



Forty-first Regular Meeting of the Executive Committee

**Master Plan for the Management of the IICA-CATIE
Real Estate Assets and Production Projects**

(DI-06)

San Jose, Costa Rica
28-29 June 2021



MASTER PLAN FOR THE MANAGEMENT OF THE IICA-CATIE REAL ESTATE ASSETS AND PRODUCTION PROJECTS

1. Background

The Special Committee established by the Inter-American Board of Agriculture (IABA), via Resolution No. 519 of 31 October 2019, presented a report on 21 July 2020 to the Executive Committee of the Inter-American Institute for Cooperation on Agriculture (IICA), which, in response, adopted Resolution No. 664. The report indicated the need to institute measures to make the lands belonging to IICA and the Tropical Agricultural Research and Higher Education Center (CATIE) more productive; to conduct a legal study to determine various alternative uses or existing limitations on these real estate assets; to devise a “master plan” for the strategic use of the real estate and production assets of the IICA-CATIE properties; and finally, the need to develop production and value-added projects, among other actions.

The master plan should consider the following: 1) actions required to achieve the best use of land owned by IICA and held in usufruct by CATIE, 2) alternatives for non-agricultural use of land that has production constraints or whose use may need to change due to urban pressure; and 3) production and value-added projects that generate profits, on the basis of feasibility studies and strategic alliances.

Thus, Resolution No. 664 of 21 July 2020, the Executive Committee instructed IICA and CATIE to:

- Continuously facilitate and foster joint, coordinated work.
- Create a joint IICA/CATIE unit, responsible for overseeing and supervising the use of IICA’s annual contribution to CATIE.
- Prepare a “master plan” on the strategic use of the real estate and production assets of property belonging to IICA and CATIE.

Mindful of the mandates and resolutions of the governing bodies, the IICA and CATIE master plan should serve as a strategic planning instrument, aiming to align the various interventions with respect to the real estate assets (land and farms) to create the ideal conditions for their development.

The Master Plan seeks to align the multiple and complex variables involved to achieve a systemic approach with respect to the IICA and CATIE farms and land and to strategically position them within their urban, economic, political and administrative context, anticipating problems and ensuring the feasibility of implementing various projects.

2. Development of the Master Plan

The plan is a comprehensive proposal focusing on the physical and spatial occupancy of the different areas, with a view to improving all the land, by attempting to integrate actions of varying levels and scopes and to address various issues in a systemic manner, while taking into account the relevant historic, legal, political, financial, instrumental and environmental conditions.

It is a management or administrative blueprint that establishes guidelines for action, management and investment, in order to realize a vision for the development of all the real estate assets. This will require a proper assessment of the potential and limitations, based on a SWOT analysis (strengths, weaknesses, opportunities and threats).

The Master Plan defines the actions in gradual stages, but with a clear implementation strategy, capable of responding to constraints or limitations that may endanger the implementation of the plan, while also taking advantage of the enabling conditions and environment to ensure its success. The plan involves elements such as investment strategies, the defining of the stages, identification of scenarios, and the determination of the requisite regulatory changes and guidelines about how to structure institutional operations to ensure the success of the initiative.

Given the magnitude of the challenges affecting the main IICA properties administered by CATIE, particularly in Turrialba, arising from extensive urban pressure, their proximity to the new hospital under development, and the presence of political stakeholders and community leaders who are interested in developing projects of various kinds within the IICA-CATIE lands, it is necessary to minimize risk factors and to transform them into a tool to achieve strategic results, applying the “desired farm model”, with high-quality projects and a design that is in keeping with the conditions and market trends.

Preparation of a Master Plan, from a strategic planning perspective, is essentially a process of continuous improvement that must always be mindful of the reality, perceptions and expectations of the Inter-American Board of Agriculture (IABA) and the other strategic partners associated with IICA’s and CATIE’s activities in the various real estate assets.

Given its strategic and participatory nature, the Master Plan must establish clear objectives to be met, which should also be instruments for action.

Thus, the planning cycle will require annual systematization of lessons learned in executing the Plan, through a process of monitoring and evaluation, to enable any necessary adjustments to be made during the period that the Plan is in effect. The annual adjustment process will then lead to an updating process every five years, in which there will evidently

be a need for transparent procedures and the close collaboration of the Joint IICA-CATIE Unit.

There should be ongoing participation to assess the various scenarios and to consider different focuses and approaches, based on the experience of experts, who may identify desirable opportunities for the use of the assets, as well as forms of organization and work methodologies, among other aspects.

This process should be closely linked to IICA's and CATIE's annual administrative cycle, thus ensuring that the updated Master Plan will be the result of a balance between what has been accomplished and the contributions made towards its execution.

This approach will allow for more rational use of human and financial resources and will facilitate more widespread participation of the various stakeholders involved, given the greater spatial and temporal distribution of these resources.

A central element is the optimization of the use of the financial resources allocated to the Master Plan. This aspect is crucial and should be considered within the planning cycles of IICA and CATIE, since, currently, there is a heavy dependence on external sources to finance the development of plans.

Adjustments may be made in the annual cycle, which, depending on their nature, will be implemented upon the approval of the directors general of both institutions.

3. Characteristics of the Master Plan

The main characteristics of the Master Plan are as follows:

1. It is the result of a planning process that promotes initiatives involving the real estate assets, with a view to guaranteeing their adequate use for agricultural, forestry, research and conservation activities, as well as the full exploitation of their commercial potential, in keeping with the environment.
2. It speaks to a continuous and long-term process, starting with a proposal outlining one or more future scenarios that must continuously be assessed in light of the changing ecological, economic and social environments.
3. It outlines mechanisms for proper execution and monitoring of the proposed activities.
4. It is flexible and dynamic.
5. It includes elements that will strengthen the integration of IICA and CATIE within their socio-economic context, while emphasizing coordination with regional and local actors.

6. It must be realistic in order to ensure economic and institutional sustainability. This implies being aware of the reality of the population living in adjoining areas and working with the appropriate teams, technical resources and financing.
7. It should generate mutual benefits for IICA, CATIE and the region, which will call for political commitments at all levels and with local institutions.

4. Reference – institutional milestones

- 1942: The Governing Board of the Pan American Union established the Inter-American Institute of Agricultural Sciences (IICA).
- 1942: Law No.29 of Costa Rica established the contract to formally recognize the Inter-American Institute of Agricultural Sciences (IICA). The Government of Costa Rica donated 1,000 hectares to IICA in Turrialba and empowered it to purchase, lease, sell, exchange, hypothecate and otherwise exercise all privileges of ownership over such property.
- 1943: IICA was officially inaugurated in Turrialba.
- 1944: IICA became an Inter-American organization, by way of the Multilateral Convention of American States in the Pan American Union.
- 1949: OAS Council recognized IICA as a Specialized Organization of the Inter-American system
- 1973: Law No. 5201 of Costa Rica created CATIE as an Association between the Government of Costa Rica and IICA, by way of a 10-year contract. The contract established that IICA should contribute USD 500,000/year to the Center.
- 1983: Law No. 6873 of Costa Rica ratified and modified the contract between the Government of Costa Rica and IICA on CATIE. The contract was issued for a further 20 years and established that IICA should contribute 5 % of its quota budget (USD 1,000,000).
- 2000: Law No. 8028 of Costa Rica ratified and modified the contract between the Government of Costa Rica and IICA on CATIE. The contract was issued for 20 years, with the option to be extended.
- 2009: Ley No. 8787 of Costa Rica modified Law No. 8028 and empowered CATIE to offer academic degrees and professional credentials in its area of competence.

Location of the main properties



5. Objectives of the master plan

General objective:

To strategically manage the properties belonging to IICA and CATIE, in a bid to enhance their productivity, guarantee their maintenance and ensure their protection.

Specific objectives:

1. To identify, on each one of the properties, the specific areas that will be dedicated to agricultural production, green areas, research, as well as protection or conservation.
2. To assess the profitability of the various commercial activities undertaken by CATIE, with a view to discontinuing those activities that yield no economic benefits or that could be substituted by other production activities with a greater level of return on investment.
3. To contribute to the management of production projects that increase the income that CATIE generates.
4. To explore alternatives for the development of non-agricultural projects on lands with production constraints or that are limited in their current or potential use

(given restricted areas, easements, residential areas, lands in close proximity to the new hospital, etc.).

5. To ensure the protection of land that is at greater risk or more vulnerable.

6. Diagnosis of the situation

There are certain properties owned by IICA that CATIE now uses for research and teaching. This land was donated by the Government of Costa Rica and, in principle, the IABA thought it was necessary to retain them. The land is registered under five different survey plans and accounts for a total area of 997.13 hectares. Although the plans were reviewed recently, IICA will have to complete the process of measuring, updating and registering them.

PROPERTIES OWNED BY IICA AND USED BY CATIE (as at 28 November 2018)				
Legal, International Affairs and Protocol Unit, IICA				
Province	Area according to the records	Plan number	Encumbrances	Annotations
Cartago	6,819,649 m ² (681.96 ha)	C-1749532-2014	<ul style="list-style-type: none"> • Conveyed easement • Water conveyance easement • Encumbrances and limitations - Forestry Law 7575 • Power line and right of way easement 	None
	35,247.83 m ² (3.52 ha)	Not indicated	<ul style="list-style-type: none"> • None 	None
	1,362.27 m ² (0.13 ha)	C-0673963-1987	<ul style="list-style-type: none"> • Conveyed easement 	None
	2,915,254 m ² (291.52 ha)	C-1730624-2014	<ul style="list-style-type: none"> • Conveyed easement • Power line and right of way easement 	None
	200,000 m ² (20 ha)	C-1360078-2009	<ul style="list-style-type: none"> • Easement and counter-ref: 1591-486-001 • Servient estate • Lease of lot without subdivision 	None
Subtotal	997.13 ha			
Limón	1,000,074 m ² (100 ha)	L-1707151-2013	<ul style="list-style-type: none"> • Validation term (amendment to boundaries) 	None
Total area	1097.13 ha			

There is another IICA property that was not donated but is also being used by CATIE (Finca La Lola); it is located in Batán de Limón and covers an area of 100 hectares.

The total land area of the farms registered in IICA's name and used by CATIE is 1,097 hectares. Not all of it is suitable for agricultural activities, research or production, due to

various topographical conditions, easements for high-tension lines stretching across the property, easements for water outlets from the hospital and the Costa Rican Electrical Institute (ICE in Spanish), access roads, etc.

CATIE has a total of 8 properties registered in different areas, amounting to 70.83 hectares in total.

PROPERTIES IN THE NAME OF CATIE (as at 28 November 2018)				
Province	Measurement according to the records	Plan number	Encumbrances	Annotations
Puntarenas	345,300.04 m ² (34.53 ha)	P-0879089-1990	Petition for foreclosure proceedings	None
Alajuela	1,000.88 m ² (0.1 ha)	A-0309978-1996	Right of way easement	None
Alajuela	1,000.88 m ² (0.1 ha)	A-309978-1996	Right of way easement	None
Cartago	14,953.56 m ² (1.49 ha)	C-0239893-1995	Conveyed easement	None
Cartago	253,22 m ² (0.02 ha)	C-0133120-1993	None	None
Cartago	32,500 m ² (3.25 ha)	C-1419441-2010	Right of way easement	None
Guanacaste	1,617.22 m ² (0.16 ha)	C-1043973-2006	None	None
Limón	311,820.84 m ² (31.18 ha)	L-0512493-1993	Reservations and restrictions	None
TOTAL	70.83 ha			

CATIE owns land that is used in production projects (production of forestry seeds in the Southern Zone, Puntarenas Province); it also has other land that has no current commercial use nor is it used for research or teaching purposes.

In Law No. 29 of 19 December 1942, the Contract-Law formally recognizing the Inter-American Institute of Agricultural Sciences, the sole article states that:

1. Therefore, in accordance with the offers of the Government of Costa Rica, on June 27, 1941 and August 25 of the same year, and in accordance with the recommendations of the Technical Commission, the field Headquarters of the Institute shall be established at the site finally chosen near Turrialba. The specific site adjoins the outskirts of Turrialba and comprises all of the “Finca Cabiria” property (240 hectares), part of “Finca Florencia” (110 hectares), and part of “Finca Aragón” (150 hectares), a total of 500 hectares. All those are adjacent tracts and will be donated to the Institute by the Government.

2. The Government of Costa Rica agrees to provide an additional 500 hectares of land from the adjoining properties, for future expansion of the Institute. The details involved in supplying this land will be worked out between the Costa Rican Government and the property owners through options. The Government of Costa Rica agrees to make any disbursements necessary to cover the costs of additional lands acquired.

3. It is agreed that the term of existence of the Institute shall be perpetual, consistent with the provisions of the Certificate of Incorporation and shall enjoy in Costa Rica such facilities and privileges as are customary for other Departments of the Government.

4. In accordance with Article 3 of the Certificate of Incorporation of the Institute, the Government of Costa Rica authorizes this organization to encourage and advance education and sciences in Costa Rica and in the other American Republics, through teaching, research, experimentation, extension activities, general education and training in the science and art of agriculture, and other related arts and sciences; and in furtherance of the business and objects of this Institute, that is:

a) To develop, establish, construct, improve, equip, finance, operate, supervise and give assistance in the establishment and maintenance of an institute or institutes and branches thereof, experiment stations, farms, ranches, laboratories, educational and scientific centers, libraries and other physical plants and facilities, in Costa Rica and in any or all of the other American Republics and, within its discretion, make available such institute or institutes or branches thereof, experiment stations, farms, ranches, laboratories, educational and scientific centers, libraries or other physical plants or facilities, and the results accomplished therein, to any American Republic, local government, person, firm, association, corporation, institution or any other body of persons however designated.

b) To purchase, accept, take, lease, receive or acquire (by gift, contribution, bequest, devise or otherwise), to own and hold, operate, manage, develop and improve any property or interests in property, real or personal, without limitation as to the amount or value, in Costa Rica and in any of the other American Republics; to give, grant, donate, lend, sell, assign, transfer, exchange, convey, lease, mortgage, pledge, hypothecate or otherwise exercise all privileges of ownership over such property.

c) To collaborate with and aid or assist in any manner whatsoever, by loan, grants-in-aid or otherwise, of money and assets, and to otherwise lend

assistance, to an American Republic, local government, person, firm, association, corporation, institution or other body of persons, however designated, in the realization of the purposes of this Institute.

d) To receive gifts, contributions, gratuities, and donations of money and property, or interests in property, both real and personal, from any American Republic, local government, person, firm, association, corporation, institution or other body of persons however designated.

f) To cultivate, grow or otherwise produce, harvest or otherwise gather, purchase, take or otherwise acquire, deal in, store, handle, prepare, manufacture, process, market, transport, ship, sell, donate or otherwise dispose of all agricultural commodities and products thereof, and all other supplies necessary or desirable to carry out the purposes of this Institute.

g) In general, to carry on any other business in connection with the foregoing, suitable and proper for the accomplishment of the business and objects of this Institute.

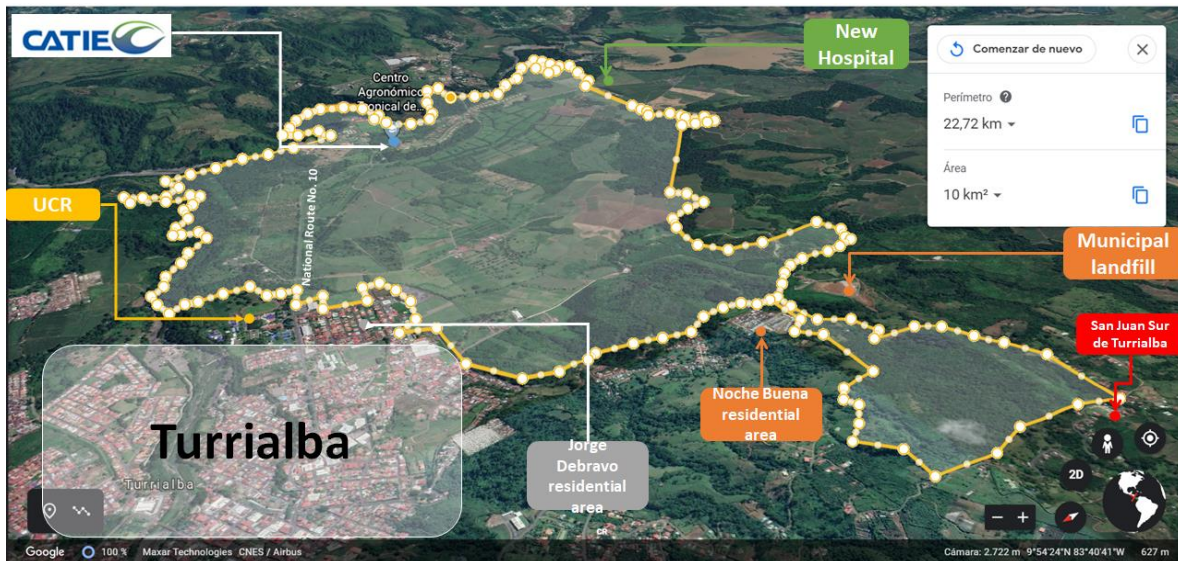
There is a need to define an institutional policy to manage the real estate assets, as an input for the Master Plan, with a view to properly utilizing and organizing these assets (use in strategic partnerships, leasing, acquisition, donations, land swapping, exchange and other legal options).

The Master Plan will guarantee to the governing bodies of IICA and CATIE that, over time, they will at least maintain the same number of hectares that were originally donated by the Government of Costa Rica, by way of Law No. 29 of 19 December 1942, which totaled 1,000 hectares.

7. The Turrialba commercial farm

The land in Turrialba covers 1,000 hectares and is the location of the CATIE campus (buildings, residencies, lecture rooms, offices, library, laboratories, recreational facilities and green areas), the commercial farm, the germplasm banks, as well as the research and conservation areas, among others).

CATIE's commercial farm in Turrialba is devoted to various primary agricultural activities (coffee, sugarcane, cocoa and forestry) and two livestock activities (beef and dairy production). It also has botanical gardens with important collections of genetic material, most notably coffee and cocoa. The farm has been awarded the Ecological Blue Flag in the category of Adaptation and Mitigation since 2010.



- Coffee activity: The farm had 40 acres devoted to coffee cultivation, using a conventional system integrating environmentally friendly practices. However, in 2019, most of the commercial plantation was eliminated, due to aging and low productivity. The main varieties cultivated were Caturra and Catuai Rojo, both of which are susceptible to coffee leaf rust, in addition to Costa Rica 95 (which recently lost its resistance to coffee leaf rust) and the CATIE F1 Hybrids. The beans were processed and sold to national roasters. The farm does not have its own brand or coffee mill.
- Sugarcane activity: Close to 130 hectares are managed under a conventional production system. The main varieties are Pindar, Barbados 76, Barbados 77 and Q96. The product is sold to sugar mills in the area (Atirro-Juan Viñas). However, the closure of the Atirro mill during the 2018-2019 harvest has meant that the sale and profitability of CATIE's sugarcane activity is no longer certain. The Center was unable to negotiate a lease contract with the AZZUKAR company to produce organic sugarcane.
- Forestry: An area of 130 hectares is devoted to forestry production, with the main species being pine, eucalyptus, laurel, cedar and gmelina, among others. The timber is sold to buyers in the area, as logs. Some agreements have been made with organizations dedicated to reforestation such as Fonafifo, RTT (Reforest the Tropics) and the NRDC (Natural Resources Defense Council). In the past two years the Farm has been establishing a forestry area with funds from the CATIE-Natura race that is held during the Center's annual international fair. This area is managed as a

commemorative plantation for the Center. There is a lumber mill that can be equipped to sell semi-processed wood at a better price.

- **Livestock production:** An area of 50 hectares is devoted to this activity. Steers are purchased for fattening, which is a ten-month process. The steers are acquired at livestock auctions in the Atlantic region and then sold to the CoopeMontecillos Processing Plant in Alajuela. The main breeds reared are Brahman, Nelore, Gyr, as well as some crosses with European breeds. The entire grazing area is managed using living fences and no agrochemicals are used in this activity.
- **Dairy production:** This activity takes place on 34 hectares of the Commercial Farm. CATIE dairy production is an intensive tropical lowland production model, with the main objective of producing high-quality milk at a very low cost and with minimal greenhouse gas (GHG) emissions. A milking parlor was built, bearing in mind the comfort of the animal, and ensuring that proper use could be made of the manure, which is used to produce organic fertilizer (bokashi) and biofertilizer (biodigester effluent). There is a biodigester that converts biogas into electricity for mechanical milking; solar panels to heat water; and infrastructure that harvests rainwater from the roofs of the facilities. The dairy currently has 120 dairy cows and the milk is sold to the the Dos Pinos Cooperative, of which CATIE is a member.
- **CATIE Forestry Seed Bank (BSF in Spanish):** The Bank was established in 1967 as a unit to support forestry research. Currently, it is a self-sustaining unit within CATIE's Agriculture, Livestock and Agroforestry Program (PRAGA), distributing seeds to more than 20 countries. The BSF maintains a seed stock of 50 forest species that are important for ecological restoration, ornamental purposes and commercial reforestation. It also provides training and technical support at all levels, from individual producers to government programs. The BSF's genetic breeding program has developed high-quality genetic materials that have excelled in trials and plantations worldwide. These include gmelina (*Gmelina arborea*) and teak (*Tectona grandis*) seeds, certified by the Government of Costa Rica's National Seed Office, which supervises the production, processing and storage, while also conducting regular physical analyses to guarantee the quality of the seeds. The BSF has authorized distributors in Belize (Westroad Development Ltd.), Bolivia (Plant For), Colombia (El Semillero), Ecuador (Profafor Latinoamérica), Mexico (Agrinet) and Peru (Semirsa).
- **Collections and germplasm banks:**

- International Coffee Collection: The operation is located on the Cabiria farm, where 8 hectares are devoted to conservation of *Coffea* genetic materials, with some 1,900 introductions originating in Ethiopia, Yemen, Kenya, Tanzania, Colombia, Brazil, Mexico, and other countries of Central America and research institutes. The collection includes more than 9,000 coffee plants and 11 different species of coffee; and it is ranked as the most important germplasm bank for *Coffea arabica* in the Western Hemisphere. It combines the genetic diversity of more than 700 wild materials and cultivated varieties and by keeping these in the public domain, it has an important impact on improving coffee production internationally.
- International Cocoa Collection (IC3): This collection dates back to 1944, when part of IICA's strategy was to promote the distribution and exchange of germplasm for valuable tropical crops. It is a good representation of the broad genetic diversity of cocoa in tropical America. In addition to promoting conservation of the species, the collection provides plant material for studies of various kinds, as well as propagation material for the breeding programs and the establishment of commercial plantations in different countries. Since 1978, IC3 has been classified as an international collection, by the IBPGR (now Bioversity), and since 2005 it has operated under the auspices of the FAO and is covered by the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). This makes it the first field collection in the world in the public domain. All species of *Theobroma* and *Herrania* are recalcitrant¹, thus, they can only be maintained in field collections. IC3 was originally established in the CATIE sector known as Cabiria. In 2005, two replications of it were started – one on La Montaña farm in Turrialba, at 602 meters above sea level (masl), and the other on La Lola farm (located in 28 Millas, Limón) at 40 masl. As such, the collection is backed up in three different locations, which is one of its unique features. IC3 contains nearly 1,200 clones of cocoa (*Theobroma cacao*), mainly from tropical America, which is the center of origin and diversity of this species, particularly in the upper reaches of the Amazon basin.
- Pejibaye or Peach Palm (*Bactris gasipaes*) Germplasm Bank: This collection maintains more than 600 introductions from Costa Rica, Panama, Brazil, Colombia, Peru and Bolivia. In Pre-Colombian cultures of the Americas, this was one of the most sought-after fruits, due to its flavor and high nutritional value. Peach palm is native to South America, Panama and Costa Rica. The palm is cultivated for its fruits and for heart of palm, which is a valuable product for local consumption and export.

¹ These seeds cannot survive in dry and cold conditions in *ex situ* conservation, therefore, they cannot be stored for long periods.

- Anatto (*Bixa orellana*) Germplasm Bank: This collection has nearly 100 introductions, collected in Central and South American countries such as Guatemala, Honduras, Costa Rica, Peru and Panama. Anatto is native to tropical America.
- Guava (*Psidium* sp.) Germplasm Bank: The collection has over 60 introductions from Honduras, Costa Rica, Guatemala, Panama, Cuba, the United States, Venezuela, Ecuador and Colombia. Guava is native to tropical America and is characterized by its range of flavors, pulp colors, fruit size and shapes.
- Germplasm Bank of Exotic Fruit Trees: CATIE's exotic fruit collections include about 160 introductions of trees from around the world, distributed in 30 families and 95 species. The collection includes fruit, ornamentals and timber trees.
- Germplasm Bank for Orthodox Seeds: It was established in 1976, for the purpose of locating, collecting, conserving and characterizing the germplasm of plants considered to be of priority interest for the wellbeing of humanity, due to their attributes, while also providing scientific knowledge to optimize conservation. The following families are contained in the bank:
 - Cucurbitaceae = 2,783 accessions
 - Solanaceae = 2,188 accessions
 - Fabaceae = 1,646 accessions
 - Poaceae = 429 accessions
 - Amaranthaceae = 300 accessions
 - Other families = 14 accessions
 - Total accessions = 7,360

8. Finca La Lola

This 100-hectare property is located in the canton of Matina in Limón. It has a replica of the cocoa germplasm bank, facilities and housing for regular workers. There is area under dispute in this property, due to a declaration regarding a public access road within the farm. Musaceae plants were originally grown on the property. The land is suitable for the development of production projects (cocoa, livestock, forestry production, musaceae, etc.) or for the creation of a training and innovation center for small producers, focusing on a specific activity, which will require investments to improve and rehabilitate facilities and to implement production activities.



As an initial part of this assessment, within the first 19 days of implementation of the Master Plan, IICA and CATIE will have to undertake a SWOT analysis with respect to each of the properties registered in the name of the two institutions and will have to update it periodically to facilitate decision-making.

9. Strategic vision and policies

The IABA, by way of Resolution No. 507, requested that the directors general of IICA and CATIE develop, in collaboration with the Government of Costa Rica, a strategic proposal for the future of CATIE. Furthermore, via Resolution No. 519, the IABA approved a strategic proposal regarding the operational framework of CATIE and established a Special Committee to study, analyze and make recommendations on two specific issues. One of them was the need to identify measures to make the land belonging to IICA and CATIE more productive.

Clause 25 of Law 8028, regarding the Contract that established CATIE, states that IICA and CATIE shall collaborate with and support each other to maximize their respective resources. Similarly, Clause 29 establishes that IICA shall provide financial resources to support the core budget of the Center, in an amount not exceeding 5% of IICA's quota budget. The clause also states that IICA and CATIE shall agree to allocate financial and other resources each year to execute programs, projects or joint cooperation actions.

Pursuant to the resolution, on 9 April 2020, the Secretariat of the Special Committee presented a report to the Executive Committee of IICA, which is summarized as follows:

- There is a need to facilitate and encourage continuous joint and coordinated action between both institutions.
- It is recommended that a Joint IICA-CATIE unit be created to organize and strengthen the financial and institutional management of the Center and to ensure continued collaborative work between both institutions.
- The financial resources that IICA provides to CATIE each year—which should not exceed 5% of the Institute’s quota budget—should be used exclusively to fund the Center’s participation in activities that are agreed on and supervised by the Joint Unit.
- The activities to be funded should be in accordance with a work plan agreed on by both institutions and should fall within the framework of the priorities established by the Member States.
- With respect to the measures to make the lands belonging to IICA and CATIE more productive, both institutions and the Government of Costa Rica will need to undertake a legal study to determine the alternatives and limitations inherent in the use of these real estate assets.
- Furthermore, the directors general will need to draw up a “master plan” for the strategic use of the real estate and production assets of the land belonging to the Institute and the Center, for presentation to and approval by the Executive Committee. The Plan should have a 5-year horizon and should be reviewed annually by both directors to identify improvements and adjustments in its implementation.

It must be pointed out that the recommendations of the Special Committee indicated that 50% of the annual resources provided by IICA to CATIE should be used to finance the Center’s participation in the activities agreed on and supervised by the Joint Unit.

The Master Plan should consider the following criteria:

- Actions necessary to ensure the best use of the lands held by CATIE under usufruct.
- Alternatives for non-agricultural use of land that is subject to production constraints or whose use may need to change, due to urban pressure.
- Income-generating production and value-adding projects, based on feasibility studies and strategic partnerships that will enable the development of business ventures in the area of agriculture, livestock, timber production, ecotourism, renewable energy, commercial activities and services, among others.

10. Strategies and zoning

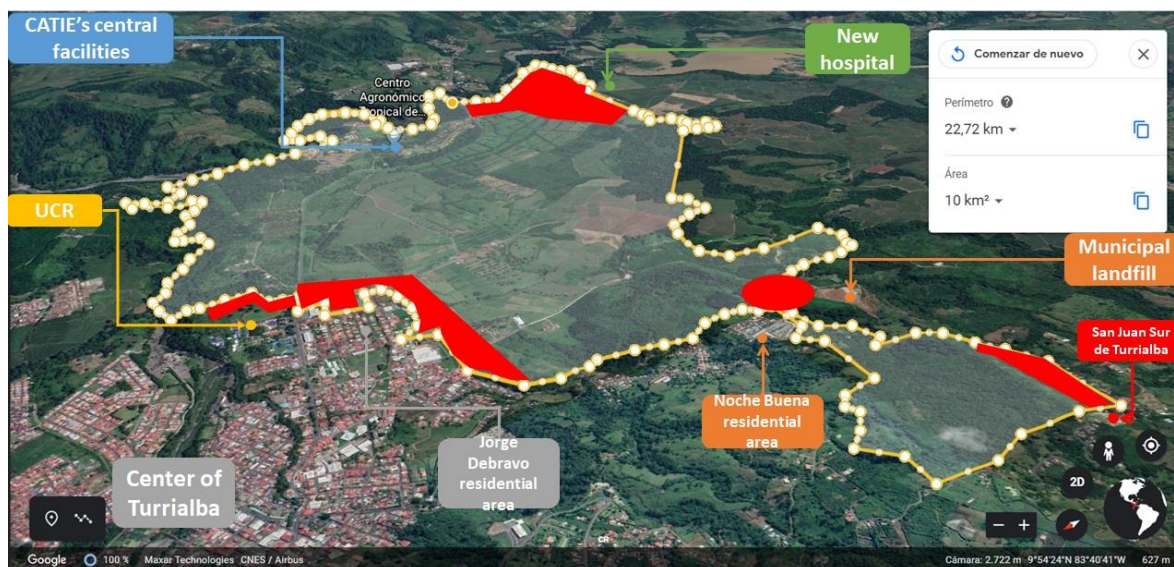
For the intervention and development of the Master Plan, it is imperative that a more detailed survey be undertaken on all areas considered to be critical zones. Each assessment should then inform the preparation of a plan for intervention or management.

It is important to point out that the properties are subject to various easements, for example, for high-tension power lines that traverse a large part of the farm; easements associated with piping to the La Angostura lagoon and the water outlet from the Bajo del Chino spring to supply the new hospital of the Costa Rican Social Security Fund (CCSS).

The photograph below has specific areas shaded in red which, given their environment, will require a priority analysis of current land use. Moreover, there will be a need to identify the type of agricultural production most suited to these conditions, or if not, alternatives to ensure protection or conservation of the land, while minimizing potential conflicts. The red areas are:

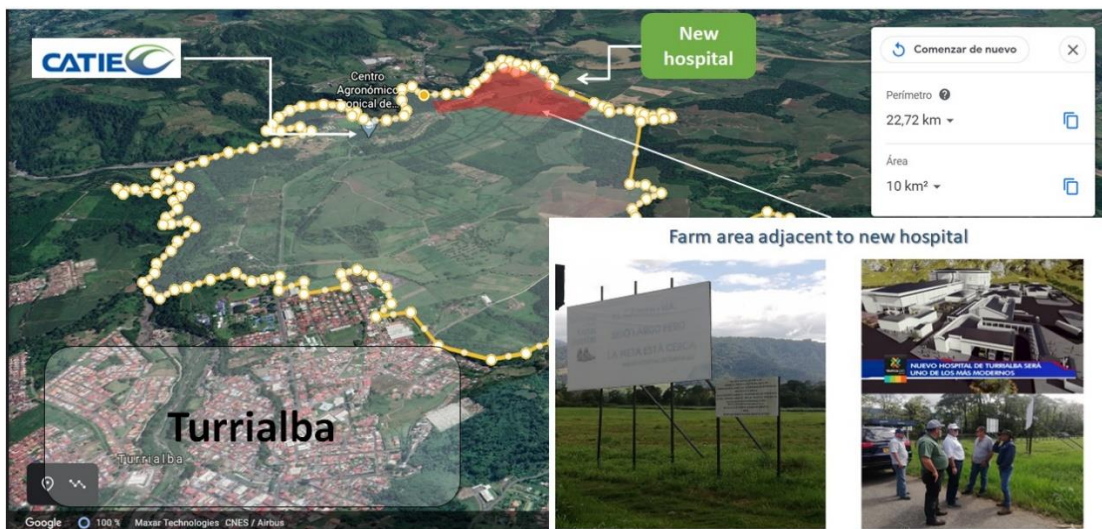
- Land located next to urban centers and the new hospital, for which the development of certain agricultural activity will be limited, due to the use of agrochemicals, machinery or to potential accidents arising during sugarcane burning activities.
- Land subject to pressure, due to changes in land use.
- Land requiring protection and safety of agricultural production (theft, vandalism) in those areas closest to residential centers.
- Land subject to intense social pressure for its usage for urban, commercial and social purposes.

Critical development areas in the properties used by CATIE



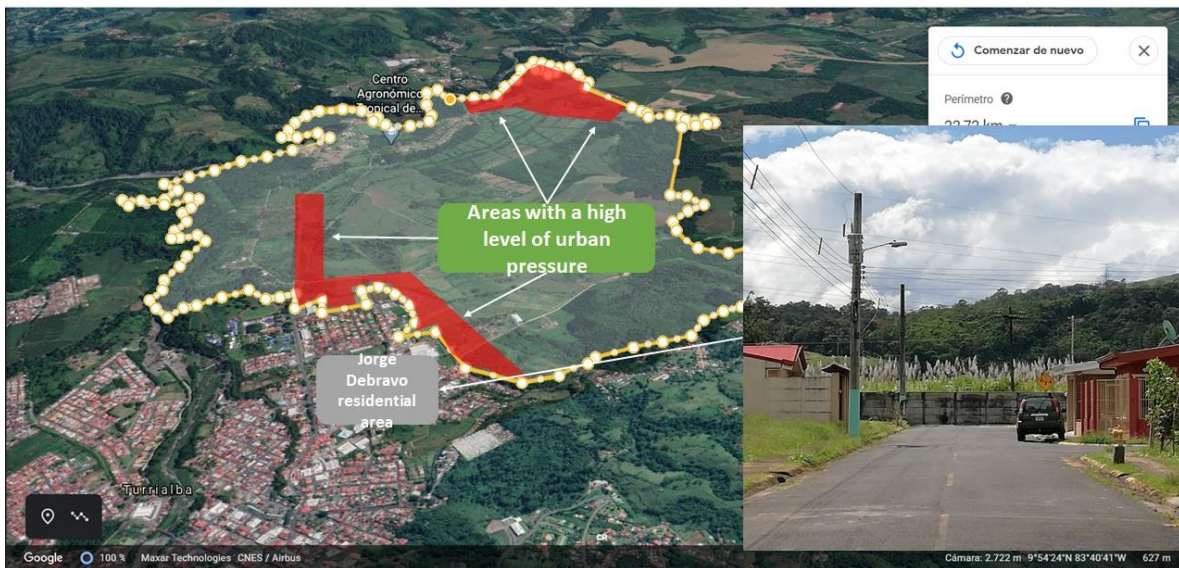
Vulnerable areas associated with the properties

Color coding	Area	Status
	Area of farm located in San Juan Sur de Turrialba	- Use of properties for agricultural, social and recreational purposes by neighbors - Land title dispute
	Area of farm close to Colinas de Noche Buena and the municipal landfill	- Real estate pressure from neighboring urban areas - Land title dispute
	Jorge de Bravo residential area	- Real estate pressure from urban center - Restrictions in agricultural activity due to surrounding areas
	Area bordering the University of Costa Rica	- Land title dispute
	Construction site of Turrialba's new hospital	- Real estate pressure from populated area. - Restrictions in agricultural activity due to surrounding areas
	CATIE facilities	
	<i>Finca La Lola</i>	- Conflicts associated with easement on the property - Safety of fixed assets and production assets

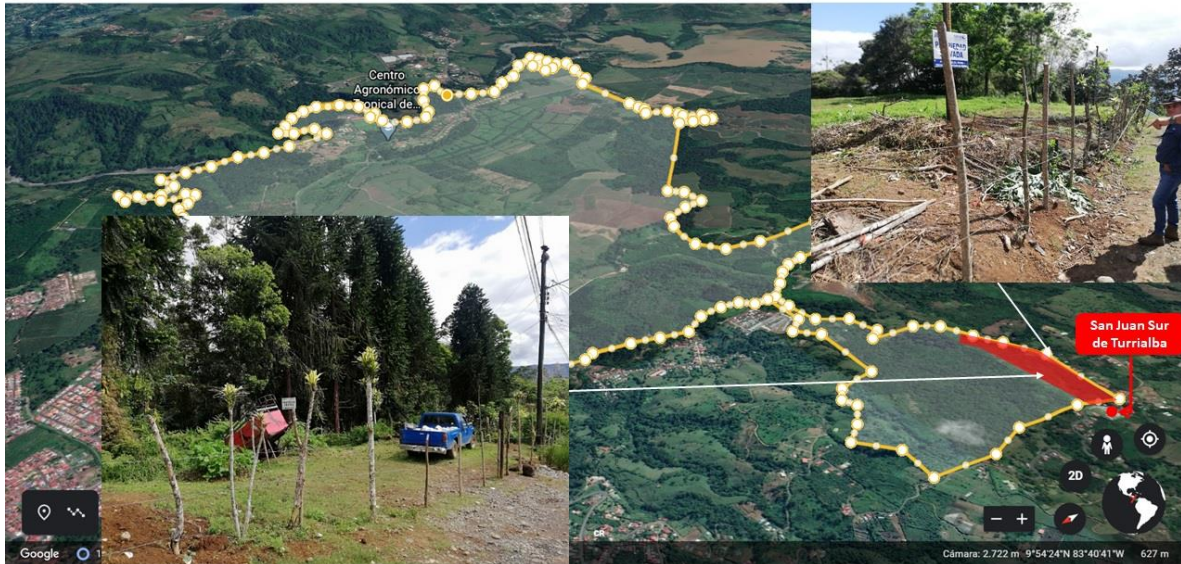




Description of the picture: THE NEW HOSPITAL IN TURRIALBA WILL BE ONE OF THE MOST MODERN OF ITS KIND.



6-hectare area subject to urban pressure, land currently used for forestry



Zona de la Finca en San Juan Sur – Turrialba



Líneas de alta tensión atraviesan la propiedad, limitante de uso de suelo en una franja de 50 metros a cada lado de la línea

Description of the pictures: Section of the farm in San Juan Sur – Turrialba
High-tension power lines traverse the property, limiting use to a 50-meter strip of land on either side of the lines.

11. Business strategy

The business plan will comprise a list of pre-feasibility studies about potential production projects that could be implemented at CATIE, capitalizing on available resources (land, genetic resources, natural resources, facilities, staff, etc.). The profile of these potential projects should specify an investment plan, with detailed information on the funds required for the different components to be financed (facilities, production assets, equipment, machinery, labor, etc.), the projected cash flow, a marketing profile and a profitability analysis.

CATIE will submit the various projects to the Joint Unit for analysis and if they are approved, will authorize the use of available resources from the Pre-Investment Fund.

The proposed projects should be supported by a business plan that demonstrates the financial viability and expected profitability of the investment. In the case of efficiency projects, their economic viability should be quantified, based on the projected savings that they may generate.

The proposed projects should have an investment plan, detailing the sources (origin) and use (application) of resources.

Initially, the main alternatives to be considered in the business plan are as follows:

1. Livestock Production

- a. Purchasing of dairy cows to increase milk production and the quantity supplied to the Dos Pinos Dairy Producers Cooperative, on the basis of the current share certificates for the supply of milk, based on quotas.
- b. Acquisition of new shares in the cooperative, with a view to increasing the production and supply of milk.
- c. Fattening of confined or semi-confined cattle, utilizing sugarcane and other fodder as feed, with a view to establishing a strategic partnership with businesses in the meat sector that have an interest in collaborating with CATIE (such as El Arreo, Montecillos, etc.) to produce animals on contract, in adherence to the health, management and traceability standards required for meat exportation.
- d. Livestock auction in partnership with the region's livestock chambers and entrepreneurs. The region does not have any livestock auctions that would facilitate the sale of cattle (the closest livestock auctions are one that is held in Guápiles, which is 82 kilometers away, and another in Puriscal, which is

107 kilometers away), despite the fact that Turrialba and the surrounding areas (Cartago, Santa Cruz, Pejivalle, Juan Viñas, Atirro, Tucurrique, Ujarraz, Siquirres, Jiménez, Alvarado, Oreamuno, Cervantes and Paraíso) are part of an important livestock region, whether for the production of beef, milk or for dual-purpose operations.

2. Forestry

- a. Establishment of a sawmill to capitalize on and add value to CATIE's timber reserves and to sell sawmill services to producers in the region. The forestry inventory will need to be updated, in order to develop extraction plans and to schedule sales.
- b. Planting of bamboo, specifically the *Guadua* species, to develop industrial production and processing modules for the production of slats and other bamboo products. This activity could be developed, with the support of various governments of countries such as China and Colombia.

3. Agricultural production

- a. Commercial production of certified coffee seeds. Establishment of plantations of promising coffee varieties that have a high demand in regional markets (robust and Arabica) with a high tolerance against coffee leaf rust and other diseases, and that are high-yield and high quality. The seed lots will be established by selecting the best mother plants from the chosen varieties, which will then be reproduced asexually to ensure homogeneity (clones).
- b. Production and value-added coffee production. This option includes the development of a micro-mill to process the farm's products and add value to the coffee industry in the region. An assessment should be undertaken regarding the renovation and expansion of current areas under coffee production, using promising material (F1 Hybrids).
- c. Commercial cocoa production, through the expansion of the cocoa plantations in Turrialba and on the La Lola property and the establishment of a value added production and agroindustry module for the production of chocolates and byproducts.
- d. Commercial production of fresh coconut. Fresh coconut water is a product with high economic potential, according to the Report on Commercial Opportunities for Coconut and its Byproducts, which was prepared by the Export Promotion Agency of Costa Rica (PROCOMER). Fresh coconut water is the coconut byproduct with the greatest commercial potential, due to its dynamism and expected growth. Sales are projected to increase by 10%

annually between 2020-2026. The project should infuse more technology into production, as well as increase volumes and research, to ensure success in a niche artisanal water market for value-added product exports, thus gaining a greater return on investment and an international presence. An emphasis on consumption considerations, such as encouraging preference for natural beverages; positioning coconut water as a natural source of hydration and a functional beverage; and the fostering of increased awareness about the consumption of high-quality water are all actions that could help to position CATIE's products in the market.

4. Agroindustries

- a. Sugarcane processing to capitalize on commercial sugarcane. The project should assess options to produce cane syrups and raw sugar, as well as alcohols, which would mean exploring various alternatives to establish linkages with the National Production Council (CNP), the Institutional Food Supply Program (PAI) and the National Liquor Factory (FANAL), for conventional and organic products.
- b. Line of value-added products to enable the scaling up of commercial production of food and personal care products, using resources from the Botanical Garden and other products from CATIE's commercial farm.
- c. Biofactory to produce and distribute high-quality bioinputs at a commercial level, employing state-of-the-art technology (solid biofertilizers, liquid biofertilizers with nanotechnology and chelates, biostimulants, biocontrollers, repellants, etc.), for which strategic partnerships could be forged with commercial enterprises and sales establishments.
- d. Production of cassava flour for animal feed. The dairy sector, through Costa Rica's National Chamber of Milk Producers, has expressed a significant need to identify substitutes for yellow corn to feed milk cows. The National Institute of Agricultural Innovation and Technology Transfer (INTA) and IICA have conducted research on the potential for producing bitter cassava to prepare flours that could be incorporated into the diet of the animals. CATIE could be a major producer of bitter cassava and a manufacturer of flours and pellets for animal consumption, through industrial expansion, which could be used to reduce the cost of feeding its animals (both milk cows and fattening cattle) and to sell to producers in the national dairy sector.

5. Non-agricultural projects

- a. Development of renewable energy as a source of income. CATIE already has a master plan for energy efficiency, as well as technical and financial studies

that have enabled it to reduce its energy bill, based on investments, technological changes and solar energy production, all of which generates significant savings in resources.

- b. Commercial infrastructure: Assessment of lease arrangements and the development of commercial infrastructure with strategic partners (commercial premises, gasoline stations, apartments, parks, etc.), such as, for example, the strategic infrastructure associated with the development of the new hospital in Turrialba, for which construction is slated to begin in 2021.
 - c. Rural and sports tourism: Development of open-air competitive and family sporting activities, such as the establishment of internal routes on the farm for recreational cycling and mountain biking, walking, hiking and cross-country running, among other activities, in coordination with various groups and associations.
 - d. Heritage Site Declaration: To begin a cost-benefit analysis to declare the main buildings on the Turrialba campus as a heritage site, such as the main building, some of the residences and the Orton Library. This would facilitate efforts to source external funding and donations for maintenance.
 - e. Protection of Pre-Colombian artifacts and infrastructure: Given the geographic location of the Turrialba farm, it is important to encourage the development of studies to identify part of its Pre-Colombian history and to preserve some artifacts, such as the sacrificial stone that is currently in the CATIE Botanical Garden. This could be relocated to the Orton Library, after the relevant authorization, where it could be properly exhibited and protected from damage and the ravages of the elements. This and other Pre-Colombian pieces could be exhibited at CATIE's facilities, as part of the rich cultural heritage of the area, in coordination with the General Directorate of Museums of the Ministry of Culture, Youth and Sports of Costa Rica.
6. Strategic partnerships: Critical to the development of the business plan proposal will be the establishment of strategic partnerships with various public institutions and private sector companies, both at the national and international level.

12. Management (management and administrative actions, monitoring and evaluation)

The Joint IICA-CATIE Unit will be responsible for undertaking actions to guarantee proper implementation, administration and monitoring of the Master Plan, as well as for the monitoring of the various production projects, evaluation of production investments,

assessment of the financial status of the farms and commercial activities, development of agribusinesses, generation of value-added activities, identification of commercial strategic partnerships, monitoring of the business plans, promotion of ecotourism, and development of bioenergy and sustainable energy, inter alia.

The Joint Unit will periodically review the commercial use of the germplasm banks that are an important source of resources for agricultural innovation, primarily for coffee and cocoa. The costs for maintenance, updating and renovation are significant and should be covered by the income derived from CATIE's commercial coffee and cocoa activities. However, it is important that CATIE explore the possibility of producing certified seeds of coffee varieties that are most in demand in the region, with a view to becoming an important supplier of genetic material.

The Joint Unit should develop rules of procedure for the development of strategic partnerships or lease arrangements for the properties, by way of medium- or long-term contracts that improve monetary returns or make a significant contribution to the development of CATIE and/or to the surrounding communities. As such, those properties with the potential to be used for lease or other arrangements must be identified, in keeping with the following conditions:

- I. It must be land that is not used for research, training or production activities.
- II. There must be no restrictions on the title.
- III. It should be located in sensitive areas that are subject to real estate pressure or should have the potential for local development (for example, in an area undergoing urban expansion), the development of basic infrastructure, and/or the potential to spur development to benefit the neighboring communities.
- IV. It should be suitable for use in strategic partnerships or for the development of new projects with the public and private sectors.
- V. It should be a substitute for or replace real estate assets.

Moreover, the Joint Unit must also undertake the following actions to enhance the productivity of the properties, guarantee their maintenance, ensure their protection and facilitate the development of new projects:

1. Enable and regulate the development of long-term strategic partnerships that establish the conditions for the rental, lease or exchange of land or any other legal arrangement that provides for its management, in accordance with the law. This would apply to land that is not adequate or suitable for research, training or



production, given its potential use or regulations, but is appropriate for commercial, industrial or residential use.

2. Acquire land that, due to its agricultural characteristics, addresses the needs of IICA's or CATIE's strategic projects; this land could be bought, traded, rented or exchanged. All acquisitions would be registered in the name of IICA.
3. Foster the development of projects that facilitate productive use of the land, by investing its own resources or undertaking investments in association with various companies, organizations, universities or research centers.