza National University and the National University of Central Peru
- United States of America: Montana Tribal College President’s Association

**Knowledge management and dissemination within the reach of all**

In 2016, the Orton Memorial Library improved accessibility to CATIE’s scientific and technical production by strengthening the Institutional Repository (the main tool for open access) with 552 new bibliographical resources, reaching a total of more than 8000. As a result, it enjoys the position of 1207 in the world by the [Ranking Web of Repositories](http://www.rankingweb.net) (and in fifth place in the nation) and was accepted in the [Kimuk National Repository of Costa Rica](http://www.kimuk.org), in the Federated Network of Institutional Repositories of Scientific Publications ([La Referencia](http://www.la referencia.org)) and in [TAPipedia](http://www.tapipedia.org).

The library also assisted in placing 29 professional profiles of researchers in Scientific Digital Social Networks (RSDC) and trained 137 persons in the CATIE Graduate Program, in the agronomy program at the University of Costa Rica and in the field of library science at the National University. Finally, it created the [Journals and Bulletins Portal](http://www.journals-and-bulletins.org) to facilitate access to these types of publications.

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**Articles downloaded in 2016: 5875 articles from subscribed scientific journals (CGIAR).**

![Number of accesses 2016 CGIAR Agreement](chart.png)
### Online catalog with 101 104 records accessible through OPAC

<table>
<thead>
<tr>
<th>Type of service</th>
<th>Specifications</th>
<th>Total sessions</th>
<th>Total users</th>
<th>New users</th>
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<td>SIDALC</td>
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<td><strong>Totals</strong></td>
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<td><strong>259 831</strong></td>
<td><strong>146 295</strong></td>
<td><strong>3 763 499</strong></td>
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</table>
Research for development

CATIE’s Research and Development Division (DID) has as a principal responsibility to contribute to achieving sustainable livelihoods, agricultural and forestry systems, territories and value chains through systematic and interdisciplinary research. Toward this goal, in 2016, personnel in the different DID programs carried out actions that translated into positive effects for the rural population of Central America. This population represents 41.4% of the total population of the region and includes at least 2.3 million families that depend on agriculture.

For example, three local development plans were prepared (two in NicaCentral and one in Trifinio); consolidation of two territorial information systems were supported (Red Gescon in NicaCentral and SINTET in Trifinio); both under the Mesoamerican Agroenvironmental Program (MAP); CSTs were created in 15 countries (through the Ibero-American Model Forest Network) under the Production and Conservation in Forests Program; and the technical capacities of local, public and private institutions were strengthened in CST topics. As a result, the CST approach was incorporated in the territorial management action plan of the Central American Strategy for Rural Territorial Development (ECADERT) and Trifinio’s Food and Nutritional Security Network, among others.

Other actions were to add new institutions to its regional research and development platform (Chinese Academy of Forestry and the Rural Development Agency of Korea); strengthen cooperation with the CGIAR programs—Climate Change, Agriculture and Food Security (CCAFS) and Forests, Trees and Agroforestry (FTA)—and its research centers Bioversity International and the World Agroforestry Center (ICRAF); and develop the 2017–2027 proposal for the Scientific Framework of the Mesoamerican Scientific Cooperation Platform (PCP) Agroforestry Systems with Perennial Crops.

Principles of the CST approach incorporated by governmental institutions in policies in NicaCentral and Trifinio in 2015, 2016 and 2017 (MAP).
As for the germplasm program, CATIE maintained its collections of coffee, cacao, peach palm and fruits. The orthodox seed collection (Cucurbitaceae, Fabaceae, Solanaceae, Poaceae, Amaranthaceae), with more than 6000 accessions, was completely reviewed, classified and entered, with photos, in the new digital program to administer the germplasm (created by staff of the Agroforestry and Sustainable Agriculture Program (PAAS). Also, more than 250 varieties and clones of coffee and cacao were distributed in 10 countries.

In genetic improvement activities, new coffee hybrids were created (project with World Coffee Research and the Center for International Cooperation in Agricultural Research for Development-CIRAD); an agreement was made with a Dutch business for multiplication and use of more than 800 varieties of tomato, chile and pumpkin; and the agreement with a private Costa Rican enterprise was consolidated to supply 30 000 coffee plants produced by somatic embryogenesis. This last agreement is part of a strategy for multiplication and sale of hybrid coffee plants in Central America and is the first step toward promoting hybrids commercially (as an alternative to traditional varieties), given their qualities of high productivity, tolerance to coffee leaf rust and good cup quality.

Through the business FJA HOLDING S.A., more than 70 000 hybrid coffee plants that are more productive and tolerant to coffee leaf rust have been distributed to small coffee producers in Costa Rica. In addition, 70 000 plants were used on model farms that the business established as part of a pilot plan for production through 2018. During 2017, production is expected to increase to 640 000 plants and for 2018, to one million.

In 2016, DID produced 221 publications (28% were articles in juried scientific journals and 27% were master’s and doctoral theses).
**Contribution of CATIE programs in key areas**

**Research Program on Development, Economy and Environment (IDEA)**

In 2016, the program interacted with agricultural and apicultural producers in three different projects:

- **CASCADA Project**
  Trained 57 technical extensionists (from public and private sectors) in Honduras, Guatemala and Costa Rica, sharing knowledge on adaptation to climate change and adaptation practices based on ecosystems (EbA) with more than 5000 small-scale agricultural producers.

- **Credit Project: harvest insurance and responsibility for payment to producers**
  Held workshops with 13 producers in coffee-growing areas in Costa Rica to study the demand for credit in agriculture and the process of decision making and risks for farm owners.

- **PROMIEL Project**
  Trained 70 persons in areas of business management, technical assistance and equipment, which allowed an increase of 97.5% in yield of the plant and the creation of 10 commercial alliances, equivalent to a million dollars in new business.

The Agribusiness Unit of IDEA strengthened the management of 16 value chains in the agricultural, forestry and livestock sector in eight Latin American countries.

**Production and Conservation in Forests Program (Bosques)**

The Bosques Program contributed in a significant way to CATIE goals in 2016:

- It created the Forest Management and Global Climate Office.
- The Latin American Chair on Forest Policy and Economics (CLAPEF) began the Transformations toward a Green Economy in Costa Rica and Vietnam (GreeTS) project.

The GreeTS project is financed by the Volkswagen Foundation, Welcome Trust and Riksbankens Jubileum Fund and supported by partners such as the University of Darmstadt, University of London and the Vietnam Academy of Social Sciences.

- It contributed to the implementation of climate-smart territories in 15 countries through its leadership in the Ibero-American Model Forest Network.
- It innovated in the development and implementation of regional secondary-forest management projects with funds from impact investors, in the context of Initiative 20x20 for restoration of degraded lands.
- It produced scientific literature on significant topics for the new Anthropocene Era (for example, the relationship of arboreal biodiversity with carbon capture and storage in natural forests and the ecological connectivity for wild organisms in agricultural landscapes).
Policy impact, forestry actions and conservation in the region:

<table>
<thead>
<tr>
<th>Country</th>
<th>Actions</th>
</tr>
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<tbody>
<tr>
<td>Costa Rica</td>
<td>Participated in the National Commission for Forest Sustainability (which approved its standard for sustainable management of secondary forests), the Commission for Follow-Up to the National Forestry Development Plan (PNDF) and the Committee of Experts for the Landscape Restoration Master Plan. Supported the development of concept notes on inclusive productive landscapes. Led a project on conservation of marine-coastal ecosystems and their ecosystem services for inhabitants of the northern coast. Delivered interdisciplinary analyses of sites important for conservation to the National System of Conservation Areas (SINAC).</td>
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<tr>
<td>Nicaragua</td>
<td>Evaluated the impact of the Nicaraguan law banning logging, Law No. 585, using the National Forest Inventory (INF).</td>
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<tr>
<td>El Salvador</td>
<td>Coordinated the new project of technical support for development of the National REDD+ Strategy MbA.</td>
</tr>
<tr>
<td>Honduras</td>
<td>Contributed to the Conservation and Forestry Development Institute (ICF) of Honduras in the development of a sustainable forest management program to restore 500 000 ha of pine forests attacked by weevils.</td>
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<tr>
<td>Guatemala</td>
<td>Published <em>Estado de conservación de las poblaciones de cinco especies maderables en concesiones forestales de la Reserva de la Biosfera Maya, Guatemala</em> (State of Conservation of the Populations of Five Timber Species in Forest Concessions in the Maya Biosphere Reserve, Guatemala)—a key process for community forest management supported by Bosques since the beginning of the 1990s.</td>
</tr>
<tr>
<td>Central America</td>
<td>Assisted the forestry technical group of the Central American Commission on Environment and Development (CCAD) in the design of a monitoring and implementation system on the impact of forestry policies in the context of PERFOR. Began the analysis of the synergies of the mechanisms of FLEGT (EU program for application of forest laws, governance and commercial forests) and REDD+ in Guatemala, Honduras, Panama and Colombia. Supported initiatives in value chains for forest products through synthesis documents in Guatemala, Honduras, Nicaragua and Costa Rica.</td>
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Agroforestry and Sustainable Agriculture Program (PAAS)

The work of PAAS is organized into three areas:

1. **Agroforestry** (focused on agroforestry systems with perennial crops)
2. Transformation of knowledge into capabilities
3. Conservation, transfer and use of germplasm of important crops in the region

In 2016, PAAS developed these three areas in the following manner:

- Helped create the first NAMA (Nationally Appropriate Mitigation Action) for coffee in Costa Rica and the world, with the goal of reducing greenhouse gas (GHG) emissions in coffee production and processing.
- Established, in collaboration with the Costa Rica Coffee Institute (ICAFE), a baseline on coffee production systems and their opportunities and challenges and created a training program for technicians and farmers. The experience was duplicated with the coffee institutes of Guatemala and Honduras.
- Distributed coffee hybrids in Costa Rica, Nicaragua and Guatemala in the first phase of the CGIAR research program called Forest, Trees and Agroforestry (FTA 2011–2016).

The CGIAR Forest, Trees and Agroforestry Program (FTA 2011–2016) includes several international research centers, universities and other actors in the sector. The FTA program studied the use of trees as a resource in farms and patios, trained thousands of technicians and farmers in Mesoamerica and produced manuals such as *Prevención y control de la roya de café* (Prevention and Control of Coffee Leaf Rust); to date, this is the most solicited/downloaded manual by users of the CATIE website.
Livestock and Environmental Management Program (GAMMA)

The development of sustainable livestock production, adapted to the climate and low in emissions, requires new knowledge and new skills, as well as solid metrics and methodologies to evaluate, monitor and improve performance. Some key actions are mentioned here:

<table>
<thead>
<tr>
<th>Country</th>
<th>Actions</th>
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<tbody>
<tr>
<td>Nicaragua</td>
<td>Measured the degree of compliance with the certification indicators on pilot livestock farms of Muy Muy, Matiguas and Río Blanco. Systematized the incentive mechanisms for sustainable livestock production and green markets and quantified carbon storage and greenhouse gas (GHG) emissions on dual-purpose livestock farms in the municipalities of Matiguás, Río Blanco and Paiwas.</td>
</tr>
<tr>
<td>Honduras</td>
<td>Adapted the protocols of the Farmer Field Schools to livestock landscapes in three pilot areas; helped the Ministry of the Environment put together a National Climate Change Agenda and define the role of the livestock sector in reaching the commitments to the United Nations Framework Convention on Climate Change (UNFCCC); created a livestock NAMA (Nationally Appropriate Mitigation Action) with the participation of the Secretariat of Agriculture and Livestock, MiAmbiente+ and the National Federation of Farmers and Ranchers of Honduras (FENAGH); established local coordination roundtables and supported the creation of the National Agenda for Sustainable Livestock in the National Livestock Roundtable; and carried out mapping of meat and diary value chains, marketing studies, financial investment strategies (green credits) and implementation of new ways to market livestock products.</td>
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<tr>
<td>Costa Rica</td>
<td>Helped generate the national low-emissions livestock strategy and create a livestock NAMA focused on meeting the strategy’s goals.</td>
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</table>

In the region:

- Adjusted the methodologies for measuring methane and nitrous oxide under tropical conditions and developed GHG emissions baselines in the livestock sector of Honduras and Nicaragua.
- Evaluated the adoption of good sustainable livestock practices through payment for environmental services once external financing ends.
- Promoted the climate-smart territories approach upon receiving approval of a project for the use of climate-smart agrosilvopastoral systems in livestock landscapes in Chiapas, the Yucatan Peninsula and Jalisco, Mexico (this project will be implemented by CATIE, IICA, CONABIO and SAGARPA and financed by IKI/BMU-Germany).
- In cooperation with IICA, a regional forum was presented on “Regional Strategies and Policies for the Development of Livestock Faarming Adapted to Climate Change and Low in Emissions” and a regional proposal was prepared to implement an agenda for the development of sustainable livestock ranching in Central America.

Hundreds of professionals and technicians trained on livestock and environment topics

- National Research Institutes (INTA) of Latin America
- Ministry of Environment (MiAmbiente+), Secretariat of Agriculture and Livestock (SAG) and National Federation of Livestock Ranchers in Honduras (in the methodology of Farmer Field Schools in sustainable livestock production)
- Community promoters and extension facilitators who assist indigenous families in the program Integrated Actions in Food and Nutritional Security of Western Guatemala (PAISANO)
- University students in La Molina (Peru), Regional University Center of the Atlantic Coast (Honduras), Autonomous University (Nicaragua) and ECOSUR (Mexico) trained in measuring enteric nitrous oxide and methane
**Climate Change and Watersheds Program (PCCC)**

One of the principal achievements of the PCCC in 2016 was the creation of the first CATIE virtual professional master’s in Management and Administration of Watersheds. Thus, training is provided to professionals and leaders in the region that duplicate methods and concepts learned in their work in natural resource management.

**Capacity building**

- 29 young leaders (most less than 40 years old, 70% women, from 16 countries in the region) in the international course on leadership and governance in processes of planning for adaptation to climate change and mitigation in productive territories (Stockholm Resilience Center).

- 95 participants and 12 professionals in the eighth International Course on Adaptation to Climate Change: the Role of Ecosystem Services.

- 116 persons (57 women and 59 men) in courses in the Leadership School for training in conservation of biodiversity in state protected wildlife areas (PWAs) in Costa Rica.

- 157 persons (88 men and 69 women) in indigenous territories in the national cultural mediator program, directed to indigenous peoples within the framework of development of the National REDD+ Strategy.

**Acciones de asistencia técnica**

- The Latin American Chair in Environmental Decisions for the Global Climate (CLADA), responding to a request from the National Insurance Institute of Costa Rica (INS), has created a methodology to help insurance operators in providing insurance to producers of 12 crops. In the Futuragua project, the ASADAs in Guanacaste have been involved to confront the drought and for training in water management. An agreement has also been established with the University of Costa Rica (UCR) School of Communication to develop communication studies and initiatives in social communication to influence management of water resources.

- With implementation of the project WaterClima-LAC: Management of Coastal Zones, methodologies have been created for evaluation of vulnerability to climate change, water ecosystem services, climate risk, etc. This project has had an impact on management in more than 80 institutions and organizations through knowledge exchange, capacity building and resource management.
Regional Climate Change Program (RCCP)

The Regional Climate Change Program is a five-year cooperation initiative of the United States Agency for International Development (USAID) that provides technical assistance to governments and civil society organizations in Central America and the Dominican Republic to promote sustainable territories; improve the availability, access and use of climate information for decision making; and strengthen environmental management. The program is implemented by CATIE, the International Union for Conservation of Nature (IUCN), the Cooperative for Assistance and Relief Everywhere (CARE), Development Alternatives, Inc. (DAI), Terra Global Capital (Terra Global), with technical support of the Environmental Protection Agency of the United States (EPA) and in coordination with the Central America Commission on Environment and Development (CCAD).

The most important program actions in Central America and the Dominican Republic during 2016 were the following:

- Support to development of Restoration Strategies in four countries in the region.
- Support to three countries in the development of their National Emissions Reduction Programs for the World Bank Carbon Fund.
- Development and validation of the guide on “Regional Guidelines for the Application of REDD+ Safeguards in Central America and the Dominican Republic.”
- Creation of the REDD+ Initiatives Diploma, with emphasis on measuring, reporting and verification (MRV) and safeguards.
- Development of the Blue Carbon methodology to quantify the existence of CO2 in the region’s mangroves.
- Development of methodology to identify and implement synergies between adaptation and mitigation.
- Develop the first regional climate information system, Centro Clima (in collaboration with the Regional Committee on Hydraulic Resources CRRH-SICA, national meteorological institutes and other partners) and tools for use of climate information by users in the sectors of coffee, fishing and energy (small hydroelectric power stations).
• Support training of 10 professionals for master’s degrees in topics related to attention to climate change

• Training of more than 953 personas (258 government personnel, universities, civil society and the private sector) in appropriate management of sanitary landfills, wastewater and prosecution in environmental cases, with the support of 20 experts from the Environmental Protection Agency of the United States.

• Two synthesis documents and six internal technical documents related to analysis to encourage synergies between adaptation and mitigation (SAM) of climate change.

Mesoamerican Agroenvironmental Program (MAP)

In 2016, 2002 families in NicaCentral (Nicaragua) and Trifinio (El Salvador-Guatemala-Honduras), grouped into 122 Farmer Field Schools (74 in NicaCentral and 48 in Trifinio), finished their learning process on topics of climate smart agroecological and agroforestry production both in patios and farms, gender equity, good practices in the home environment and adaptation to climate change.

The families implemented 37 agroecological and agroforestry technologies in their patios (1517) and farms (1377).

During the year, MAP held 18 sessions of the Territorial Business Training School with a focus on gender equity and climate change, aimed at strengthening social and business skills of the organizations. There were 99 participants (22 women), who now offer 50 new products and whose work serves as a source of income for their families.

MAP personnel offered guidance, financing and logistical support to nine CATIE master’s degree students to carry out their thesis and present webinars about CSA and their relation to food and nutritional security. MAP also conducted CSA workshops intended for researchers and decision makers from the Ministry of Agriculture and Livestock and the Ministry of Environment and Energy of Costa Rica.

Finally, MAP signed 12 agreements to scale out what has been learned as well as the CST approach. The agreements were established with producer organizations/associations, educational institutions and with territorial platforms.

The first experience with the CATIE project was to plant in the garden. They brought us little tomato and pepper plants and I put them in a row. I had never done it before. Then, we harvested and saw that we got plenty of produce. The crop doesn’t grow the same when done traditionally; when fertilized, it is better—the plant and its fruits develop better. We are going to continue implementing what we have learned.

Lucio Talabera Cordero
Integrante de ECA-MAP
Comunidad de La Chata, El Cuá, Nicaragua
IICA and CATIE Cooperation

CATIE and the Inter-American Institute for Cooperation on Agriculture (IICA) strengthened their relationship during 2016. In 2015, during the meeting of the Inter-American Board of Agriculture (IABA), the ministers passed a resolution calling on the two institutions to develop a cooperation plan to respond to the multiple challenges that confront the region. During the year 2016, CATIE and IICA developed an agenda for cooperation in the areas of higher education, research and cooperation in the countries.

It should be highlighted that CATIE and IICA signed a letter of understanding within the framework of the PROCAGICA project, which is financed by the European Union and which has as its objective development of improved technologies for coffee in the context of the problem of coffee leaf rust (roya). CATIE has also involved IICA in the execution of an agrosilvopastoral project for the conservation of biodiversity in Mexico (whose proposal was approved with funds from IKI in Germany). Progress was also made in cooperation at the country level, including Nicaragua, Guatemala, Belize and Mexico.
In alliance with our member countries

Guatemala

In 2016, the CATIE National Office led initiatives related to 10 national policies and six international agreements. In coordination with different CATIE programs, 10 agricultural chains were analyzed (Agribusiness Unit); work was carried out with 2033 persons in 33 Farmer Field Schools (FFSs) in the Trifinio area to incorporate the climate-smart territorial approach (CST) in several local development instruments (MAP); and an initiative was developed to implement climate-smart production systems in 15 municipalities in southeastern Guatemala (Phase 1—Livestock and Environmental Management Program and Agroforestry and Sustainable Agriculture Program).

At the local level, the National Office led the first Local Extension System (SLE) to promote a strategic model of municipal coordination in San Juan Comalapa, Chimaltenango, and developed strategic management and sustainability instruments for better administration and co-management of Acatenango Volcano.

<table>
<thead>
<tr>
<th>Capacity building</th>
<th>Three publications aimed at contributing to the processes of integrated rural development, extension and family agriculture</th>
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<tbody>
<tr>
<td>• 12 964 persona (9638 families) in 30 municipalities in four departments (FFS methodology)</td>
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<tr>
<td>• 1256 persons (technicians, professionals, researchers, managers)</td>
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<td>• 10 172 persons through rural extension</td>
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<td>• 152 extensionists in the Ministry of Agriculture, Livestock and Food (MAGA)</td>
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<tr>
<td>• 29 researchers from the Institute of Science and Technology (ICTA) and universities through the CATIE International Diploma in Biostatistics</td>
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<tr>
<td>• 32 technicians and professionals via the course on training of trainers in governance and forest management, with emphasis on REDD+</td>
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<tr>
<td>• 24 technicians and professionals in el REDD+ Initiatives Diploma, with emphasis on MRV and safeguards</td>
<td>Three publications aimed at contributing to the processes of integrated rural development, extension and family agriculture</td>
</tr>
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</table>

Panamá

In this country, CATIE contributed to actions in sustainable forest management and forest governance; provided technical assistance in strategic planning to the newly created Forestry Office of the Ministry of Environment; strengthened the capacities of 15 organizations that work on projects related to forests (Bosques de Vida or REDD+ community base, GEF-UNDP); provided technical assistance to the National Commission for Rural Territorial Development (in coordination with FAO and IICA); supported development of the climate change plan (with Miambiente, IICA and FAO); and attended the livestock union (National Association of Livestock Producers-ANAGAN) to identify good production practices that reduce greenhouse gas (GHG) emissions.

It is important to receive these trainings since, as, it helps us and the farmers. When the knowledge and the practice are provided, there aren’t so many problems in management of the topic to be developed.”

Ingrid Chávez Ordoñez, extensionist in family agriculture for MAGA
Honduras

The National Office in Honduras worked on a strategy for adaptation to climate change and management of disaster risks; held two national events to provide support to the National REDD+ Strategy (under the leadership of MiAmbiente+); promoted the CST approach in two pilot sites; contributed to the National Strategy for Adaptation to Climate Change for the Agri-Food Sector (through MAP), held several fairs and congresses; participated in the Regional Congress on “Climate Change: Practical Solutions to Food Insecurity in Central America”; and disseminated technical information in the platforms Global Water Partnership-GWP, National Federation of Farmers and Cattle Producers of Honduras (FENAGH), Honduran Network of Water and Sanitation (RAS-HON) and the cacao chain.

El Salvador

As a member of the Round Table on International Cooperation for Agriculture, CATIE participated in various coordination meetings and two national strategic forums. In coordination with the Mangle Association, the National Office helped develop the Plan for Sustainable Local Development for the Bahía de Jiquilisco Biosphere Reserve (financed by the Initiative for the America Fund-FIAES). It also developed the Management Plan for the Microwatershed of the San José River in Metapán, (Ministry of Agriculture and Livestock-MAG and the International Fund for Agricultural Development-IFAD) and signed a contract with the Ministry of Environment and Natural Resources (MARN) to provide technical assistance in formulation of the National REDD+ MbA Strategy.


Execution of the budget: USD 230 690

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Execution of the budget: USD 230 690
Nicaragua

CATIE signed an agreement with the Peñas Blancas Platform, with participation of all actors involved in management of that reserve; continued working with the coordination round table for technical and financial cooperation in Nicaragua (National Network for Watershed Organizations in Nicaragua-RENOC, Latin American Network for Rural Extension Services-RELASER, National Advisory Committee-CAN, and the Global Soil Partnership-GSP; and contributed to the proposal for environmental management planning with the mayor of Rancho Grande and the municipality of El Tuma, La Dalia, in Matagalpa. With regard to technology transfer, the office worked with more than 1800 families in FFSs and established germplasm banks.

**Capacity building**
- 5000 persons through forums, courses, workshops and field schools with producer families.
- Technical staff of the Nicaraguan Institute of Agricultural Health (IPSA).

**Mexico**

The high-productivity cacao clones tolerant to frosty pod rot (moniliasis disease) developed by CATIE, together with diverse partners, were put at the disposition of Mexican producers at the end of 2016, in collaboration with the National Institute of Forestry, Agriculture and Livestock Research (INIFAP), Nestlé and the ECOM Agroindustrial Corporation. Also, the regional program Climiforad designed a tool for the analysis of mountain forests’ vulnerability to climate change, which was applied in the Izta Popo National Park (and four other territories in Latin America) in collaboration with INIFAP researchers. CATIE also contributed to landscape restoration in Mexico in support of the 20x20 Initiative, assisting the National Forestry Commission (CONAFOR), Reforestamos México, the International Union for Conservation of Nature (IUCN) and Pronatura-Yucatan Peninsula.

**New proposals**
- CATIE and Reforestamos México: training of decision makers at the national level and in the southern states of Mexico, of the Wildlife Without Borders-México Program (WWB-MEX) of the Fish and Wildlife Service of the United States.
- CATIE and IICA: introduction, multiplication and distribution of F1 coffee hybrids in five Mexican states, including technical assistance and training of extension services.
- CATIE, IICA, CONABIO and SAGARPA: new project in Chiapas, Yucatan Peninsula and Jalisco to promote agrosilvopastoral systems, climate-smart territories in livestock-producing landscapes (IKI funds-Germany).

**Execution of the budget:** USD 759 011

**New agreements**
- CATIE-Coffee Institute of Chiapas (INCAFECH): assistance of CATIE in setting up the institute and training personnel.
- CATIE-Autonomous University Chiapas (UNACH): academic collaboration, CATIE assistance and training.
**Colombia**

CATIE worked with Colombian entities (UN Refugee Agency-UNHCR, International Center for Tropical Agriculture-CIAT, Natura Foundation, government of Risaralda, government of Chocó and universities) to create research and education proposals, focused especially on post-conflict topics and REDD+ for peace, as well as others that respond to the 20x20 Initiative.

<table>
<thead>
<tr>
<th>Capacity building</th>
<th>In partnership with Louis Berger Colombia SAS, a proposal was prepared to develop a National Climate Change Plan, a competitive process promoted by USAID. With the business INTEGRATION, another proposal was prepared for technical assistance to the Multi-Annual Indicative Program for Colombia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>− Courses in the University of Amazonia, University of Applied and Environmental Sciences, University of Ibagué and University of Tolima.</td>
<td></td>
</tr>
</tbody>
</table>

**Bolivia**

CATIE and FAO delivered the first National Program for Productive Strengthening of the Cacao Sector in Bolivia to the Ministry of Rural Development and Lands (MDR&T); the plan consists of six components for the 2016–2020 period and has a budget of BOB 256 000 000 (about USD 37 000 000). CATIE also presented a study on adaption to climate change for the Yucumo-San Borja and San Borja-San Ignacio highway project, which aims to research and learn about the dynamics of the flooding phenomenon in the plains of the Department of Beni, considering the hydrological and hydrometeorological seasonality under different scenarios of climate variation (such as climate change and El Niño and La Niña).

Within the framework of DS. N°29894, the Ministry of Rural Development and Lands (MDR&T) united efforts with CATIE, FAO and IICA to “support the strengthening and development of sustainable agri-food and production systems in the Bolivian Amazon,” with the goal of improving family incomes, promoting diversified production, strengthening institutional and community capacity, and revaluing local and ancestral knowledge (complemented by technical and scientific expertise) to achieve “living well”—in harmony and balance with Mother Earth.

<table>
<thead>
<tr>
<th>Capacity building</th>
<th>New agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td>− Course on modern cacao farming, in alliance with the municipality of San Carlos and the association of cocoa producers APROCAB.</td>
<td>− CATIE-GIZ/PROAGRO: applied research activity and training in international courses and to transmit knowledge and experiences to Bolivian students and professionals.</td>
</tr>
</tbody>
</table>
Management and service offer

The Management and Offer of Technical Services Unit (UGO) informs the Research and Development Division (DID) about calls, tenders and the bids on development topics (extension, technology transfer and project implementation). The DID writes the proposal with the help of UGO or, in the case of national opportunities, with the CATIE National Office in each country. UGO creates the proposals for countries that are not members of CATIE, where there are no offices or when specifically requested to do so.

UGO obtained six consultancies to develop proposals and concept notes (Panama, Bolivia, Peru, Nicaragua); signed three agreements (Costa Rica, Peru) to assist in use of information and the implementation of projects; and helped build capacities in formulation of plans and projects.

At the regional level, it contributed to the implementation of the Regional Climate Change Program and the Climate-Smart Territories project in the region of Junín, Peru (financed by USAID), and the WaterClima project (financed by the European Union).

Support of UGO in the presentation of proposals, by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Proposal</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honduras</td>
<td>Proposal: Manchaguala Watershed Diagnostic with a Water-Source Risk Management Approach, San Pedro Sula, Honduras, for GIZ.</td>
<td>EUR 40 000</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>Proposal: Water Resources Plan for the Arenal River Watershed. Contract signed with the National System of Conservation Areas (SINAC).</td>
<td>USD 80 000</td>
</tr>
<tr>
<td></td>
<td>Proposal: Technical Studies for the Regulatory Plan of the Municipality of Buenos Aires, Costa Rica.</td>
<td>USD 120 000</td>
</tr>
<tr>
<td>Colombia</td>
<td>Proposal: Technical Assistance for Supplementary MIP Measures, in alliance with INTEGRATION (Germany), for the European Union.</td>
<td>EUR 1 600 000</td>
</tr>
<tr>
<td>República Dominicana</td>
<td>Proposal: Preparation of Watershed Management Plans and Project Management, for Plan Sierra.</td>
<td>USD 15 000</td>
</tr>
<tr>
<td>Panamá</td>
<td>Proposal: Studies on Ecosystem Services of Water Resources, for Natura Foundation.</td>
<td>USD 80 000</td>
</tr>
</tbody>
</table>
**Strengthening of the CATIE community**

In 2016, the CATIE Office of Human Development (ODI) carried out diverse tasks aimed at strengthening institutional human resources and improving the well-being of its personnel. One of the principal achievements was to the final stage of development of a platform for the Performance Evaluation process, which will allow incentives to staff, improve individual capacities through feedback and align work with institutional objectives and priorities.

With the contribution of all CATIE entities, the ODH was able to hold several integrative group activities, provide talks to the staff on management of finances and support the personnel who participated in the Master’s Program in Project Management, taught by the Costa Rican Technological Institute.

CATIE retained 89% of its human talent with an income similar to the previous year and reduced the accounting liability in the reserve for vacations, encouraging personnel to take them. The institutional standards were also revised and adjustments were made to the Regulations for National Staff, with approval by the board of directors. As part of the process of succession, dates for retirement of members of the staff are being planned.

Fifty percent of CATIE personnel participated in Health Week, organized by ODH. Other initiatives to improve the health of the staff include preparation of a manual on use of equipment for personal protection (by job) and an emergency plan, developed together with the Costa Rican Ministry of Health.

*Working at CATIE has been a beautiful experience, I have learned a lot, I can never stop taking about CATIE. I have been working here for 27 years and I believe that working for this institution has been a privilege. CATIE has opened many doors, it is my second home.*

*Rosybel Ramírez, Human Resources*
### Information Technologies and Communication

The main achievements of Information Technology (IT) in 2016 can be grouped in two areas: information system and networks and infrastructure.

<table>
<thead>
<tr>
<th>Sistemas de información</th>
<th>Redes e infraestructura</th>
</tr>
</thead>
<tbody>
<tr>
<td>− Se actualizaron los sistemas de información institucionales para realizar el proceso de liquidación de funcionarios. Los ajustes a los sistemas de planillas y recursos humanos permitieron realizar los cálculos del proceso de liquidación masiva.</td>
<td>− Se agregó una nueva tarjeta de expansión al equipo principal de red (switch core) de la institución para aumentar el número de conexiones de red entre departamentos.</td>
</tr>
<tr>
<td>− Se crearon nuevas funcionalidades en el sistema de posgrado, las cuales permiten generar los informes solicitados por el Sistema Nacional de Acreditación de la Educación Superior (SINAES) como requisito para la acreditación de carreras.</td>
<td>− Se mejoró la seguridad y estabilidad de la red en el campus en áreas como Posgrado y Ganadería. Se crearon tres redes virtuales (VLANS) que permiten evitar caídas de la red y mejorar el funcionamiento.</td>
</tr>
<tr>
<td>− Se desarrollaron nuevas funcionalidades en el sistema de proyectos del CATIE, para incluir listados de proyectos, una nueva interfaz web para poder consultar los proyectos, envío de alertas de entregables, y un repositorio de documentos electrónicos de proyectos y contratos.</td>
<td>− Se realizaron planes pilotos para brindar televisión vía Internet en el futuro, lo que beneficiaría principalmente a alojamientos y áreas claves de la institución.</td>
</tr>
</tbody>
</table>

− Se reparó la torre de comunicaciones y se agregó un nuevo equipo contra rayos, en coordinación con el Instituto Costarricense de Electricidad (ICE).

− Se implementó un servidor de actualizaciones de software (WSUS) que permite consumir menos tráfico de Internet cada vez que una computadora descarga actualizaciones del sistema operativo. Esto permite que la red del CATIE funcione mejor y con mayor velocidad.

− Se mejoró la infraestructura de la red del área de Colecciones en Cabiría.
The Office of Communication and Policy (OCI) directed, coordinated and oriented internal and external communication activities of CATIE with the goal of achieving institutional positioning. Some important achievements include the following:

**Coverage of institutional events**

- Celebration of the 70th anniversary of the Graduate School (held in the Costa Rican Legislative Assembly).
- Graduation (including the presence of Dr. José Zaglul, rector of EARTH University, who was the main speaker and received a doctor honoris causa).

**Digital communication–social networks**

- Preparation of 167 news articles for the web (increase of 88% over the previous year).
- 217,191 visits to the news published on the CATIE website (67% more than in 2015).
- The presence of CATIE in social networks grew, reaching 1,717,215 persons on Facebook and 93,875 on Twitter.
- Two new social networks: Instagram (654 followers) and LinkedIn (472 contacts).
- Some 130,910 users from 194 countries that generated 209,580 sessions, showing an increase of 11% in relation to the previous year.

**Media**

- Creation of specific electronic bulletins for internal and external publics, with the goal of keeping them better informed about the work of the institution.
- 163 news articles about CATIE published in local, national and international media (on 11 different areas of the institution’s work), managed through press releases and other means.
- Visits to CATIE by recognized mass media, such as the program 7Días of Channel 7 in Costa Rica and CNN in Spanish.
Financial Results

CATIE’s new administration, which took office in March 2016, faced great challenges, including a financial and administrative review of the institution. Management has been focused on maintaining the levels of income and expenses within the approved budgets, having greater control and proper financial discipline, and adapting the operational and cost structure to current economic capabilities.

Financial management—2016

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>2015</th>
<th>2016</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational surplus</td>
<td>in USD thousands</td>
<td>(187)</td>
<td>474</td>
<td>353%</td>
</tr>
<tr>
<td>Net surplus</td>
<td>in USD thousands</td>
<td>(530)</td>
<td>39</td>
<td>107%</td>
</tr>
<tr>
<td>Total assets</td>
<td>in USD thousands</td>
<td>18 418</td>
<td>16 385</td>
<td>(11%)</td>
</tr>
<tr>
<td>Total liabilities - unrestricted</td>
<td>in USD thousands</td>
<td>2870</td>
<td>2388</td>
<td>(17%)</td>
</tr>
<tr>
<td>Net assets - restricted</td>
<td>in USD thousands</td>
<td>7911</td>
<td>6322</td>
<td>(20%)</td>
</tr>
<tr>
<td>Institutional liquidity ratio</td>
<td>Times</td>
<td>3.4</td>
<td>3.3</td>
<td>-</td>
</tr>
<tr>
<td>Indebtedness</td>
<td>%</td>
<td>2</td>
<td>1</td>
<td>(50%)</td>
</tr>
<tr>
<td>Administrative efficiency</td>
<td>%</td>
<td>5</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Recovery of membership quotas</td>
<td>%</td>
<td>29</td>
<td>29</td>
<td>-</td>
</tr>
<tr>
<td>Internal financing</td>
<td>in USD thousands</td>
<td>1761</td>
<td>1532</td>
<td>(13%)</td>
</tr>
<tr>
<td>Cost coverage of basic functions</td>
<td>%</td>
<td>64</td>
<td>73</td>
<td>14%</td>
</tr>
<tr>
<td>Contribution of productive activities</td>
<td>in USD thousands</td>
<td>478</td>
<td>553</td>
<td>16%</td>
</tr>
</tbody>
</table>

The financial results achieved a net surplus of almost USD 39 000—with reductions in income projected in the unrestricted core fund by almost USD 426 000 and the increase in costs of non-financial items (depreciations and others) by almost USD 122 000.

CATIE reduced its portfolio of external agreements (from USD 18 million in 2015 to USD 14.5 million in 2016 (-19%), therefore reducing its net restricted assets (-20%) and total assets (-11%). The principal reason for the reduction in total assets was a decline in the availability of cash and cash equivalents (USD 1.4 million) and in accounts receivable from member countries (USD 0.5 million).

The level of indebtedness in 2016 declined 50% with respect to 2015 and now is minimal in comparison with total assets. The measures adopted to reduce costs, increase operational efficiency and improve market conditions brought about a USD 35 000 increase in financial contributions to the unrestricted core fund from productive activities and institutional services.
Although the indicators of financial liquidity reflect positive results at the institutional level, they are a challenge for CATIE in the short-term. The low percentage achieved in cancelling membership quotas (29%) and the high level of delinquency (USD 3.5 million), as well as the granting of almost USD 1.5 million in internal financing with delays in its recovery, reflect that the uncommitted financial liquidity (excluding funds from external agreements) is unsatisfactory.

The measures and efforts of the new CATIE administration to reduce costs (promoting greater austerity and optimizing the use of institutional resources) allowed maintenance of administrative efficiency indicators (5%) and improvement in coverage of costs for basic functions (increase of 14%) with respect to 2015.

**Behavior of revenues and expenses**

In comparison with the year 2015, the income for the different accounting funds fell 15% while operational expenses declined 17%. Nevertheless, in 2016, the operational results went from a deficit of USD 187 000 to an operating surplus of USD 474 000. The accounting losses due to adjustments in the fair value of assets reduced that surplus to USD 39 000.

**Other achievements in CATIE’s financial management during 2016:**

- USD 29.2 million in added income for the different accounting funds.
- USD 399 000 from cost savings in senior management and in administrative and financial support.
- USD 756 000 from reduction in payroll costs of national staff at headquarters, charged to unrestricted funds expected in 2017.
- USD 540 000 from recuperation of quotas owed by member countries.
- USD 168 000 disbursed to pay labor liabilities to staff with budget resources from the year 2016.
- USD 553 000 contribution to the regular core fund by development of productive activities and by self-management (surpassing the goal set for 2016).