Costa Rica Eco-Restoration PES Study Tour Logistical Services:

Final Report

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ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use
ASADA	Rural aqueduct association
BMC	Biodiversity Management Committee (under India's Biodiversity Act)
C	Centigrade
CCAD	Central American Commission on Environment and Development
CATIE	Tropical Agricultural Research and Education Center
CODEFORSA	Forestry Development Commission of San Carlos
COOPELESCA	Rural Electrification Cooperative, San Carlos
ESPH	Public Service Company of Heredia
F	Fahrenheit
FCRI	Forest College and Research Institute (in Mulugu, Telangana)
FIFCO	Florida Ice and Farm Company
FONAFIFO	Costa Rica's National Fund for Forest Financing
FP2	Forest Plus 2.0 Project
FSC	Forest Stewardship Council
FUNDECOR	Central Volcanic Corridor Foundation
GEF	Global Environmental Facility
GIZ	German Agency for International Cooperation
GOI	Government of India
ICE	Costa Rican Institute of Electricity
IG	Inspector General
INDER	Institute of Rural Development
ITCO	Institute of Land and Colonization (now INDER)
PNJCB	Juan Castro Blanco National Park
KfW	German state-owned investment and development bank
Km	Kilometers
LULUCF	Land Use, Land Use Change and Forestry
MINAE	Costa Rica's Ministry of Environment and Energy
MoEFCC	India's Ministry of Environment, Forest and Climate Change
NGO	Non-governmental organization
NTFP	Non-timber forest product
ONF	National Forestry Office of Costa Rica
PASOLAC	Programme for Sustainable Agriculture on the Hillsides of Central America
PES	Payment for Environmental Services
PSU	Public Sector Undertaking, in India a state-owned corporation or enterprise

Rs.	Rupees
SICA	Central American Integration System
SINAC	Costa Rica's National System of Protected Areas
UN	United Nations
UNDP	United Nations Development Programme
US	United States
USAID	United States Agency for International Development
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

The Forest-PLUS 2.0: Forest for water and prosperity Program is a five-year program of the United States Agency for International Development (USAID) in India and the Government of India (GOI)'s Ministry of Environment, Forest and Climate Change (MoEFCC) to improve management of targeted forest landscapes in three states in India (Bihar, Telangana, and Kerala) for enhanced ecosystem services and increased inclusive economic opportunities. The present report summarizes the activities and learning from a study tour for 12 officers of the MoEFCC, the Ministry of Finance, and the three states to learn from Costa Rica's ecological restoration initiatives and PES models. They were accompanied by two Forest-PLUS 2.0 staff and a USAID/India representative. They arrived in Costa Rica on September 15 and departed on September 27, 2023. Forest-PLUS 2.0 selected Agroforsa, a professional services firm with relevant experience in Costa Rica and Latin America, to organize and facilitate the study tour.

India and Costa Rica each has its own characteristics (e.g., location, size, natural resources, ecosystems, environment, landscapes, economy, social and other circumstances). Costa Rica was selected for the study tour because of its success, experiences, and lessons learned with eco-restoration and Payment for Environment Services (PES) models that were relevant to study tour participants own work in India, including elements that might be adapted and applied there. The objective of the study tour was two-fold:

- To expose participants to ecological restoration initiatives and PES models and related lessons learned, with an emphasis on:
  - Biodiversity conservation
  - Restoration of natural forests and the related ecosystem services
  - Roles of different stakeholders including community in eco-restoration
  - Management planning processes and information needs for PES models;
  - Design of financial models and incentives for PES
  - Legal, policy, and institutional framework for PES
  - Roles of government, private sector and community-based enterprises in management and implementation of PES;
  - Accounting of costs and benefits
  - Benefit distribution between key stakeholders including integration of equity, land tenure, and other social factors.
  - Water management

- To provide interactive exchange opportunities to participants to inform learning, with a focus on the following areas:
  - Design of incentives for PES and Eco-restoration
  - Private sector engagement
  - Regulation of PES models
  - Ecological management planning

The Study Tour balanced field visits to sites and meetings with a range of public and private sector stakeholders. Costa Rica's National Forestry Finance Fund (FONAFIFO) of the Ministry of Environment and Energy (MINAE in Spanish) was selected as one of the main host institutions, given its lead role in monitoring and evaluation (essential for the success of PES initiatives); its significant role in policy and its implementation; its capacity to engage with the international community and attract donor support; and its relative independence as an agency.

The Study Tour included presentations and discussion sessions in San Jose, at the Tropical Agricultural Research and Education Center (CATIE) in Turrialba, and at other field sites, with professionals and experts working in environment, natural resources, policy, and PES from the private sector and nongovernmental organizations (NGOs) that play key roles in development initiatives involving eco-

restoration and PES incentives. The discussion sessions introduced participants to the problems and opportunities, policies, strategies, laws, activities, constraints, results, monitoring and evaluation mechanisms, sources of funding (national and international), and related themes. The Agroforsa team facilitated the presentations, discussions and, on the final day, reflection on participants' experience to exchange ideas and lessons learned relevant to India's institutional settings, policies, and resources.

During orientation meetings on September 17-19, 2023 in San Jose, participants presented themselves, shared their expectations, and reviewed the purpose, the planned schedule, and the field sites to be visited. Participants expressed interest in the following themes for which they hoped to learn lessons that they could put into practice upon their return to India:

- The main challenges for eco-restoration in Costa Rica and the process implemented to solve problems derived from deforestation and land use changes and in achieving significant forest cover.
- Successful strategies and activities to protect and sustainably manage natural resources (forest, water, soil, biodiversity, and landscapes) and, in implementing these strategies and activities:
    - The roles of the government institutions, the private sector, non-governmental organizations (NGOs), communities, and farm owners in the different regions of Costa Rica.
    - Policy, the legal framework, and sources of finance.
    - Monitoring, reporting, and verification.
- Implementation—how the PES system works properly in Costa Rica regarding:
    - Eco-restoration and management of forests and natural resources.
    - Livelihoods in biodiversity conservation and managing the human-wildlife interface.
    - The shifting face of agroforestry models.
    - Climate resilient practices.
- Involving diverse stakeholders (government, private sector, NGOs, cooperatives, communities, families, and individuals).

Professionals from key institutions presented experience relevant to these themes during the orientation meetings, including (a) Profile of Costa Rica; (b) Eco-restoration with local participation: AFOLU with incentives, agroforestry, agro-silvo-pastoral-mangrove management, agro-eco-tourism- local governance; (c) Forest Financing Fund (FONAFIFO); (d) Sustainable Biodiversity Fund; (e) Water planting and harvesting model and (f) The Central Volcanic Corridor Foundation (FUNDECOR)'s forest management model. In turn, representatives from the GoI and the three states gave overviews of their respective areas.

Following the orientation sessions, participants visited selected sites that addressed the above-noted themes and areas of interest. Sites were further screened to ensure that they would provide participants with opportunities for in-depth interaction with stakeholders while considering accessibility, travel distances, and timeframe. The delegation visited CATIE first, where, following an overview of CATIE's mission, governance, systems approach, and educational programs, CATIE staff presented the following:

- The Green Development Division's inclusive transdisciplinary and participatory approach to research, with direct engagement of stakeholders to collaboratively create and apply knowledge.
- Developing and applying climate change, eco-restoration, PES, agroforestry systems, and decarbonization approaches.
- A model for goat production as a family business enterprise managed by women and youth;
- CATIE's seed bank of forest germ plasm and outreach to supply 63 tree forest species.
- Payment for Ecosystem Services (PES) and the blend of needed enabling conditions for eco-restoration; CATIE's environmental modeling laboratory.
- Coffee and cacao plantations at CATIE and its approach to AFOLU and carbon sequestration;
- Round table discussion.

After the discussions and field visits at CATIE, there were field visits each of the next five days to the following areas:

- In the Reventazón watershed, participants visited the Finca Tres Equis, a family farm that has conserved hundreds of hectares of forest for more than 25 years through sustainable management of agriculture, forestry, and other land use (AFOLU) areas, including activities such as ecotourism for income and educational purposes. They also saw water recharge, protection, eco-restoration, and electricity production in the upper and middle Reventazón basin through PES programs.
- FUNDECOR supported the delegation's visit to a private farm preventing soil erosion through year-round food and cover crops and to Selva Verde, a tourist area. FUNDECOR's Director presented its support for forest, water resources, and biodiversity conservation, including collaborative strategies for natural resource management and appropriate use of PES.
- A representative of the Forestry Development Commission of San Carlos (CODEFORSA) presented contributions of the National Forestry Office (ONF) and forestry organizations to forestry development, with field visits to examples of restoration of degraded public areas with native species, payment of fees to protect water sources, and agroforestry systems.
- A forestry technician presented the model for eco-restoration, water conservation, and ecotourism developed by the Rural Electrification Cooperative, San Carlos (COOPELESCA R.L.) in Juan Castro Blanco National Park.
- Participants passed their last field day in the field observing eco-restoration and ecotourism at Poas volcano.

Lessons Learned

The last activity of the Study Tour was a reflection and lessons learned workshop in which participants highlighted what they had learned and their "take-home messages." Following discussion in four breakout groups (for participants from each of the three states—Kerala, Bihar, and Telangana—and from the MoEFCC), each group presented the key lessons they had learned.

All of the groups emphasized **it takes time** to develop successful programs for PES and eco-restoration. Costa Rica developed the enabling environment—the policies and laws—and built the capacities and relationships among implementing institutions over many decades. The Telangana group pointed out that FONAFIFFO, the decentralized institution in MINAE responsible for capturing financial resources and implementing PES in Costa Rica, was established almost 30 years ago—in 1996. The Bihar group, highlighted the persistence required and presented this lesson as "slow and steady wins the race."
The Kerala group stressed the importance of **adaptability**—the need to fit a PES system to the requirements of a given context. It takes time to develop regulatory and technical capacities, to engage stakeholders and work with them, to develop measures (e.g., for valuation of ecological services, for monitoring and reporting impacts), to review and reflect, and then to adapt the system based on all that experience. The MoEFCC group noted the importance of CATIE's collaboration with other Central and Latin American countries, which has given it perspective and lessons across a broad and diverse range of socioeconomic and ecological contexts. The Kerala group identified four other "pillars" for PES and eco-restoration, which serve well to organize the main lessons learned: the legal framework, economic incentives, the multi-stakeholder institutional framework, and funding sources.

The Telangana group noted the importance of "defined policies, National Development Plans, Action plans, legal mechanisms, and national institutions." The Bihar group highlighted the importance of "good governance" while the MoEFCC group pointed out the importance of MINAE's supportive mission

linked to improving the quality of life of Costa Ricans" and of a similarly supportive forest protection law that prohibits change in land use of forest areas.

All groups highlighted the importance of developing a diverse range of economic incentives. However, the multiple benefits of environmental services and eco-restoration are not equally valued by all stakeholders. The four groups noted that water is one of (or is) the most highly valued benefits. Simply as water and/or as electricity (through hydropower), water has provided the most opportunity to develop payment systems that support maintaining forest areas. The MoEFCC group observed that while the objective is that all beneficiaries of environmental services eventually pay for the services they receive, there has been more "success charging water users for upstream watershed management services… than charging for biodiversity and carbon."

As the Kerala group noted, it is important to develop "complementary livelihood activities to support the PES system at the farm level (ecotourism, dairy, poultry, plantations, silviculture, and other)." The Telangan group noted the importance of applying "various PES models for valuation of environmental services" and appreciated what they had learned from the diverse land uses observed: "systems of livestock production, agroforestry models (Gmelina with coffee and cocoa, protection of secondary forest for wildlife corridors…water conservation… and ecotourism, and plantations on public lands."

The MoEFCC group noted that some incentives, e.g., the management of national parks for water and for ecotourism, do not require tradeoffs. For example, while the value of some ecological services, e.g., biodiversity, may not be sufficient to support incentives and/or the "the amount of PES is not significant to provide ample livelihood opportunities", they also noted that "the natural areas provide an opportunity to the owner to generate funds through ecotourism and other adventure activities like river rafting, hiking, etc." A great strength of Costa Rica's PES incentive system is that it has maintained payments to local stakeholders over the long-term. This has contributed to wider awareness and increased trust.

All four groups pointed out the importance of Costa Rica's diverse institutional engagement in PES and eco-restoration programs. They highlighted the different roles played by the State, the private sector, NGOs, cooperatives, communities, and institutions such as CATIE, FUNDECOR, CODEFORSA, COOPELESCA, and others, and noted that private owners are actively involved in forest conservation and the management of forests for ecosystem services. The importance of community commitment and involvement was highlighted; it has required close attention to simplicity and years of developing trust.

The groups noted that the PES programs have been mainly financed by a sales tax on fossil fuels and through water charges. Also mentioned were local initiatives such as CODEFORSA's fund-rasing from the public for planting on public lands, COOPELESCA's acquiring of private lands for conservation of wildlife and other natural resources and, at the national level, low-interest credit for individuals and organizations for tree plantations, and the use of green credit cards to generate funding.

The Way Forward

Each of the three states and the MoEFCC have different socio-ecological contexts and presented their ideas on ways forward differently. The Bihar group proposes to reinvest forest revenue generated back into the source forest, and proposed the following actions:

a) More projects in water conservation and water source protection, with payment of some benefits to the local community.

b) Collection of revenue from tourists visiting forest and wildlife areas to enable PES, with payments to the local communities.
c) Develop a model to collect revenue for carbon footprints (e.g., from vehicles running on fossil fuels, electricity consumers, bottled water companies, as PES) for planting trees in non-forest areas and paying the communities involved for conservation of forest and wildlife.
d) Involve power companies and other private sector entities in making contributions to PES.

The Bihar group also summarized the status of similar systems already present in Bihar, including:

- An agroforestry scheme which pays farmers to plant trees their private agricultural lands.
- A program supporting the collection, storage, sale, and revenue from non-timber forest products, with funds used to benefit people in the local communities that are conserving forest resources.
- Opportunities through Joint Forest Management Committees or (in protected areas) Eco Development Committees for employment for various departmental forest protection and development work, entrepreneurial opportunities using raw materials from forests, or ecotourism.

The Kerala group proposed the following areas where study tour lessons learned could be applied:

a) Eco-restoration Policy.
b) Government-owned [lands] and [areas] outside, e.g., estates, homesteads, local self-governing institutions, and state-owned corporations or enterprises (PSUs).
c) Resource Mobilization for eco-restoration and PES—realigning existing financial resources and invoking Section 41 of the Biological Diversity Act (which calls for establishment of committees that "may levy charges… for accessing or collecting any biological resource for commercial purposes…"), e.g., taxes on tourism, electricity, water, and commercial use of natural resources.
d) Guidelines for operationalizing PES.
e) Developing criteria and indicators for PES, and compliance with a monitoring protocol.
f) Valuation of ecosystem services.
g) Landscape approach to management.
h) Adaptive policy and research support.

The Telangana group proposed:

a) Strong policy and legal framework on PES system, and mainstreaming into forest work plans.
b) Sustainable finance—creation of a green fund (like FONAFIFO) at the National/State level; an incentive mechanism encouraging conservation and development of private forest lands, including for example, for afforestation of private lands and/or for development of ecotourism.
c) Development of a technical relationship between CATIE in Costa Rica and the Forest College and Research Institute (FCRI), Mulugu, Telangana.
d) Development of a technical relationship with MINAE/FONAFIFO on quantification, valuation, reporting, monitoring, and verification of ecosystem services from the landscape level to State and National levels, using the latest technologies.

The MoEFCC group noted that Costa Rica has done good work in PES and replicating it or adopting part of it in India can be explored. They proposed exploring community participation in water resource management, generating financial resources from individuals and agencies using water from a given watershed, and collaboration on research and training between CATIE and Indian research organizations. The group suggested that CATIE prepare a short note or proposal on possible fields of collaboration.

At the end of the Study Tour an evaluation was carried out. The 12 participants indicated the quality, relevance, usefulness, achievement of study tour objectives, and contribution of knowledge through the sessions and field visits as very high or high. In general, they indicated that the knowledge obtained from the study tour will be a basis to promote actions on PES and eco-restoration models in India.

I. INTRODUCTION

The Forest-PLUS 2.0: Forest for water and prosperity Project is a five-year program of the United States Agency for International Development (USAID) in India and the Government of India (GOI)'s Ministry of Environment, Forest and Climate Change (MoEFCC). Implemented by Tetra Tech ARD, the Forest-PLUS 2.0's goal is to improve management of targeted forest landscapes in three states in India (Bihar, Telangana, and Kerala) for enhanced ecosystem services and increased inclusive economic opportunities. The present report summarizes the activities and learning from a study tour for 12 officers of the MoEFCC, the Ministry of Finance, and the three states to learn about and from Costa Rica's ecological restoration initiatives and PES models. They were accompanied by two Forest-PLUS 2.0 staff, and a USAID/India representative. They arrived in Costa Rica on September 15 and departed on September 27, 2023.

Costa Rica was selected for the study tour because of its success, experiences, and lessons learned with eco-restoration and Payment for Environment Services (PES) models, and its commitment—as one of only a few of the world's countries—to decarbonizing humanity's impact on the Earth. Forest-PLUS 2.0 selected Agroforsa, a professional services firm with significant relevant experience in Costa Rica and Latin America, to organize and facilitate the study tour.

II. THE STUDY TOUR

A. General background

India and Costa Rica each has its own characteristics (e.g., location, size, natural resources, ecosystems, environment, landscapes, economy, social and other circumstances). Nonetheless, participants found many elements of Costa Rica's eco-restoration and PES models that were relevant to their own work in India, and some that might be adapted and applied there. During the study tour participants learned how Costa Rica developed its PES and eco-restoration initiatives, the conditions that enabled their success (including policies and laws, environmental education, national and international support, and the participation and support of politicians, private enterprises, and other stakeholders), and the challenges that Costa Rica has faced.

B. Objective and approach

The purpose of the study tour was:

- To expose participants to ecological restoration initiatives and PES models and related lessons learned and
- To provide interactive exchange opportunities to participants to inform learning.

The objectives were to expose participants to the following specific themes under each of the above two purposes:

Ecological restoration initiatives and PES models:

- Biodiversity conservation
- Restoration of natural forests and the related ecosystem services
- Roles of different stakeholders including community in eco-restoration

- Management planning processes and information needs for PES models;
- Design of financial models and incentives for PES
- Legal, policy, and institutional framework for PES
- Roles of government, private sector and community-based enterprises in management and implementation of PES;
- Accounting of costs and benefits
- Benefit distribution between key stakeholders including integration of equity, land tenure, and other social factors.
- Water management

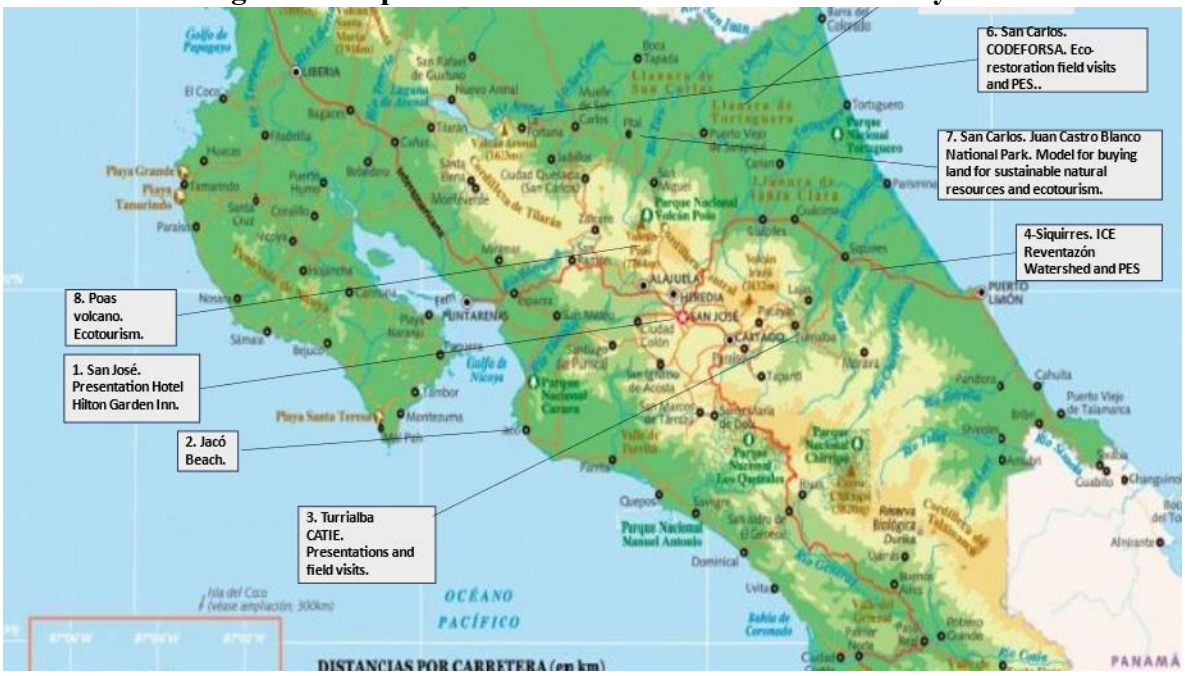
Interactive exchange opportunities:

- Design of incentives for PES and Eco-restoration
- Private sector engagement
- Regulation of PES models
- Ecological management planning

The Study Tour sought to balance field visits to sites and meetings with government and other stakeholders, especially with the Ministry of Environment, Forestry and Climate Change's counterpart institution: Costa Rica's Ministry of Environment and Energy (MINAE in Spanish). When planning was initiated in July only Costa Rica's National Forestry Finance Fund (FONAFIFO) had confirmed its interest in receiving the delegation. FONAFIFO's engagement was seen as particularly valuable, given its lead role in monitoring and evaluation (essential for the success of PES initiatives); its significant role in policy and its implementation; its capacity to engage with the international community and attract donor support; and its relative independence as an agency.

The Study Tour included discussion sessions in San Jose, at CATIE, and at field sites, with professionals and experts working in environment, natural resources, policy, and PES from FONAFIFO, the private sector, and nongovernmental organizations (NGOs) that play key roles in development initiatives involving eco-restoration and PES incentives. These activities presented strategies, programs, projects, developmental activities, results, and main problems encountered regarding eco-restoration in Costa Rica. The discussion sessions introduced participants to problems and opportunities, policies, strategies, laws, activities, constraints, results, monitoring and evaluation mechanisms, sources of funding (national and international), and related themes. These activities are summarized in Sections III and IV. Figure 1, below, presents a map showing the sites visited. Agroforsa facilitated a lessons learned discussion on the final day of the Study Tour for participants to reflect on their experience and their ideas on the themes relevant to India's institutional settings, policies, and resources. The lessons learned are summarized in Section V. The schedule of the Study Tour is provided in Annex 1. Presentations made during the Study Tour are provided in Annex 2 and a detailed summary of each presentation is provided in Annex 3. The participants are listed in Annex 4. An evaluation was carried out at the end of the Study Tour, the results of which are presented in detail in Annex 5. Annex 6 provides photos.

Figure 1: Map of the selected sites visited and their key themes



III. MEETING AND SPECIAL SESSIONS

A. Welcome, presentation and purpose of the orientation

The orientation meetings took place on Sunday morning, Monday, and Tuesday morning, September 17-19, 2023, in the conference center of the hotel Hilton Garden Inn in San Jose, Costa Rica. On Sunday, September 17, participants presented themselves and shared their expectations. The facilitators reviewed the purpose of the study tour, the planned schedule, and the field sites to be visited, the logistic support and the facilities.

The Orientation sessions reviewed the main themes related to restoration of natural forests and related ecosystem services, PES, and other relevant themes. They provided an overview of the Costa Rica context and a comparative sense of and insight into the diversity of experience in Costa Rica. The purposes of the orientation sessions were:

- To inspire and enable strengthening and catalyzing the administrative, technical, and political capacity and will upon participants' return,
- To reflect on what's going on in each of their own states, and
- To enable continued networking even after the study tour.

The Orientation also elicited participants' perspectives and ideas for follow-up activities in their States and at the MoEFCC and provided a quick look at "do's and don'ts" in Costa Rica.

B. Participants' expectations for the study tour

At the beginning of the study tour, before the field visits, participants were asked to identify their main expectations regarding the main themes—eco-restoration and payment for environmental services (PES)—of the study tour. Some participants reiterated these expectations in their final presentations at the lessons learned workshop at the end of the study tour. Following is a summary list of the themes for which participants hoped to learn lessons that, when they returned to India, they could put into practice.

- The main challenges for eco-restoration in Costa Rica and the process implemented to solve problems derived from deforestation and land use changes and in achieving significant forest cover.
- Successful strategies and activities to achieve protection and sustainable management of natural resources (forest, water, soil, biodiversity, and landscapes).
  In solving these problems and implementing these strategies and activities:
    - The roles of the government institutions, the private sector, non-governmental organizations (NGOs), communities, and farm owners in the different regions of Costa Rica.
    - The role of the legal framework.
    - Policy
    - Sources of finance
    - Monitoring, reporting, and verification
- Implementation—how the PES system works properly in Costa Rica regarding:
    - Eco-restoration in tropical forests.
    - Management of national forests and natural resources.
    - Incorporation of livelihood aspirations in biodiversity conservation.
    - Management of the human-wildlife interface.
    - The shifting face of agroforestry models.
    - Climate resilient practices.

Participants also expressed interest in learning:

- The key factors that helped Costa Rica to be successful in involving the various and diverse stakeholders (government institutions, private sector, NGOs, cooperatives, communities, families, and individuals).
- How the innovative activities in eco-restoration and PES in Costa Rica were relevant and could be usefully applied in India.

C. Key presentations at the orientation sessions

Following are brief descriptions of each of the orientation sessions, with (as noted above) a detailed summary of each in Annex 3. The MoEFCC and representatives of each of the three states all made presentations at the orientation session (and again at the lessons learned workshop at the end of the study tour). The delegation was comprised of three Deputy or Assistant Inspector Generals from the MoEFCC, a representative from the Department of Economic Affairs of the Ministry of Finance, three representatives each from the State Forest Departments of Bihar and Telangana, and two representatives from the State Forest Department of Kerala. As noted above, these government officials from India were accompanied by two Forest-PLUS 2.0 staff, and a USAID/India representative.

1. **Profile of Costa Rica** (September 17)

   Presenters: Carlos E. Reiche and B. Ramakrishna, Agroforsa consultants (Specialists in natural resources, environment, climate change, and economics)

Geographical context; natural resources and the environment; the political, social, and cultural context; the economy, with emphasis on agriculture, forestry, and fishing, and on the financial sector; and key stakeholders.

2. **Eco-restoration with local participation: AFOLU with incentives, agroforestry, agro-silvo-pastoral-mangrove management, agro-eco-tourism- local governance** (September 17)

Presenter: B. Ramakrishna, Agroforsa Consultant

Costa Rica's approach to agriculture, forestry, and other land use (AFOLU)—a theme inherent to the success of Costa Rica's PES initiatives—in relation to both food security and development and to managing potential environmental impacts.

3. **Forest Financing Fund (FONAFIFO)** (September 18)

Presenter: Gilmar Navarrete, Director of Environment Services, FONAFIFO, MINAE

The objectives, structure, and activities of Costa Rica's Payment for Environment Services (PES) programs, results, impacts, and lessons learned.

4. **Sustainable Biodiversity Fund** (September 18)

Presenter: Alberto García Arguedas, Director of the Executive Secretariat, Sustainable Biodiversity Fund, FONAFIFO, MINAE

The concept, structure, capitalization, incentives, and instruments of a market-oriented mechanism that provides financing for biodiversity conservation in a sustainable and inclusive manner on private lands, thereby contributing directly to the improvement and protection of the environment and natural resources with special emphasis on wildlife in the Costa Rica's forests.

5. **Water planting and harvesting model** (September 19)

Presenter: Jorge Rodríguez, Former Minister of Environment and Natural Resources

An innovative model of tree planting, water harvesting, and other eco-restoration activities, and their contribution to the mitigation of the effects and impacts of climate change in Peru and Costa Rica.

6. **FUNDECOR's forest management model** (September 19)

Presenter: Mario A. Piedra, Executive Director, FUNDECOR

A model integrating forest industry and community interests to manage and use forests through eco-restoration, integral land use planning and management that adds economic value, and a participatory approach with families that own forest, aligned with the support of Costa Rica's PES programs.

7. **Forestry, environment, and eco-restoration in India**

Presenters: Representatives from the Government of India and from each of the three states

The representative of the Government of India presented a summary of the main strategies, actions and plans to solve environmental problems and manage natural resources (forests, water, soil, biodiversity, and landscapes) to contribute to conservation and sustainable and inclusive economic and social development of India. Representatives from Bihar, Kerala, and Telangana each presented an overview and summary of their respective states' natural resources and ecological values, population, economy, and management of natural resources.

IV. FIELD VISITS

This section summarizes what was presented in the meetings and the field during the site visits.

The selected sites visited, the key stakeholders (including beneficiaries) and the corresponding counterparts interviewed were selected to address the essential issues, themes, and areas of interest described in the study tour scope of work (SOW), as noted in the description of the Orientation session, above. Sites were further screened to ensure that they would provide participants with an opportunity for in-depth interaction with stakeholders at each site while considering accessibility, travel distances, timeframe and assure that the subjects must be according with the needs, interest, and the objectives of the study tour. The selected field visit sites are described in the following sections. The slides of those presentations made in PowerPoint are provided in Annex 2 and a detailed summary of each presentation or site visit is provided in Annex 3.

A. The Tropical Agricultural Research and Training Center (CATIE) (September 20)

1. Welcome session

Speaker: Carlos Araya, Director of Green Business Development, Resource Mobilization and Strategic Alliances, CATIE, Turrialba

Welcome and a brief overview of CATIE's mission for countries of Central America and Latin America.

2. Inclusive Green Development

Presenter: Leida Mercado, Director of the Research Division for Inclusive Green Development, CATIE, Turrialba

Brief overview of CATIE's overall mandate, governance, systems approach, and educational programs, followed by the Green Development Division's inclusive transdisciplinary and participatory approach to research, with direct engagement of stakeholders collaboratively create and apply knowledge.

3. Climate change, biodiversity, and natural resources

Presenter: Rolando Cerdas, Agroforestry and perennial crops Coordinator, CATIE, Turrialba

Developing and applying climate change, eco-restoration, PES, agroforestry systems, and decarbonization approaches, as well as exploring CATIE's role as an advisory international organization with outreach to 13 member countries.

4. Goat milk module

Presenters: Guillermo Detlefsen and Mabel Arcos Acosta, Agroforestry and Perennial Crops Project, CATIE, Turrialba

A model for goat production with minimal investment and land requirements that has proved successful as a family business enterprise managed by women and youth with some help from men.

5. Forest Seed Bank

Presenter: Marilyn Morales, CATIE

CATIE's storage of forest germ plasm and outreach to Latin America, the Caribbean, Africa, and other continents to supply and/or exchange 63 tree forest species.

6. **Payment for Ecosystem Services (PES) (virtual presentation)**

Presenter: Dr. Roger Madrigal, Head of Environmental Economics and PES specialist, CATIE, Turrialba (currently at the University of Vermont, Burlington)

7. **PES and the blend of needed enabling conditions**

Eco-restoration
Presenter: Mr. Roger Villalobos, Forest Management Specialist, CATIE

Eco-restoration through at least four levels of interventions, beginning with the rehabilitation of degraded lands (including biodiversity as well) on through a fully recovered native ecosystem.

8. **Presentation on the nature-based systems approach**

Presenter: Mr. Lenin Corrales, Senior Advisor, Climate Action Unit, Inclusive Green Development Research Division, CATIE, Turrialba

CATIE's environmental modelling laboratory, which applies a natural systems approach emphasizing actions related to Land Use and Land Use Change and Forest (LULUCF) ecosystems that address drought, pests, and fires, and other natural phenomena affected by climate change.

9. **Coffee and cacao plantations at CATIE and its approach to AFOLU and carbon sequestration**

Presenter: Rolando Cerdas, CATIE

Field presentation of CATIE's international collection of varieties of coffee.

10. **Round table discusión**

Panelists: Roger Madrigal, Leida Mercado, Lenin Corrales, Roger Villalobos, Rolando Cerdas

B. Reventazón Watershed (September 21)

1. **Tres Equis private farm**

Host: Alfonso Pacheco, Owner, with Mario Castillo, ICE

Field presentation of Finca Tres Equis, a family farm that has conserved hundreds of hectares of forest for more than 25 years through sustainable management of agriculture, forestry, and other land use (AFOLU) areas, including activities such as ecotourism for income and educational purposes.

2. **Water recharge, protection, restoration, and electricity production of the upper and middle basin of the Reventazón watershed, Siquirres**

Presenter: Mario Castillo, Forestry Engineer, National Institute for Electricity (ICE), Costa Rica

Field presentations of water recharge, protection, restoration, and electricity production in the upper and middle basins of the Reventazón watershed and, at the Reventazón Dam, the role of PES programs to support eco-restoration and production of electricity.

C. FUNDECOR (September 22)

1. Private Farm, Horquetas de Sarapiquí

Host: Elisinio Flores, owner of the farm, with Pedro Zúñiga, FUNDECOR

Small farm with food crops and cover crops year-round to protect against soil erosion.

2. Selva Verde

Presenter: Mario Piedra

FUNDECOR's support for forest, water resources, and biodiversity conservation, including legal framework, collaborative strategies for natural resource management, public and private land ownership, appropriate use of PES, and clarifications in response to participants' questions on eco-restoration issues.

D. CODEFORSA (September 23)

Presenter/Guide: Johnny Méndez, former Management and Forestry Professional of CODEFORSA, San Carlos

1. Contributions to forestry development

Field presentation of contributions of the National Forestry Office (ONF) and forestry organizations (CODEFORSA and others) to forestry development in Costa Rica.

2. Field visit to the yellow forest

Restoration of degraded public areas with native species, and the support of the EPA hardware store in Las Delicias, Aguas Zarcas.

3. Forest with PES for water

Payment of fees to protect water sources for human consumption and maintain the aquifer in recharged areas, through two Associations that manage communal Aqueduct and Sewer Systems (ASADAs), which construct, operate, manage, and maintain the aqueduct and sewage systems in Las Tesalias

4. Tree nursery

Clonal production and tray system for production of Gmelina, Teak and native and ornamental species, supported by CODEFORSA at the Nursery Altamira, San Carlos

5. Model of reforestation and agroforestry systems

Field visit to a private farm using mixed agroforestry systems, including teak with cacao, Gmelina with cassava, and Gmelina with cacao in San Francisco de La Palmera.

E. Juan Castro Blanco Nacional Park (September 24)

Presenter: Oscar Quirós. Forest Engineer and Head of Social and Environmental Management Department, COOPELESCA

Field visit and presentation of the model for eco-restoration, water conservation, and ecotourism used by the Rural Electrification Cooperative, San Carlos (COOPELESCA R.L.) in Juan Castro Blanco National Park.

F. Poas Volcano (September 25)

Field visit to Poas Volcano to learn about eco-restoration and ecotourism.

V. REFLECTION AND LESSONS LEARNED WORKSHOP

Facilitators: Carlos Reiche and B. Ramakrishna

A. Introduction and objectives of the lesson learned workshop

The purpose of the wrap-up "lessons learned" workshop was:

- To strengthen learning in the theme areas presented at the Orientation session (see above),
- To highlight the "learning outcomes" and the "take-home messages."

We encouraged the Study Tour participants assess the usefulness and relevance of the innovative activities carried out in Costa Rica and how they may need to be adapted for applying in India. The session also helped to exchange ideas on how activities will also enhance and help to prepare a way forward for follow-up strategy and corresponding activities in the three states in India.

The participants were divided into four groups—three groups each made up of participants from one of the three states (Kerala, Bihar, and Telangana) and one group made up of the participants from the MoEFCC. Each group discussed their findings as they recalled the presentations, site visits, and discussions with stakeholders throughout the study tour and then identified key lessons they had learned.

B. Lessons Learned: Summary of lessons presented by four working groups (Kerala, Bihar, Telangana and the MoEFCC)

1. Learning and adapting

All of the groups emphasized **it takes time** to develop successful programs for PES and eco-restoration. Costa Rica developed the enabling environment—the policies and laws—and built the capacities and relationships among implementing institutions over many decades. The Telangana group pointed out that FONAFIFFO, the decentralized institution in MINAE responsible for capturing financial resources and implementing PES in Costa Rica, was established almost 30 years ago—in 1996. The Bihar group, highlighted the persistence required and presented this lesson as "slow and steady wins the race."
The Kerala group stressed the importance of **adaptability**—the need to fit a PES system to the requirements of a given context. It takes time to develop regulatory and technical capacities, to engage stakeholders and work with them, to develop measures (e.g., for valuation of ecological services, for monitoring and reporting impacts), to review and reflect, and then to adapt the system based on all that experience. The MoEFCC group noted the importance of CATIE's collaboration, as a regional

organization, with other Central and Latin American countries, which has given it perspective and lessons across a broad and diverse range of socioeconomic and ecological contexts.

In addition to **adaptability** (and the time, range of experience, and analysis required to learn and adapt), the Kerala group identified four other "pillars" for PES and eco-restoration, which serve well to organize the main lessons learned:

- The legal framework,
- Economic incentives,
- The multi-stakeholder institutional framework, and
- Funding sources.

2. Legal and policy framework

The Telangana group noted the importance of the "serious thought" in 1996 for reducing the rate of deforestation through "defined policies, National Development Plans, Action plans, legal mechanisms, and national institutions." The Bihar group highlighted the importance of "good governance" while the MoEFCC group pointed out the importance of MINAE's supportive mission: "to help to improve the quality of life of Costa Ricans by promoting the management, conservation and sustainable development…" and of a similarly supportive forest protection law that prohibits change in land use of forest areas. While "passive" ecorestoration may not require as much direct funding as "active" restoration, it does require good governance.

3. Economic incentives

All groups highlighted the importance of developing a diverse range of economic incentives. For example, in identifying the objectives of a PES program, the Bihar group listed a great range of potential benefits:

- reduced deforestation,
- restoration of forest cover and degraded lands,
- reduced illegal logging,
- promotion of non-traditional production, exports, and access to new potential markets,
- promotion of forest industry,
- contributions to rural development and poverty reduction, and
- contributions to compliance with global environmental goals.

However, the multiple benefits of environmental services and ecorestoration are not equally valued by all stakeholders. All four groups noted that water is one of (or is) the most highly valued benefits. Simply as water and/or as electricity (through hydropower), water has provided the most opportunity to develop payment systems that support maintaining forest areas. The MoEFCC observed that while the objective is that all beneficiaries of environmental services eventually pay for the services they receive, there has been more "success charging water users for upstream watershed management services… than charging for biodiversity and carbon."

As the Kerala group noted, it is important to develop "complementary livelihood activities to support the PES system at the farm level (ecotourism, dairy, poultry, plantations, silviculture, and other)." The Telangan group noted the importance of applying "various PES models for valuation of environmental services" and appreciated what they had learned from the diverse land uses observed: "systems of

livestock production, agroforestry models (Gmelina with coffee and cocoa, protection of secondary forest for wildlife corridors…water conservation… and ecotourism, and plantations on public lands."

The MoEFCC group noted that some incentives, e.g., the management of national parks for water and for ecotourism, do not require tradeoffs. For example, while the value of some ecological services, e.g., biodiversity, may not be sufficient to support incentives and/or the "the amount of PES is not significant to provide ample livelihood opportunities", they also noted that "the natural areas provide an opportunity to the owner to generate funds through ecotourism and other adventure activities like river rafting, hiking, etc." A great strength of Costa Rica's PES incentive system is that it has maintained payments to local stakeholders over the long-term. This has contributed to wider awareness and increased trust.

4. Multi-stakeholder institutional framework

All four groups pointed out the importance of Costa Rica's diverse institutional engagement in PES and ecorestoration programs. Telangana highlighted the different roles played by the State, the private sector, NGOs, cooperatives, communities, and institutions such as CATIE, FUNDECOR, CODEFORSA, ICE, the FBS, COOPELESCA, and others. The Bihar group pointed out the importance of community commitment and involvement, which has required close attention to simplicity and years of developing trust. The MoEFCC and Kerala groups highlighted the management of private forests for ecosystem services. The MoEFCC noted that private owners "are actively involved in forest conservation through NGOs and cooperative societies" and were impressed by Turrialba's "example of ecotourism by community participation by showcasing culture, products, and natural resources."

5. Funding sources

Just as developing incentives requires exploring a diversity of options, so, too, does the development of funding sources. The groups noted that the PES programs have been predominantly financed by a sales tax on fossil fuels. Another important source of funding has been water charges. The Telangana group cited local initiatives such as CODEFORSA's fund-rasing from the public for planting on public lands, COOPELESCA's acquiring of private lands for conservation of wildlife and other natural resources and, at the national level, low-interest credit for individuals and organizations for tree plantations. The MoEFCC found interesting the idea of using green credit cards to generate funding.

C. The Way Forward

Each of the three states and the MoEFCC have different socio-ecological contexts and presented their ideas on ways forward differently, they all shared ideas on how to set up systems of payments for environmental services and to conserve natural resources.

1. Bihar

The Bihar group proposes to reinvest forest revenue generated back into the source forest, and proposed the following actions:

- More projects in water conservation and water source protection, with payment of some benefits to the local community.
- Collection of revenue from tourists visiting forest and wildlife areas to enable PES, with payments to the local communities;

- Develop a model to collect revenue for carbon footprints (e.g., from vehicles running on fossil fuels, electricity consumers, bottled water companies, as PES) for planting trees in non-forest areas and paying the communities involved for conservation of forest and wildlife;
- Involve power companies and other private sector entitiesin making contributions to PES.

The Bihar group also presented a detailed summary of the status of similar systems already present in Bihar, including:

- An agroforestry scheme which pays farmers to plant trees their private agricultural lands.
- A program supporting the collection, storage, sale, and revenue from non-timber forest products (NTFPs), with funds used for the benefit of people in the local communities who are conserving forest resources.
- Opportunities through Joint Forest Management Committees or (in protected areas) Eco Development Committees for employment for various departmental forest protection and development work, entrepreneurial opportunities using raw materials from forests, or ecotourism.

The group's presentation, provided in Annex 2, has details and photos of a diverse range of these present activities.

2. Kerala

The Kerala group proposed the following areas where lessons learned from the study tour could be applied:

- Eco-restoration Policy.
- Government-owned [lands] and [areas] outside, e.g., estates, homesteads, local self-governing institutions, and state-owned corporations or enterprises (PSUs).
- Resource Mobilization for eco-restoration and PES—realigning existing financial resources and invoking Section 41 of the Biological Diversity Act (which calls for the establishment of Biodiversity Management Committees, which "may levy charges by way of collection fees … for accessing or collecting any biological resource for commercial purposes…"), e.g., taxes (cess) on tourism, electricity, water, and all commercial use of natural resources.
- Guidelines for operationalizing PES.
- Developing criteria and indicators for PES.
- Compliance with a monitoring protocol.
- Valuation of ecosystem services.
- Landscape approach to management.
- Adaptive policy and research support.

3. Telangana

The Telangana group proposed the following:

- Strong policy and legal framework on PES system and mainstreaming into the working plans of forest divisions.
- Sustainable finance—the creation of a green fund (like FONAFIFO) at the National / State level. Encouraging private organizations with an incentive mechanism for conservation and development of private forest lands (Northeast of India), including for example, for afforestation of private lands and/or for development of ecotourism.
- Development of a technical relationship between CATIE in Costa Rica and the Forest College and Research Institute (FCRI), Mulugu, Telangana

- Development of a technical relationship with MINAE/FONAFIFO on quantification, valuation, reporting, monitoring, and verification of ecosystem services from the landscape level to State and National levels, using the latest technologies.

4. MoEFCC

The MoEFCC noted that Costa Rica has done good work in the field of PES and replicating it or adopting part of it in India can be explored. In particular, community participation in water resource management and the possibility of generating financial resources from individuals and agencies using water from a given watershed can be explored.

In addition, the MoEFCC proposed exploring collaboration on research and training between CATIE and Indian research organizations. The group suggested that CATIE prepare a short note or proposal on possible fields of collaboration.

D. Lessons Shared in the Evaluation Survey

At the end of the study tour, each participant responded to a survey in which he identified three key lessons learned that he felt were most important to take to back to India (which resulted in a listing of 36 lessons in all). All participants mentioned PES, with about a quarter of the lessons stated very generally, e.g., "PSE model", "PES system", "that PES is a reality", "the importance and relevance of PES in increasing forest cover in the country", "Eco-restoration works", "Implementation mechanism of PES", etc.

A few lessons identified were somewhat more concrete:

- The awareness among different stakeholders towards eco-restoration and PES system.
- The awareness to conservation and its acclaimed goals.
- The area regeneration and ecotourism activity.
- Policy [and] institutional framework and implementation of PES.
- Eco-restoration is a mix of passive and active interventions.
- PES models motivate the stakeholders in the areas of nature conservation.

About a third of the lessons focused on benefits and incentives, for example:

- The fund generation models being used in Costa Rica.
- The concept of PES and eco-restoration of forest lands.
- Community participation in eco-restoration and forest conservation.
- Charging consumers for water usage and hydroelectric usage.
- Use of forests for ecotourism, such as adventure activities like rafting and kayaking.
- Improvement and upliftment of the socioeconomic conditions of the local community by applying PES and eco-restoration concepts.
- Incentivizing people though monetary terms for entering into PES model.
- PES needs a strong complement of livelihood activities.
- Resource mobilization from various sources for supporting PES in the country.
- Setting apart [a] certain percentage of tax on fossil fuels for conservation.
- The forest and natural resources are protected by people and local communities, and they deserve some payment (PES) and benefits.
- Close coordination, monitoring, and evaluation of PES scheme by all stakeholders.

About a fifth of the lessons highlighted the multi-stakeholder nature of successful PES:

- Institutionalization and strong government policies are important for rejuvenation and eco-restoration of nature and natural resources.
- The involvement of stakeholder and their well-defined roles.
- The vision and mission of MINAE and the conservation of forests for water.
- Involvement of non-governmental organizations [and] private institutions in eco-restoration activities.
- People of communities can own forest and still conserve and protect the forest wildlife.
- The management of national park by involving the co-sponsor [?] and local people.
- Opening up areas owned by public to private institutions and NGOs to invest and manage for nature conservation.
- Private landowner motivation.

Finally, three participants shared the following as lessons:

- The culture of the country.
- The cultural experience of Costa Rica.
- Love and dedication of people towards environment.

VI. EVALUATION OF THE STUDY TOUR

A. Summary of the evaluation of the Study Tour survey results

An evaluation was carried out at the end of the closing session of the study tour, the results of which are presented in detail in Annex 5. Each of the 12 participants from the Government of India and the three states evaluated the relevance of and the time allocated for activities, the technical content of presentations and field visits, the materials used, lessons learned, logistical support with regard to the objectives of the study tour.

As shown in Annex 5, all 12 participants indicated the quality, usefulness, and achievement of the study tour's objectives as very high or high and rated as excellent the role and participation of the facilitators and presenters, and the contribution of knowledge and experiences in the sessions and field visits. Eleven of the 12 participants rated the relevance of what they experienced as very high or high and one rated the relevance as medium. In general, they indicated that the knowledge obtained from the study tour will be a basis to promote actions on PES and eco-restoration models in India. They indicated that the materials (presentations, PowerPoints, and others) were appropriate, as well as the time assigned to each presentation during the sessions and during the field visits. They recommended that the presentations in Spanish be translated into English and be included in the final report or otherwise be made accessible.

All 12 rated the meeting rooms and transportation services highly, as did 11 for accommodations and meals. The other participant rated the latter as medium. Nine participant gave translation services high ratings and three rated them as medium. given high ratings by e evaluation of logistical aspects such as accommodations, translation system, meals and assigned free time were rated as excellent. Only four participants gave the tour's free time a high rating.

On a scale from 1 (poor) to 5 (excellent), all participants rated the orientation and lessons learned workshops and all of the site visits as either 4 or 5 except the visits to the Reventazón watershed and to the Pacific coast.

A compilation of the lessons that participants felt they had learned has been presented in Section V.

B. Testimonials from study tour participants

In response to the survey query, "Was the knowledge gained useful?", most participants stated an emphatic yes, with modifications to fit contexts in India. A few added more specific comments, for example:

- "…in India… services, such as NTFP collection and ecotourism are partly charged locally by the BMC, and there is scope for enlarging the network to other services such as water. hydroelectric energy. etc."
- "We can formulate new policies and strong framework to integrate PES into conservation of natural resources and improvement of livelihood of the stakeholders in the economic development in our country."
- "The quantification and valuation of ecosystem services, innovation in eco-restoration and payment for environmental services could be mainstreamed in eco-restoration."

In response to the survey's recommendations for improving the study tour, three participants recommended increasing the interaction with MINAE officials which, as noted in Section II, would have been possible with earlier and more robust official support from the governments sponsoring the study tour.

MoEFCC Assistant Inspector General (IG) of Forests Shivanand Talawar said that the Study Tour helped him see the potential for agroforestry systems to restore ecosystems through rehabilitating degraded lands with cropping systems that include tree species such as *Erythrina* sp. and *Moringa oleifera*. He also noted that rural agro-ecotourism as exposed to in Turrialba area would be useful in India. MoEFCC IG Abhay Bhaskar suggested that a strategic alliance with CATIE for doctoral studies in agroforestry systems and a sabbatical year for professionals of the MoEFCC would be useful in strengthening farming systems in India with PES incentives that include trees and in restoring deforested areas. IG Suneet Bhardwaj would like to promote an exchange of genetic material with the forest seed bank of CATIE and an exchange of professionals in eco-restoration with PES mechanisms.

The Ministry of Finance representative, Sanjay Kumar, suggested promoting "a strategic alliance" with the Ministry of Finance in Costa Rica "to jointly prepare" such projects in India, with the aid of the World Bank, the European Union, GIZ, and/or GEF. He, too, expressed interest in rural agro-ecotourism.

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Annex 1: Study Tour Agenda

Table 1: Study Tour Agenda

Day	**Activity**	**Place (and *hotel accommodation*)**	**Participants**
Friday 15 Sept	Arrival of Study Tour delegation from India and transport from airport to hotel in San José	Juan Santa María Airport, San José, Costa Rica (Arrive ca 1:55 PM) *Hilton Garden Inn, San José*	12 delegates from India 2 Forest PLUS 2.0 team members
Saturday 16 Sept	Visits to relevant forestry and cultural background activities USAID representative arrives	In and around San José *Hilton Garden Inn* Juan Santa María Airport	12 delegates from India 2 Forest PLUS 2.0 team members 1 Agroforsa team member 1 USAID representative
Sunday 17 Sept	Morning: Welcome and Orientation by Agroforsa consultants (with coffee or tea and official lunch) Afternoon: Visit Jacó Beach.	*Hilton Garden Inn*	15 visitors from India 2 Agroforsa team members
Monday 18 Sept	Welcome and Orientation with officials and actors of national institutions	*Hilton Garden Inn*	15 visitors from India 3 invited speakers 2 Agroforsa team 2 interpreters
Tuesday 19 Sept	Morning: Orientation with officials and actors of national institutions (continued from Monday) Afternoon: Travel to Turrialba	Travel from San José to hotels in Turrialba (61 km; 2 hours 15 minutes) *Villa Florencia* and *Casa Turire*	15 visitors from India 2 invited speakers 2 Agroforsa team 2 interpreters
Wednesday 20 Sept	Visit CATIE to discuss climate change, biodiversity, natural resources management, eco-restoration, landscape conservation, and carbon sequestration, including structuring of incentives	Conference hall and field in CATIE, Turrialba *Villa Florencia* and *Casa Turire*	15 visitors from India 6 speakers from CATIE 2 Agroforsa team 2 interpreters
Thursday 21 Sept	Field and learning activities in Tres Equis farm, applying PES for water, forest, biodiversity, and ecotourism	Travel to finca Tres Equis, Turrialba	15 visitors from India 1 ICE professional Owner of Tres Equis farm 2 Agroforsa team 2 interpreters
Thursday 21 Sept	Visit water recharge projects, protection and restoration of upper and middle basins of Reventazón watershed, PES model used, and lessons learned (ICE and FONAFIFO agreement)	Visit to Reventazón (69 km; 1 hour 30 minutes) and return to hotels *Villa Florencia* and *Casa Turire*	15 visitors from India 1 technician from ICE 2 Agroforsa team 2 interpreters

Friday 22 Sept	Visit eco-restoration of forests, carbon sequestration, ecotourism, agroforestry systems and the use of PES with small and medium farms in Sarapiquí. (FUNDECOR and FONAFIFO)	Travel from Turrialba to Sarapiquí (50 km; 1 hour). *Hotel Bambú*	15 visitors from India 2 technicians from FUNDECOR 2 Agroforsa team 2 interpreters
Saturday 23 Sept	Visit forest management projects executed by CODEFORSA linked with PES and water, biodiversity, eco-restoration, and landscape systems	Travel from hotel in Puerto Viejo, Sarapiquí to Ciudad Quesada, San Carlos (57 kms; 55 minutes) *Hotel Tilajari*	15 visitors from India 2 technicians from CODEFORSA 2 Agroforsa team 2 interpreters
Sunday 24 Sept	Visit Juan Castro Blanco National Park, managed by COOPELESCA. The park protects the Platanar, Porvenir, and El Viejo volcanoes and several rivers, for sustainable energy production and eco-restoration, with relevant socioeconomic and management experience	Travel from hotel in San Carlos to the National Park (17 km southeast of Ciudad Quesada [San Carlos]; 35 minutes) Return to *Hotel Tilajari*	15 visitors from India 1 technician from COOPELESCA 1 technician from CODEFORSA 2 Agroforsa team 2 interpreters
Monday 25 Sept	Visit Poas Volcano to see eco-restoration and ecotourism	Travel from hotel in San Carlos to Poas Volcano and from there to *Hilton Garden Inn* in San José	15 visitors from India
Tuesday 26 Sept	Lessons Learned Workshop	*Hilton Garden Inn*	15 visitors from India 3 invited thought leaders 2 Agroforsa team 1 interpreter
Wednesday 27 Sept	Transfer to airport	Juan Santa María Airport (departure o/a 2:55 PM)	15 visitors from India

Annex 2: List Of Themes Presented and Their Corresponding Presentations[1]

(Presentations provided separately)

No.	Date (Sept 2023)	Theme	Presenter	Corresponding Document
Annex 3 A-1	Sunday 17	The profile of Costa Rica. Geographical, natural resources, environment, political, social, economic, culture, challenges, and development	Carlos E. Reiche and B. Ramakrishna, Consultants of Agroforsa	PDF A-1
Annex 3 A-2	Monday 18	Eco-restoration with local participation: AFOLU with incentives: Agroforestry, Agro-silvo-pastoral-mangrove management- Agro-Eco-Tourism- Local Governance.	B. Ramakrishna, Agroforsa Consultant.	PDF A-2
Annex 3 A-3	Monday 18	The Forest Financing Fund (FONAFIFO). Objectives, structure, and activities of the Payment for Environment Services, results, impacts and lessons learned.	Gilmar Navarrete. Director of Environment Services, FONAFIFO, MINAE.	PDF A-3
Annex 3 A-4	Monday 18	Sustainable Biodiversity Fund. A successful mechanism as a model for biodiversity conservation in Costa Rica.	Alberto García Arguedas, Director of the Executive Secretariat, Sustainable Biodiversity Fund. FONAFIFO, MINAE.	PDF A-4
Annex 3 A-5	Tuesday 19	The innovative model of tree planting, water harvesting, and other eco-restoration activities, and their contribution to the mitigation of the effects and impacts of climate change in Costa Rica.	Jorge Rodríguez, Former Minister of Environment and Natural Resources	PDF A-5
Annex 3 A-6	Tuesday 19	Innovative solution model through eco-restoration, integral management, adding economic value and with a participatory approach with families that own forest, aligned with the support of PES.	Mario A. Piedra. Executive Director of FUNDECOR.	Video A-6
Annex 3 B-1	Wednesday 20	Welcome- CATIE mission for Central América and Latin American countries.	Carlos Araya. Director of Green Business Development, Resource Mobilization and Strategic Alliances, CATIE, Turrialba	No document
Annex 3 B-1	Wednesday 20	CATIE: A partner in research, education, and inclusive green development.	Leida Mercado, Director of Research, Division of Inclusive Green Development, CATIE, Turrialba	PDF B-1

[1] The first six items (A-1 through A-6) are the Orientation Workshop training materials (Deliverable 7 under the Study Tour subcontract).

Annex 3 B-1	Wednesday 20	CATIE. The international graduate school in forest management and conservation.	Rolando Cerdas Agroforestry and perennial crops Coordinator. CATIE. Turrialba.	No document
Annex 3 B-2	Wednesday 20	Field presentation of the Goat milk module. CATIE.	Guillermo Detlefsen and Mabel Arcos Acosta, Agroforestry and Perennial Crops Project, CATIE, Turrialba	No document
Annex 3 B-3	Wednesday 20	Forest seed bank. CATIE.	Marilyn Morales, Forestry Seed Bank, CATIE, Turrialba,	No document
Annex 3 B-4	Wednesday 20	PES Succes a blend of enabling conditions. Virtual presentation. CATIE.	Roger Madrigal. Head of Environmental Economics and PES specialist, CATIE, Turrialba.	PDF B-4
Annex 3 B-5	Wednesday 20	Eco-restoration through at least four levels of interventions, beginning with the rehabilitation of degraded lands (including biodiversity as well) on through a fully recovered native ecosystem.	Roger Villalobos, Forest Management Specialist, CATIE, Turrialba.	PDF B-5
Annex 3 B-6	Wednesday 20	Climate Action Unit, Environmental modelling laboratory. Inclusive Green Development. CATIE.	Lenin Corrales. Senior Advisor/Senior Advisor-Climate Action Unit, CATIE, Turrialba.	PDF B-6
Annex 3 B-7	Wednesday 20	Field presentation of the International Collection of varieties of Coffee. CATIE.	Rolando Cerdas. Agroforestry and Perennial Crops Coordinator, CATIE, Turrialba.	No document
Annex 3 C-1	Thursday 21	Field presentation of Finca Tres Equis, a family farm that has sustainably managed hundreds of hectares of forest for more than 25 years.	Alfonso Pacheco, Owner of Tres Equis farm.	No document
Annex 3 C-2	Thursday 21	Field presentation of the Water recharge, protection, restoration, and electricity production of the upper and middle basin of the Reventazón watershed.	Mario Castillo Forestry Engineer, National Institute for Electricity (ICE), Costa Rica	No document
Annex 3 C-2	Thursday 21	Field presentation of the role of the PES as support for eco-restoration and the production of electrical energy. Reventazón Dam, Siquirres.	Mario Castillo Forestry Engineer, National Institute for Electricity (ICE), Costa Rica	No document
Annex 3 D	Friday 22	Field presentation of a model of private farm supported by PES. Horquetas de Sarapiquí.	Pedro Zúñiga, FUNDECOR	PDF D

Annex 3 E	Saturday 23	Field presentation of the contribution of the National Forestry Office (ONF) and forestry organizations (CODEFORSA and others) to the Forestry development of Costa Rica. Field visit to the yellow forest. restoration of degraded areas, with native species, the support of EPA hardware store. Field visit to the Forest in PSA- Water. Payment of a differentiated amount to protect water sources for human consumption and aquifer recharge areas. Asada Las Tesalias. Field visit to the tree nursery. clonal production. Tray system. Melina, Teak, native and ornamental species. Field visit to private farm using PES for agroforestry systems and natural resources conservation systems.	Johnny Méndez. Former Management and Forestry Professional of CODEFORSA. San Carlos.	No document
Annex 3 F	Sunday 24	Field visit and presentation of the Model for eco-restoration, water conservation and ecotourism used by the Rural Electrification Cooperative, San Carlos (COOPELESCA R.L.) in the Juan Castro Blanco National Park.	Oscar Quirós. Forest Engineer and Head of Social and Environmental Management Department, COOPELESCA	PDF F
Annex 3 G	Monday 25	Visit to the Poas volcano to learn about eco-restoration and ecotourism.	Visit added at request of delegation.	No document
Lessons Learned Work-shop	Tuesday 26	Process to obtain PES for eco-restauration in Costa Rica.	Johnny Méndez. Former Management and Forestry Professional of CODEFORSA, San Carlos.	PDF LL-1
	Tuesday 26	Bihar-Lessons Learned	Representative of Bihar	PDF LL-2
	Tuesday 26	Kerala-Lessons Learned	Representative of Kerala	PDF LL-3
	Tuesday 26	Telangana-Lessons Learned	Representative of Telangana.	PDF LL-4
	Tuesday 26	Government-Lessons Learned	Representative of Government of India	PDF LL-5
	Tuesday 26	English version of the Costa Rica Forest Law No.7575	Translated from Spanish to English.	PDF LL-6

Annex 3: Summary Notes on stakeholder discussions and field visits (*Deliverable 9*)

The following summarizes presentations made to the Costa Payment for Environmental Services (PES) Study Tour by experts in Costa Rica, field visits and discussions with stakeholders. For more detail, please refer to the English translations of the presentations made to Study Tour participants (see Annex 2.)

A. Orientation workshops in San Jose – Sunday, 17-19 September

1. Profile of Costa Rica. Geographical, natural resources, environment, political, social, economic, challenges and development.

Speakers: Carlos E. Reiche and B. Ramakrishna, International Consultants of Agroforsa (Specialists in natural resources, environment, climate change, and economics).

Costa Rica is located in Central America between 8° and 11° north latitude and 82° and 85° west longitude. Its borders are North with Nicaragua; South with Panama; East with the Caribbean Sea; and West with the Pacific Ocean. Its surface area is 51,100 km^2, including 50,660 km^2 of land and 440 km^2 of water surface area. Its political divisions are 7 provinces, 81 cantons and 463 districts. The capital is San José. The total population in 2019 was 5,022,000 persons with a density of 98 inhabitants/km^2.

Geographically Costa Rica has two mountain chains: In the north the Cordillera Volcanic which is noted for its volcanic activity; in the south, the Cordillera de Talamanca which is divided from northwest to follow Cordillera de Guanacaste, Cordillera de Tilarán, and Cordillera Central southeast. The highest point is Mount Chirripó at 3,819 mts. The Talamanca system has two highest peaks: the Cordillera Volcanic Irazú (3,432 mts) and the Poas (2,704 mts). Both have paved roads reaching to the craters and to overlook the Valle Central. The Arenal Volcano (1,633 mts) is about 90 km northwest of San José. The Valle Central is separated into two parts by the continental division. The eastern part is drained by the Reventazón River to the Caribbean, and the western sector forms part of the basin of the Grande de Tárcoles River, which flows into the Pacific. The Valle del General lies at the base of the Cordillera de Talamanca in the southern part of the country. To the north and east of the mountainous central spine lie the Caribbean lowlands, constituting about one-fifth of the country and reaching less than 120 mts in elevation. The Pacific lowlands, which contain several small valleys and plains, include only about one-tenth of Costa Rica's territory.

Environment and natural resources. Costa Rica has a tropical climate. Thermal convection and onshore breezes bring abundant rains on the Pacific coast in the wet season, generally from May to October in the north and April to December in the south. Temperatures vary with elevation and between summer and winter they ranges from 19 C to 31 C. The average monthly rainfall ranges from under 25 mm in February to more than 300 mm in September with a yearly average of 1,800 mm. Costa Rica has about 50 sub-watersheds within two main watersheds: the Caribbean watershed, including waters of Lake Nicaragua and the sub-watershed of the San Juan River; and the Pacific watershed.

Political structure. Costa Rica is well known for its stable democratic government. It has abolished the country's army, given women the right to vote, and provided social, economic, and educational guarantees for all its citizens. Since the adoption of the constitution of 1949, Costa Rica has given a high

degree of power to autonomous agencies, including state-financed universities and regional development institutes such as the National Insurance Institute, the Social Security Institute, the Costa Rica Tourism Institute, and others. The president, two vice presidents, and a Legislative Assembly are elected at the same time for a term of four years. Costa Rica has a high literacy rate (98% in 2022) deriving from a solid educational system from primary to university level. Its peaceful reputation and commitment to human rights contribute to attracting several nongovernmental organizations and pro-democracy foundations to locate their headquarters in San José.

Linguistic and ethnic attributes. Spanish in Costa Rica is spoken with a distinctive national accent and employs peculiar usages. Descendants of Africans in Limón province speak both Spanish and Limonens Creole, which resembles Jamaican English. The principal Indigenous languages spoken in Costa Rica are part of the Chibchan language family including Bribrí, Cabécar, Maléku Jaíka, Boruca, and Térraba.

Economy. The country's wealth is more evenly distributed among social classes than elsewhere in Central America. During the 1980s the Costa Rican standard of living declined because of economic stagnation and inflation, but from the 1990s to the present the country again experienced rapid growth in gross national product (GNP). Coffee, bananas, and pineapples are the most important crop exports. The government controls key services such as electricity, water, fixed-line telephones, ports, and rail transportation facilities. The entire population is eligible for free medical care, but private enterprise is strong and influential in policy making. Continuous efforts to diversify the economy have succeeded in reducing the traditional dependence on agricultural exports. Despite stringent efforts to reduce spending, the Costa Rican government operates at a deficit, a condition that has fed the country's already large international debt. By the beginning of the 21st century, the rate of annual GNP growth was above the Central American average and double the world average, while the country's chronic inflation had been brought largely under control. Per capita national debt, however, is among the largest in Central America

Agriculture, fishing, and forestry. Traditionally the country has depended on agriculture. Today, about one-sixth of economically active workers work in the agricultural sector, which contributes about one-tenth of GNP. Sugar and coffee, from the highlands; bananas, produced mainly in the Caribbean lowlands; and pineapples, grown in farms located throughout the country are the traditional crops. Nontraditional agricultural products such as flowers, gourmet coffee, herbs, and macadamia nuts and others have increased in importance, as have value-added food products, fertilizer, handicrafts, and garments. The fishing industry is concentrated on the Pacific coast and focused primarily on tuna and shrimp, both for the domestic market and for export.

Extensive deforestation was present during the 1970s and 1980s to establish pastures or croplands. But by the end of the century the government had taken measures to limit the use of trees for wood and fuel and establish a forestry law and the creation of a strategy to compensate owners of woodlands with payment for environmental services (PES) for conserving and maintaining forests and ecosystems. The best remaining stands of tropical hardwoods are in protected parks and forest reserves. Based on the positive results of eco-restoration, Costa Rica was able to establish and grow a thriving ecotourism industry, which attracted foreign investment, shifting the country from an agriculture-based economy to an ecotourism services economy.

Finance. Costa Rica has both state-owned and private banks, and a national federation of savings and loan cooperatives that supervises an extensive network of local agencies. Its national currency is the Colón. There is a small national stock exchange. Insurance is a state monopoly controlled by the National

Insurance Institute. Costa Rica is generally favorable toward foreign investment, and foreign-owned companies control a large segment of both agricultural and industrial production. Costa Rica has a free trade zone, which attracts substantial foreign direct investment.

2. Eco-restoration with local participation: AFOLU-oriented projects

Presenter: B. Ramakrishna, Agroforsa Consultant.

The presentation focused on Costa Rica's experience under Agriculture, Forestry and Other Land Use (AFOLU)-oriented projects that extend eco-restoration beyond protection of forest reserves. Topics covered included agroforestry incentives and integrated production systems; silvo-pastoral and mangrove management; employment and livelihood generation with social inclusion; eco-tourism; and local governance.

The AFOLU sector plays an essential role in relation to food security and development, however, this sector according to IPPS report, 20-24% of anthropogenic GHG emissions come from the AFOLU; crop and livestock agriculture is the dominant source of AFOLU emissions. However, agricultural activity is a major driver of the rural economy, with a primary role in food security and the fight against poverty, but unsustainable production system and the degradation of land for example intensive production system such as monocropping (extractive agriculture) help generate GHG emissions. Concomitantly, degraded lands affect the biodiversity both above the ground level and beneath the soil (for example conventional farm practices such as use of agro-chemicals have negative effects on biodiversity). Diversified farmlands enhance biodiversity, biocontrol, pollination and reduce pest and disease incidences. What AFOLU drives at is the agroecological practices. This leads to a sustainable agroforestry system. IPSS also recognizes that AFOLU is closely related to good Governance for reducing mitigation barriers in this sector and ensure multiple co-benefits for rural development and food security are achieved.

In practice, as against monocrop system, AFOLU promotes farming systems that are diversified in nature. Costa Rica has important experiences in planting trees outside forest area (agroforestry), and promotes animal production systems, pasture (for meat production) and semi-stabled systems for double purpose. In most part of the upper and middle level watershed areas around San Jose (Rio Virilla), it is a standard practice for double purpose livestock production to supplement fodder with Morera sp. That is, mulberry leaves that have a high content of crude protein (20%) and low crude fiber (12%) which has resulted in better digestibility when fed as a mixed forage, under stabled condition/supplement to concentrates.

Nationally Appropriate Mitigation Actions (NAMAs) in the context of sustainable development refer to any action that reduces emissions in developing countries and is prepared under the umbrella of a national governmental initiative. In Costa Rica cases of coffee, cacao, and livestock (mainly for beef production) are outstanding and a model for Central American countries. Costa Rica has built in governance at local and national levels, including such as Nationally Declared Commitments reflected at project levels (NAMA etc.). MINAE works closely with the Ministry of Agriculture and livestock (MAG), and with the Institute for Rural Development-INDER (small farmer financing and development investments/AFOLU areas. The Ministry of Agriculture has Research and Extension divisions well organized with outreach in all rural areas (local level assistance) of the country. Most of the projects financed with national and international funds involve the Ministry of Agriculture along with MINAE. Extension services and research entity (INTA) of the Ministry of Agriculture provide technical assistance at local level- have special Funds operated by an NGO.

The SICA-CCAD-CAC (Central American Integration System—Central American Commission for Environment and Development—Central American Council for Agriculture) reinforces national agendas and supports policies and mechanisms for research, extension and development with regional short, medium, and long-range plans and projects financed through Green Development Funds (EU, GIZ).

3. National Forest Financing Fund (FONAFIFO— *Fondo Nacional De Financiamiento Forestal*)

Presenter: Gilmar Navarrete Chacón, Environmental Services Director of FONAFIFO

The National Forest Financing Fund (FONAFIFO) is a decentralized institution belonging to the *Ministerio de Ambiente y Energía* (MINAE). FONAFIFO's mission is to contribute to sustainable development through financing those who provide environmental services from an integrative and innovative public management perspective. FONAFIFO seeks to be the leading institution in implementing financial mechanisms for environmental services (i.e., PES) of forest and other ecosystems to improve quality of life. FONAFIFO in the primary Costa Rican institution promoting the nation's Payment for Environmental Services (PES) program. The PES program provides economic compensation to landowners who own forests or who wish to establish forest plantations that generate environmental services (mitigation of greenhouse gas emissions, water protection for urban, rural, or hydroelectric use, biodiversity protection, protection of ecosystems, and contribution to generate and protect natural scenic beauty for tourism and scientific purposes).

The creation of FONAFIFO as semi-autonomous and legally independent is based in the Forest Law No. 7575. The institution coordinates environmental and hydrological services; implementation of the Payment for Environment Services (PES) program; financial support including from the fuel tax (ecotax); grants and loans from national, international, and private sources; debt relief; pertinent agreements with the private sector and other market instruments; and the reduction of deforestation (particularly due to illegal logging) from 1992 onwards.

Law 7575 provides FONAFIFO autonomy and institutional legal status and authority. It can engage in any licit non-speculative legal transactions, including establishment of Trust Funds, to ensure effective administration of Costa Rica's natural heritage. It is administered by a Governing Board of five members (two from the private sector and three from the public sector), appointed for two-year periods. The institution works through an Executing Unit, headed by an Executive Director, and departments in named Action Areas: a) Environmental Services, b) Credit and Administrative, c) Legal and Resource Management, and d) PES implementation and resource capture in the forestry sector. FONAFIFO has regional offices in San José Occidente; San José Oriental; Cañas; Nicoya; San Carlos; Palmar Norte; Caribe Norte; and Limón.

Key sources of financing for the PES model come from: a) Resources generated by the consumption tax on fuel; b) Financial resources assigned by the government budget; c) Resources generated by the water fee (all water users, in compensation for the environmental cost of water provision); d) Donations and credits obtained from national and international institutions such as the World Bank, the Global Environment Facility (GEF), the KfW German Government Bank (assigned to the Huetar Norte Forestry Program), the private sector, and others sources.

Main activities supported by FONAFIFO are: a) Forest protection, b) Protection of water resources, c) Reforestation, d) Reforestation with native species in danger or extinction, f) Natural regeneration, g)

Agroforestry systems, h) Agroforestry systems in coffee, I) Agroforestry systems with native species in danger of extinction, j) Mixed systems, k) Post harvest protection, l) Reforestation with medium and fast-growing species, m) Activities for water use and conservation, and n) Activities related to hydropower. Also, it carries out monitoring and evaluation of the entire program.

From 1979 to 2000, about US$ 465 million were invested in PES, covering 260,000 ha. of forest, with plantations & protection, and providing incomes to 8,000 forest owners and indigenous communities. From 1997 to 2012, over 11,000 voluntary PES agreements were signed with owners of land and private hydrological companies to protect, manage, and conserve ecosystem services and provide water.

In general, the main impacts of FONAFIFO are more than 400,000 hectares covered by the PES program (close to 8% of the national territory); an equal number of hectares waiting to enter the program; and more than seven thousand forest owners benefiting from PES and forest credits between 1995 and 2004.

The main lessons learned are that PES programs are effective in reducing deforestation and encouraging reforestation, but sustained financing over time is required. PES programs are instruments that contribute to territorial planning but they are not a recipe; they depend on the conditions and customs of each region as well as consistent political support. PES programs are also the basis for initiating and managing international negotiations, for example, to receive international funds and payments, including for biodiversity conservation and carbon sequestration.

The PES topic was one of the main interests of the participants and multiple questions, comments and answers were generated. For example, it was asked how much area with PES was under the control of the government, how much from the private sector, how much from NGOs and other. Participants wanted to know what the current structure for management and administration of the PES model was. They asked how forest cover in Costa Rica increased from 1987 to 2005 and what were the procedures and methodologies used. They wanted to know whether the farm owners were satisfied with the amounts allocated for PES.

There was general curiosity about how the PES system operates and what could be taken back home to provide incentives to small farmers in India. Participants wanted to know how fuel taxes devoted to PES were supplemented by international financing from multilateral and bilateral organizations, international NGOs (e.g., World Bank, IDB, EU, GIZ, GEF) and the private sector. Other questions related to the Types of payments that were made, whether they were made to groups or individuals, and whether they were made for active forest landscape/watershed restoration or passive restoration.

4. Sustainable Biodiversity Fund (FBS) a model for biodiversity conservation in Costa Rica.

Presenter: Alberto García Arguedas. Director and Executive Secretary of the FBS.

The Sustainable Biodiversity Fund (FBS in its Spanish acronym)) was stablished in Costa Rica in 2010 with a priority focus on the conservation of biological diversity represented in diverse forest ecosystems. It is an innovative mechanism resulting from the years of the national trajectory in development and implementation of incentives, instruments, and market mechanisms, properly focused on the concept of natural conservation. As part of its international promotion strategy activities, FBS was linked with FONAFIFO, and it devotes time to hosting and advising delegations from other countries. The FBS

supports the country's efforts and the opportunities provided by the environment to transfer the experiences generated.

The results obtained with the implementation of the PES model and the management of FONAFIFO projected Costa Rica, internationally, as one of the key reference points in the creation of policies and the execution of innovative financial mechanisms, aimed at the recovery and maintenance of forest cover, as well as conservation of biodiversity.

Capitalization and initial financing of the FBS. The total FBS seed capital is about US$16,500,000. It is integrated with donations provided by international organizations. On May 27, 2010, ASOFIFO provided an initial donation of $556,000 then on December 21, 2010, the KFW Bank assigned $7,978,000. Conservation International (CI) assigned in November 2011 the amount of $500,000. In June 2012, the Conservation Ursa assigned $500,000 and on June 28, 2013, the Global Environmental Facility (GEF) provided $7,500,000.

Financial resource distribution mechanisms aim to perpetuate biodiversity conservation on private land. They have two components: 1) financial contribution and 2) technical support and workshops. The FBS is currently working within 4 regions in Costa Rica (Caribbean Osa Peninsula, Huetar north and the north of Guanacaste). It has two components focused on ecosystems as a whole: 1) Financial recognition, and 2) Accompaniment and technical (e.g., training).

In general, the resources are assigned to farm inputs and labor, miscellaneous materials for the farm, construction and improvement for the farm, improvements of the roads and boundaries of the farm. Also, resources are assigned to purchase veterinary care materials for animals, housing, family food, payment of debts and other similar, clothing, health, investments, and savings.

With the FBS, the government of Costa Rica, with support from the National Fund for Forestry Financing (FONAFIFO), are creating the conditions needed to provide financial stability for biodiversity conservation programs and at the same time set a horizon that gives ongoing support to owners of forests with high biological value.

5. Model of planting and harvesting water

Presenter: Jorge Rodríguez. Former Minister of Environment and Natural Resources of Costa Rica.

In the past 5 years, Costa Rica has faced drought problems, and in response, the government has declared a drought emergency in the province of Guanacaste and other areas of the country. National institutions that face climate change and its effects have been responsible for carrying out mitigation actions. Among them are those generated by national institutions such as the Institute of Rural Development, the Ministry of Agriculture, and others, with the support of international organizations such as AECID, CATIE, FAO, USAID and others that promote water planting and harvesting in several locations where water scarcity has been persistent.

The model presented comes from the ancestral experience of Peru, a model that has been successful for planting, harvesting and sustainably supplying the water resource for generations, especially in places where scarcity was a factor that hindered the production of crops, livestock, and the stability of the families that inhabit these places. A key characteristic of the development and promotion of this project in Peru is the participation of women.

Costa Rican representatives visited sites in Peru where the water planting and harvesting model is carried out and managed. Their objective was to obtain practical lessons that allowed them to replicate the model in their own country. Based on this experience and institutional and international contacts, a South-South cooperation project began in 1992, so that Costa Rica could learn about the ancestral experience of planting and harvesting water and, in return, bring to Peru the experience of using the PES model and other financial mechanisms such as the water fee system, developed by Costa Rica.

Support in the implementation of this water infrastructure, whose per unit cost does not exceed an average of US$5,000, shows that, with one dollar invested it can produce one cubic meter of water and generate one dollar of monthly work through value chains of microenterprises implemented as a result of the availability of water. It was demonstrated that, within the same area and without a reservoir, the balance of infiltrated water barely reaches 120 millimeters of water per year, while with the reservoir the infiltration capacity is 120 millimeters per day.

Currently, Costa Rica has developed rainwater planting and harvesting systems and experiences for family and agricultural use that can be replicated as part of the adaptation strategy to the effects of climate change. The systems are efficient and low cost. To replicate them, technical information, training, technical advice, participation of families and producers and the support of national and international institutions are needed.

One example is the participation of the Murillo family in establishing this system on the farm they own. They were one of the beneficiaries of the settlement projects that the Institute of Land and Colonization (ITCO) (today the Institute of Rural Development (INDER)) implemented some time ago in the foothills of the Volcanic Mountain Range of Guanacaste and are part of the buffer area of the Tenorio National Park. The residents in this area, mostly small landowners, are strongly affected by water stress in the summer, mainly in the presence of "El Niño" or "La Niña" phenomenon that causes total losses of corn and bean crops and their small livestock herd.

The availability of a planting and harvesting water system allowed the Murillo family to start dairy microenterprises that involve other small ranchers in the area to produce cheese and starting economic activities with pig farming and fish farming. In addition, it is worth it to observe how the landscape is beginning to be restored, and to see the presence of birds and reptiles (frogs), which had disappeared for a long time, but now are beginning to arrive at the reservoirs.

In general, the permanent availability of water begins to open new development opportunities for the community and at the family level, greater food security and overall, a better quality of life; promoting as indicated in the National Decarbonization Plan 2018–2050, the "consolidation of a management model for rural, urban, and coastal territories that facilitates the protection of biodiversity, the increase and maintenance of forest cover and ecosystem."

6. FUNDECOR's forest management model

***Presenter*:** Mario A. Piedra, Executive Director, FUNDECOR

The Foundation of the Central Volcanic Mountain Range (FUNDECOR) is a non-governmental organization created in 1989 to ensure the conservation and rational use of the forest in the Central Volcanic Mountain Range. It supports medium and small landowners to conserve their natural resources

(forest, water, biodiversity, and landscape). It facilitates access to PES for farm owners to conserve forest and other natural resources. The activities are carried out with the support of FONAFIFO, which has provided support for PES successfully in Sarapiquí and other communities.

FUNDECOR executes activities based on three interrelated programs.

Human and ecological resilience is a program that carries out activities for the management of natural resources and human capital and that contribute to environmental, sociocultural, and economic development. FUNDECOR supports actions that strengthen resilience, promote cultural and environmental education, manage water resources, conserve biodiversity, and carry out corresponding monitoring. FUNDECOR also promotes the use of agroforestry systems, enterprises, and organizations that enhance ecosystem sustainability. A key activity is dialogue with stakeholders in conservation areas.

Forest Landscape Development is a program that contributes to the increase in forest cover through integrated landscape management. FUNDECOR carries out activities related to enhance and manage ecosystems for ecosystem services, including sustainable forest and natural resource management, regeneration in degraded areas, and commercial reforestation.

Innovation and Timber Business. In 2019, FUNDECOR, helped consolidate two companies, with co-financing from the Luxembourg Climate Change Fund. Market-oriented agroforestry production through sustainable forest management, applying good production and traceability practices throughout the value chains. FUNDECOR helps add value and strengthen all actors in the value chains to increase their competitiveness in their respective markets, increase the return on investments, and ensure the sustainability of the resource base.

FUNDECOR has carried out activities linked to the Municipality of Sarapiquí, in collaboration with FONAFIFO, the National System of Protected Areas (SINAC), the National University, USAID, the German cooperation (GIZ), the United Nations Development Program (UNDP), the Global Green Growth Institute, The Nature Conservancy, the International Union for Conservation of Nature (IUCN), WWF, FSC, Dole, FIFCO and other organizations.

In conclusion, FUNDECOR contributes to reducing the rate of deforestation, promotes reforestation through agroforestry systems, contributes to eco-restoration of degraded lands, landscapes, and biodiversity, promotes the forest industry, contributes to rural development, and contributes to compliance with national policies and global environmental goals.

Participants asked numerous questions to clarify and expand the discussion, and Mr. Piedra responded, regarding FUNDECOR's role and achievements in the areas of water and forest management and conservation, biodiversity and, especially the participation of local actors.

7. **Summary of the profile of the states of Bihar, Telangana, and Kerala.**

Government Representative
The representative of the Government of India presented a summary of the main strategies, actions and plans to solve environmental problems and the management of natural resources (forests, water, soil, biodiversity, landscape) to contribute to conservation and management. sustainable and inclusive for the economic and social growth of the country. He referred to the development of a viable forest solution to

move beyond subsistence scale livelihood to economic incentives to reinvest in key priorities for the conservation and sustainable management of natural resources.

Bihar

Bihar is a state of the Republic of India. Its capital and most populated city are Patna. It is in the north-central part of the country, bordering Nepal to the north, Arunachal Pradesh to the east, Jharkhand to the south and Uttar Pradesh to the west. It is in an area classified as fertile and has an area of 94,163 km² and has 9 divisions, 38 districts and 101 subdivisions and is in an area classified as fertile. Rivers such as the Ganges, the Kosi, the Son and the Bagmati cross it. The central areas of the state have some low elevation hills. The climate in summer is hot with temperatures up to 45 degrees centigrade, and in winter, it is a temperate climate with temperatures between 5 and 10 degrees centigrade. April, May, and June are the warmest months and, in some years, due to extreme heat people have died. From July to September there is a monsoon season characterized by heavy rainfall. This occurs because of a difference between the low pressure of the plain and high pressure of the Bay of Bengal Sea.

The total population for 2011 was 104,100,000 inhabitants and Bijar is considered the third most populous state in the country. It is a state where 93 percent of the population works in agriculture in small areas to obtain income and is classified as a State with a high level of poverty.

Bihar, located in eastern India, is rich in natural resources. Some of the notable natural resources are fertile alluvial soil, which makes it suitable for agriculture. The state is known for its agricultural production, including crops like rice, wheat, maize, sugarcane, and others. The water resources are integrated by several rivers, including the Ganges, Son, Gandaki, and Kosi. These rivers provide ample water resources for irrigation, fisheries, and hydroelectric power generation. Bihar has significant forest cover, particularly in the hilly regions of the state. Forest resources contribute to the production of timber, bamboo, and other non-timber forest products. These resources support the local economy and contribute to industries such as furniture making and handicrafts. Fisheries. There are abundant water bodies, including rivers, lakes, and ponds, which support a thriving fisheries industry. Fish farming is a significant economic activity. Bihar is home for diverse flora and fauna. It has several wildlife sanctuaries and national parks, including Valmiki National Park, Bhimbandh Wildlife Sanctuary, and Kanwar Lake Bird Sanctuary. These protected areas preserve biodiversity and support eco-tourism. Farmers are encouraged to plant trees using agroforestry systems on their private agricultural lands. They are paid a sum of Rs. 60/- per surviving tree after 3 years. They are free to harvest and sell the trees after maturity and there is no need for permission or a permit from the Government.

Telangana

Telangana is a State of the Republic of India. Its capital is Hyderabad. It is in the center of the country, bordering Maharashtra to the north, Chhattisgarh to the east, Andhra Pradesh to the south, and Karnataka to the west. The State has an area of 114,840 Km2 and an estimated population of 38,510,982. The official language is Telugu, English, and Urdu. It has approximately 9,500 species.

Telangana is a semi-arid area and has a predominantly hot and dry climate. Summers start in March, and peak in mid-April with average high temperatures in the 37–38 °C (99–100 °F) range. The monsoon arrives in June and lasts until Late-September with about 755 mm (29.7 inches) of precipitation.

The forest cover in Telangana is about 19,854 sq km in 2015, which subsequently increased to 20,582 square km in 2019 and to 21,214 square kms in 2021, registering an increase of 6.85 per cent in forest cover from 2015 to 2021. The forests, covering about one-fourth of the land area is integrated by moist deciduous and dry savanna vegetation. There are species such as teak, rosewood, wild fruit trees, and bamboo, neem, and mango. Among the fauna, Telangana State is rich with 108 species of mammals that include tiger, leopard, bear, squirrel, fox, wild dog, deer, and other species.

Kerala
Kerala is an Indian state located on the tropical Malabar Coast with nearly 600 km of coastline on the Arabian Sea. It is a state very open to the sea (Arabian), with more than 900 km. of coasts. Administratively, the state is divided into 14 districts. To the west, the Western Ghats Mountain range separates it from Tamil Nadu. Its geographical characteristics have favored contact with overseas peoples and have provided it with a certain isolation from other areas of India. The capital is Thiruvnanthapuram. Kerala has a population of more than 34 million and an area of 38,863 km² with a density of 888 humans/km2, which makes it one of the dense areas on the planet. Inside of the state are the western mountains whose slopes allow the plantations of tea, coffee, and other species. In addition, there is the presence of fauna (elephants, tigers, and others). There are national parks, such as Eravikulam and Periyar, Wayanad and others. The climate is humid tropical.

Between the coastal strip (which includes the Malabar coast) and the Ghats Mountain range (with three peaks exceeding 2,600 meters in height) the slopes slope dotted with thick tropical jungle and tea, coffee, or rubber plantations, up to reach the central plains, crisscrossed by a labyrinth of rivers, canals (artificial or natural), lagoons and estuaries that are generically called backwaters. It is a tropical and aquatic area of enormous beauty and one of the most important tourist places in the state.

Climatically, Kerala belongs to the classic humid tropical region (with an average annual minimum of 22º and an annual average maximum of 34º). Kerala receives two monsoons a year, making it one of the rainiest (and greenest) regions in the country. Kerala's economy is based on the cultivation of rice, spices (pepper, cardamom, and nutmeg), coffee, coconut palms which have generated industries associated with oils, fibers for ropes and others. Fishing is also an important activity. Kerala uses its resources to generate beach tourism. natural parks and hill stations and Ayurvedic spas.

B. Tropical Agricultural Research and Training Center (CATIE) – 20 September.

1. Welcoming session and presentations on green development, climate change, biodiversity, and natural resources

Presenters: Leida Mercado and Rolando Cerdas

The Tropical Agricultural Research and Higher Education Center (CATIE, in its Spanish acronym) is an international institute for agricultural development and biological conservation in Central America and the Caribbean, combining science, education and innovation. It specializes in developing comprehensive solutions that address the complexity of current problems facing natural resources and agriculture. It applies a systemic approach to research, with holistic assessment of environmental sustainability issues and livelihoods opportunities in rural areas. It provides higher education in subjects related to natural resources, forestry, agroforestry, and watersheds, among other scientific fields.

CATIE's systemic approach integrates biophysical, social, economic, cultural, local, and global issues, sustainable climate-smart agriculture, climate action, initiatives on a landscape/territorial scale, and governance. CATIE enjoys high level scientific master's degrees in 5 or 6 key specializations, among others: Watersheds and Water and Soil for food and water security, Agroforestry, Livestock Management, Integrated Forest Management, Environmental Economics and Business Management, recently launched a Master's degree in International Sustainable/ Regenerative Coffee Production. Doctoral programs, in many cases, are conducted in alliance with prestigious US universities and institutes including the University of Wisconsin, University of Vermont, Texas Tech University, the University of Idaho, and the World Resources Institute.

CATIE has an outstanding research record in action-oriented research/ for example breeding of coffee and cacao, highly productive varieties, tolerant/resistant to pests, high quality, design and management of sustainable agroforestry systems, best agronomic and agroforestry practices, adaptation and mitigation, provision of ecosystem services and balance of trade-offs, tree crops (cacao, coffee, fruits); regulation (carbon sequestration, pests and diseases), and other support (pollination, soil management) in countries such as Belize, Brazil, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama. The staff of CATIE's Forests and Biodiversity in Productive Landscapes Unit has extensive work experience in the region.

The Secondary Forests Project prioritized by the German government's International Climate Initiative (IKI) and implemented by CATIE benefited national forestry authorities in four countries, Costa Rica, El Salvador, Guatemala, and Honduras. It was carried out from 2017 to 2022 and its main challenge was to promote the conservation and increase of the area occupied by secondary growth forests in Central America. In more than 5 million hectares, it provided ecosystem services of great value to communities, representing important economic resources for the development of those countries. However, these ecosystems are at constant risk of being deforested, mainly due to the advance of the agricultural frontier and urban activities, and national legislation (except in Costa Rica) has significant gaps that allow for land use changes at any time.

The use of nature-based solutions to increase resilience to extreme climate events in the Atlantic region of Central America was an initiative sponsored by Central American Bank for Economic Integration (BCIE) and the World Resources Institute. They promoted actions to strengthen the climate resilience of communities and ecosystems in the coastal Atlantic regions of Belize, Guatemala, and Honduras. Three key components included mainstreaming restoration in regulatory frameworks and land use planning; implementing adaptation measures in selected landscapes; and investing in capacity building, knowledge generation and information dissemination. Proximity of forest patches enhanced bee pollination, helping increase coffee production and many other flowering plants in the vicinity.

2. Goat milk module

Presenter: Guillermo Detlefsen and Mabel Arcos Acosta from. CATIE.

As presented, goat production systems developed by CATIE during the past 3 decades have tend to demonstrate that it is possible to operate viable microenterprises on one hectare of land, with rustic infrastructure and locally-grown fodder, such as from mulberry trees and pigeon peas. CATIE has developed a variety of products from the milk produced and marketed them successfully in Turrialba area benefitting in particular the income of women in smallholder families. Study Tour participants tasted several samples of the products, from yogurt, to butter milk, to curds with pineapple and cheese served with biscuits. The current project is a regional project financed by European Union, replicated in several zones of Costa Rica.

Participants asked questions about the initial costs of establishing the system with women and youth participation. They were informed that two Master's degree theses in Agroforestry had been conducted about the costs and respective economic returns of this system. Participants also asked questions about the usage of mulberry trees and pigeon pea to complement Napier grass fodder. They commented that this system of smallholder microenterprises on one hectare or less, headed by women and youth, could be replicated in India with some adaptations.

3. **Forest Seed Bank**

Presenter: Marilyn Morales, CATIE professional.

Participants visited the Seed Bank that has forest germ plasm material. CATIE has outreach throughout Latin America and the Caribbean, as well as in Africa and other continents, and has supplied, and or exchanged 63 forest tree species with their respective technical details. The storage facilities were shown to the participants. CATIE in coordination with the U.S. Forest Service Department has created a mobile platform with the Link: https:/bit.ly/3Pvlkxe. The link serves Central America, the Dominican Republic and Panama. (Please see CATIE in action in the region, link: https://www.catie.ac.cr/2023/09/08/catie-desarrolla-nueva-aplicacion-movil-para-facilitar-la-gestion-de-bancos-de-semillas-forestales/

The participants discussed the exchange mechanisms and the possibility of a CATIE alliance with India (through Forest Plus 2 and MoEFCC). Hence there is a great potential to access the CATIE´s Forest Germ Plasm, including the world coffee and cacao collection mentioned elsewhere in the Final Report.

4. **Payment for Ecosystem Services** (virtual presentation)

Presenter: Dr. Roger Madrigal.

Dr, Roger Madrigal, Leader of the Environmental Economics and Agribusiness Department at CATIE, is currently at the University of Vermont for the Fall semester. The Department offers a Master's degree in Environmental Economics, of which PES is the major focus, and graduate student thesis work is directed toward PES in Central and South America.

Dr. Madrigal's presentation highlighted that the Environmental Law passed in 1997 in Costa Rica enabled FONAFIFO to help lift the forest cover in Costa Rica (from a low of 21 percent in 1987 to more than 50 percent in 2005, according to FONAFIFO data). He also mentioned that this helped promote an ecotourism boom in Costa Rica, with alternative specialized production systems, reducing the pressure on deforestation).

The presentation on PES by Dr. Rogers Madrigal and further discussion with participants, made it clear that the Environmental Economics particularly in reference to PES incentives, is reflected across other Units of CATIE, such as Agroforestry, perennial crop Plantations of coffee and cacao.

In discussion with Study Tour participants, Dr. Madrigal agreed that we need to think broadly about the types of PES payments, and he noted that payments to collectivities (rather than individuals) are made to indigenous communities in other countries in the region (which have greater indigenous populations and therefore more experience in this than Costa Rica). He also noted that there are challenges such as how one should respond to cases of commitments not being kept by communities, e.g., after a community had a school built for them utilizing PES payments and then cuts its forest.

5. **Eco-restoration**

Presenter: Mr. Roger Villalobos, Forest Management Specialist

The presentation was focused on forest and ecosystem restoration commitments under the UN Framework's Sustainable Goals, commitments related to desertification and biodiversity conservation.

Mr. Villalobos discussed unsustainable land use (leading to land and biodiversity degradation) in the context of the UN's Decade on Ecosystem Restoration 2021-2030. The presentation highlighted agroforestry as a nature inspired system that combines forestry with sustainable agriculture and livestock. In addition, the presentation recommended assisted forest initiatives to enhance forest cover and promote a recovered natural ecosystem.

6. Nature-based systems approach

Presenter: Mr. Lenin Corrales, Climate Action Unit, Environmental Modeling Laboratory, Inclusive Green Development Research Division

The presentation focused on a nature-based system approach emphasizing Land Use, Land Use Change and Forestry (LULUCF). LULUCF is one of the sectors under the United Nations Framework on Climate Change that measures and accounts for emissions and removals of CO2 from land and related ecosystems. The project deals with actions to address three threats to forest landscapes, namely: a) drought, b) forest pests, and c) forest fires. The project worked in Honduras, Guatemala, and Belize to help prevent or mitigate these incidences by providing incentives to rural families and the rural population at large.

There was fairly lively discussion following Mr. Corrales's presentation. One participant, for example, asked about the conversion of land uses, e.g., from mangrove to sugar plantations and why the Forest Law had not prevented that conversion. Mr. Lenin's response was that in fact mangroves had been protected by an earlier law related to protection of the coastal zone and that, indeed, while many people are concerned about conversion from forest to other uses, the conversion from wetlands, for example, to pineapple or even more frequently, to urban uses, is an even greater problem.

7. Coffee and Cacao plantations at CATIE; Approach to AFOLU and Carbon sequestration

Presenter: Rolando Cerdas

Study Tour participants were presented the experiences of CATIE in developing and applying climate change, eco-restoration, PES, agroforestry systems, and decarbonization approaches as well as exploring CATIE's role as an advisory international organization with outreach to 13 member countries. The participants observed some of these systems during the field visit at CATIE and discussed with CATIE specialist Dr. Rolando Cerdas, about CATIE's research, a culmination of 50 years breeding and cultivating coffee and cacao crops.

At the field level, participants observed coffee plantations with varieties of both Arabica and Robusta, and then a cacao plantation that utilized specialized agroforestry systems. The field visit highlighted inter-cropping and generation of smallholder livelihoods and food security year-round. The CATIE specialist explained about CO2 sequestration measurement methods in soil and the contribution of agroforestry intercropping systems for CO2 sequestration, and the incentives provided through the FONAFIFO program.

Interesting questions and answers in the field provided insights into coffee shade (for example *Gliricidia sp.*, a nitrogen fixing tree that helps coffee plantation as a shade crop with improved pruning), procedures that CATIE is experimenting with. Interline of crop, both in cacao and coffee plantations, were observed with soil cover (no tillage) and with organic natural mulch.

A number of questions arose about CO2 sequestration in coffee and cacao crop systems and the techniques-procedures to measure CO 2 in the plants and soil. An informal English translation of a study made jointly by CATIE and Agroforsa of the different carbon sequestration characteristics of various flora in the Dominican Republic was made available to participants (annexed to the Final Report.)

Participants were also interested in climate change mitigation efforts in the context of sustainable production of coffee, cacao, and livestock under the umbrella of joint cooperation between the ministries of environment and agriculture, facilitated through the technical cooperation of CATIE. They heard that monocropping systems (e.g., coffee, cacao) could benefit from intercropped borders both for restoration of nitrogen and as sources of year-round income and employment, applications that could have relevance for India.

8. Round table discussion

Panelists: Roger Madrigal, Leida Mercado, Lenin Corrales, Roger Villalobos, Rolando Cerdas

In general, most of the questions were addressed by Dr. Rolando Cerdas during the field visit but were reexamined after the formal presentations of the specialists. The following themes were discussed and are categorized to help follow up activities, depending on their feasibility, and mechanisms to address the questions, and meet with corresponding needs thereof.

Research and Development. Some outstanding areas were referred to Forest Regeneration, Water Recharging techniques (defining species, spatial aspects, and local participation); Agro-forestry introduction (trials) and combination of trees and crop species), specifically referred to coffee and cacao and cattle grazing areas. There were also consultations about species and growth measurement in secondary forests. About the Modeling of Drought, Pests (of Forest trees), and Forest Fire prone areas, questions were related more about the methodology and application to real situations, for example Forest Fires. In general participants were exploring research agenda rather than specific research areas now.

Educational (training and formal academic programs). This topic of educational opportunities was opened-up in the presentation of Dr. Leida Mercado. The potential of CATIE in preparing for Master's and Doctoral studies, mostly referred to Forest Management and agro-forestry specializations. Some consultations referred to short-term training facilities. (CATIE has with in the higher educational structure, a division of -training referred to Specialized Diplomas (6 to 9 months, and in recent years virtual training courses both -face to Face and virtual-hybrid, (participants are mostly employed), are offered in the region.). Many of these Diplomas consist in ground exercises conducted in their work areas, and offer solutions and prepare project plans, courses supported by live Forums among Participants). Live Forums help interaction of the participants along with professors and natural resource specialists from CATIE and others in the region.

Establishment of Strategic Alliances with CATIE and Forest Plus 2 (MoEFCC-USAID, India).
There was a general view among the participants that a Strategic Alliance need to be established (Tetra Tech- USAID-MoEFCC), that will make operational relations viable with CATIE, and extended to the region, for example SICA-CCAD.

Summary of learning at CATIE. In summary, the Indian delegation learnt through field visits and -Round Table discussions, on themes of Eco-restoration and AFOLU, with specific reference to outstanding experiences of CATIE in the topics of Sustainable development and internationally recognized coffee and

cacao varietal collections, and the Forest Seed Bank with world-wide scope, serving the clientele for the last 3 or 4 decades.

The participants were exposed to coffee and cacao collections and followed by sustainable practices with agro-forestry approaches. They could see many of such practices could be adapted to Indian conditions, especially increasing tree population beyond forest land areas. The adaptation and resilience to climate change with mitigation measures, both structural and vegetative technologies, especially in watershed areas with gradients of more than 10 to 15% (watershed landscape-high, medium, and low-level areas). Important to mention that CATIE is pioneer in agro-forestry research and extension, and in addition the Swiss AID promoted PASOLAC has developed a methodology to systematize introduction of Mitigation and preventive measures for Land and Biodiversity degradation.

The participants were exposed to Forest Management techniques (Ecosystem continuity to define appropriate measures in each case. Such strategy could be precursor to AFOLU measures, supported by Agroforestry and silvo-pastoral practices. The Modeling project recently initiated by CATIE, could provide some insights for Indian Forestry Specialists to have their own Modeling to prevent and or Mitigate Droughts-Forest Pests, and Forest Fire management in each of 3 States involved in Forest Plus 2 projects.

Participants could perceive great potential of CATIE´s Research, Higher Education (although they were nor exposed to its Post Graduate School, briefly presented in the presentation of Dr. Leida Mercado, and Dr. Rogers´ master's degree program in Environmental Economics. CATIE has its active Training Unit that offers Face- Face and virtual -hybrid short courses and Diploma Courses in specialized themes, mostly problem oriented in 13 member countries. It is a matter of defining such arrangements depending on the priority themes. Agroforestry Master's degree programme.

C. Reventazón Watershed – 21 September

The Costa Rican Institute of Electricity (ICE) group is a corporation of public companies offering electricity and info communication services to the inhabitants of Costa Rica. It is a group with infrastructure, technological development, and qualified human capital. The nature of its activities is fundamental for the integral development of Costa Rica. The investment projects that it develops have as an axis the protection of the environment, especially the sources of water and forest, thus contributing to the quality of life and sustainable development of the country.

1. **Tres Equis private farm** (Mario Castillo, ICE and Alfonso Pacheco Owner)

Finca Tres Equis is a family farm dedicated to the conservation and protection of the forest for more than 25 years. The property has more than 300 hectares in area. Many areas of the farm that were previously crops and pastures have been regenerated naturally, currently allowing the presence of many varieties of animals such as pumas, *manigordos* (ocelots), more than 340 species of birds, and many species of plants. The property currently has about 280 hectares of forest and private access to the Pacuare River. The farm is also part of the Barbilla-Destierro Biological Sub corridor, and works together with SINAC on bio literacy and monitoring initiatives in the area. For 6 months, they have had some camera traps for wildlife monitoring on the farm with very interesting findings.

Overall, the private forest owner highlighted the perspective of sustainable management of the forest area and in AFOLU areas number of parallel activities developed such as ecotourism, both to ensure a steady flow of income and and for educational purposes to raise awareness.

Study Tour participants were very interested in agro-ecotourism, including how it could be done by a small private family that extended employment to local families in the surrounding area. They took photos of a huge amount of organic matter—carbon fixing and erosion control—established through incentives offered by FONAFIFO.

2. **Water recharge, protection, restoration, and electricity production of the upper and middle basin of the Reventazón watershed, Siquirres** (Mario Castillo. ICE)

In general, PES is very clearly on the private owned forest areas, but the participants were not able to observe other activities such as productive activities in small farms, for example Agroforestry potential in middle and low-level areas of the Reventazón watershed area.

Rest of the tour was dedicated to visit the dam site, generation of electricity and maintenance of Ecological flow of the downstream of the river Reventazón. Participants were concerned about the infestation of back waters of the dam, especially the prolific growth of water lily species. A question was asked whether this organic material affects the generators of the electricity. Response was that ICE cleans up the area to avoid the entrance of water lily to the generator area.

It is important to mention that Ecological Flow, downstream, is a good practice and they have observed the fish species thrive well, and there about 2 or 3 extinct species have been resurged. Local people come and fish and has been difficult to control such practice.

D. FUNDECOR – 22 September

FUNDECOR is a non-governmental organization created in 1989 to ensure the conservation and rational use of the forest in the Central Volcanic Mountain Range. It supports medium and small owners to conserve their natural resources (forest, water, biodiversity, and landscape). Its function is to facilitate access to PES for farm owners to conserve the forest and natural resources. Their activities are carried out with the support of FONAFIFO which has provided and achieved success in Sarapiquí and other communities through PES. FUNDECOR was the first organization in Latin America authorized by the Forest Stewardship Council (FSC) to implement the smallholder group certification.

1. **Private Farm, Farm Family management of secondary forest and food security efforts as part of Eco-Restoration of the AFLOU area with FUNDECOR and FONAFIFO PES incentives**

The Study Tour participants visited the private farm owned by Elisinio Flores and his family. They have small farm, just beside his house where he grows food crops all- round the year assuring soil cover against soil erosion, but at the same time enrich his fam with organic matter (weeds chopped and incorporated as mulch and later contribute the Organic Matter level of the soil.

FONAFIFO provide PES and his food production guarantees his family livelihood all-round the year, at the same time contribute to sustainable management of secondary forest in AFOLU area, enhancing at the same time the biodiversity and Eco-Restoration in degraded lands.

The farm is a model for regeneration and carbon sequestration (plants above and soil beneath promote micro- organism symbiosis with multiple benefits). Tons of organic matter incorporated into the soil, that will in turn help storage of CO2 in the soil. It was explained how the OM promotes microorganisms below the soil surface, Mycelial networks that facilitate the absorption and transport of nutrients as well as the secretion of enzymes, and other organic substances. Spore-producing bodies of macro fungi serve as a food source for wildlife. Fungal spores can act as aerosols in rain formation. Hence the regeneration and assisted secondary forest growth not only help sequester CO2 but also add tons of Organic Matter, enriching biodiversity beneath the soil.

The participants learned how sustainable forest management processes and practices are implemented in the Forest Farm of Mr. Elisinio Flores, with the support of FUNDECOR and FONAFIFO. The participants observed how the project guarantees sustainability with the recovery of forest cover through natural restoration and reforestation with native species, forest protection, and the importance of including farm family food production system.

Participants were very interested in the model 5-hectare family plot, in which four hecatares were devoted to secondary forest regeneration (with PES to farmer) and one hectare was devoted to food security for the farm family. They observed how the model promotes sustainability through PES incentives that enable the family to gain food security and generate income year-round, while providing soil cover to prevent erosion.

2. **Selva Verde, Sarapiquí** (Mario Piedra, Director of FUNDECOR)

Dr Piedra presented the role of FUNDECOR and the activities that it carries out in the area and the technical support that they provide to achieve the objectives of conservation and maintenance of forests, water resources and biodiversity. He explained the legal framework, the cooperation and natural resource management strategies, the types of land ownership (government and private sector), the contribution and control of the appropriate use of PES. He also clarified questions from members of the Indian delegation on eco-restoration issues.

Participants expressed questions about the role of FUNDECOR in Costa Rica and how Costa Rica has managed to recover forest cover. They asked about the challenges, the strategic actions executed and what are the main criteria for choosing and assigning PES to producers who own less than 1 hectare of land. They wondered how many hectares assigned through PES funds are controlled by the Government, how many by the private sector, and how many by non-governmental organizations. These questions were fully answered by the Director of FUNDECOR, and by FUNDECOR's Forestry Engineer responsible for the Sarapiqui area.

E. CODEFORSA – 23 September

The *Comisión de Desarrollo Forestal de San Carlos* (CODEFORSA) is a non-governmental organization (NGO) focused on leadership in the promotion of sustainable forest development while improving living standards of the inhabitants in the Northern Region of Costa Rica. Its main activities are linked with PES, private firms, and non-governmental organization to provide technical and financial support for eco-restoration, conservation and protection of forests, water management resources, landscapes, biodiversity, and ecosystems.

In accordance with the objectives and expectations of the Study Tour, it was planned to visit five key sites to present examples of the eco-restoration process, potential of the farms, allocation of PES, supervision,

and follow-up for the development of sustainable management plans for forests, water management, agroforestry systems, biodiversity, landscape systems, and the role of the stakeholders.

Forestry engineer Johnny Méndez, Former Director of CODEFORSA, explained in the field the background, objectives, activities, achievements, impacts, and support provided in the Huetar Norte Region.

1. **The contribution of the National Forestry Office (ONF) and forestry organizations (CODEFORSA and others) to the Forestry development of Costa Rica.**

Forest Management Project in the Huetar Norte (before and after, the use of PES and other support model. More than 20 years ago the map of the forest cover of the Huetar Norte region presented an image of the main problems linked with the change of land use, the advance of the agricultural and livestock frontier and an image of the deforested areas. A map and supplemental information were used as a basis to identify concepts, plan, and execute activities and achieve goals to restore the forests in this region.

At the end of the 1980s and during the 1990s, great interest was generated in the recovery of forest cover through sustainable management and reforestation. Thus, multiple individual actors went directly to the Minister of Environment and Natural Resources to request support. In 1980 was decided to organize groups to speak with the minister. This allowed the requests to be organized and procedures were created to support reforestation actions. Initially, the incentive system on income tax was promoted where many participants were large companies and the small ones of less than 10 hectares did not qualify for this procedure.

In 1997, the system of payment for environmental services (PES) was created under the control of the Forest Financing Fund (FONAFIFO). The National Forestry Office (ONF) was also created, with up of 49 regional organizations. The representatives of the public sector at FONAFIFO are three, one from the Ministry of Agriculture and Livestock, one from the Ministry of Environment and Energy one from the National Banking System, one representative of CODEFORSA and a representative of small producers. This institutional framework contributed to achieving greater successes.

In 2003 the KfW bank of Germany provided funds for incentives for the Huetar Norte's forest activities. The NGOs focused their work on the incorporation of small and medium-sized landowners. They processed PES in all modalities, contributing to wealth and employment within rural communities. In focusing on forestry, they accessed PES funds as a complement to other productive activities they carried out.

Participants recognized the fundamental role of the PES model and its contribution to the restoration of natural and secondary forests in the Huetar Norte Region, and they asked what would happen if PES had not been assigned in the Region. This key question was answered by the engineer J. Méndez (COSEFORMA).

2. **Visit to Yellow Forest. Restoration of degraded public areas, with native species, and the support of the EPA hardware store. Las Delicias, Aguas Zarcas.**

An example of restoration on public lands at risk of being invaded by so-called squatters was presented. These are public lands and restored with private funds and with national trees such as yellow bark (*Tabebuia ochracea*, or golden trumpet tree). It is an area of 8 ha that recently gave way to a road. In this area, work was carried out with FONAFIFO and the environmental bank foundation to begin the reforestation process. The activity was carried out with financing from resources collected by the EPA hardware store. The cashiers of this company asked buyers if they wanted to offset their ecological footprint and, out of every 10 buyers, one was convinced and contributed $15. To plant trees, EPA indicated, as a condition, that women be the ones who planted. That is, 70% of workers had to be women to allow them to achieve employment and income. The maintenance of the plantations was intensive in the first 5 years, later it was reduced.

To verify and publicize the planting activities carried out, clients who contributed resources and EPA cashiers were invited to visit the areas where the trees were planted. Timber, fruit, and yellow bark forest species were planted from low areas (100 m below sea level). Why weren't only timber trees planted? Because an eco-restoration was needed that would increase biodiversity and provide food for birds and other species. One of the species planted was Albizia revoluta, known as the silk tree and which provides seeds to feed birds. The grass is cut manually, without the use of agrochemicals because it is an EPA hardware store requirement. CODEFORSA and the environmental bank foundation supervise the activities every 6 months. And if a tree dies it must be replaced. It is necessary to present every 6 months a technical report on the conditions of the planted trees.

This initiative caught the attention of the participants, especially because a private commercial hardware sales company called EPA is promoting the planting of trees through a voluntary contribution from clients or buyers. The participants asked about the characteristic and type of company, the amounts it collects and the procedures for monitoring to ensure that the trees were planted and that they are maintained.

3. **Forest with PES- water. Payment of a differentiated amount to protect water sources for human consumption and aquifer in recharged areas. ASADA Las Tesalias.**

In this place, the presence of a water source was determined, and a water concession was requested. Each farm was granted a concession of 150 liters/minutes. It has a forest area that has a spring or outcrop of water and 2 Associations that manage the communal Aqueduct and Sewer Systems named ASADAs, which construct, operate, manage, and maintain the aqueduct and sewage systems. SINAC and MINAE declared it as spring to provide drinking water. This was achieved through a water modality PES request to FONAFIFO. Families that receive water service must pay what is called a water fee, which is approximately equivalent to a total of $5 million/year. These revenues are distributed to the water directorate, FONAFIFO and the ASADA.

This is a forest that since 1997 has benefited from PES protection, especially where there is water upwelling. The interesting thing about Costa Rica's water model is that most inhabitants drink tap water because the ASADAs ensure water quality. The systems have filtered and chlorinated water. It is estimated that each family that consumes drinking water pays around $15/month. The cost is allowing for the capturing and distributing water to the families. There is no cost to pay to the land and forest owners. The ASADAs charge a cost for the construction investment of tanks, purchase and establishment of pipes, maintenance, chlorination, and distribution water to homes. Each home has a drinking water consumption meter.

Although the owners do not receive 100% compensation for their participation in the water services maintenance and conservation project, they are convinced to participate in this initiative. That is, CODEFORSA and other organizations have convinced them to agree to participate in the process of granting and maintaining water sources.

4. **Tree nursery. Clonal production and tray system. Melina, Teak. native and ornamental species. CODEFORSA Nursery Altamira, San Carlos.**

The nursery was established in 1995 through a credit provided by FONAFIFO, which was used to purchase the land, buying the trays to produce the plants and other instruments and materials required. In general, most plants were produced using the tray system. The species with greatest demand are *Tectona grandis* (teak), *Gmelina arbórea*, *Acacia grandis* and they are produced using plastic bag system, except for native plants. In the last 3 years, a project has been carried out that is linked with a carbon fixation model, promoted by a German organization that promotes to plant native species. This is the first company that commercializes native species to fix carbon and encourage the production and planting of pollinating plants and that generate flowers to provide house and meals for species such as butterflies and birds. The nursery has the characteristic of being multifaceted because it began activities to produce medicinal plants such as mint, oregano, basil, and others, in addition, it produces fruit plants. In general, the main sources of seeds come from parent seed trees identified in the area, from the CATIE forest seed bank and from other seed banks in Costa Rica.

The decision of the type and quantity of plants to be produced is based on the demand and the list of farms and areas approved by FONAFIFO to provide the PES. The process begins with advertising the availability of PES, receiving applications from interested parties, analyzing the appropriate farms, creating a database and the final decision to select the farms. In November and December, the process is completed and in January and February PES are assigned. Based on the list of approved areas, the number, type, and quantity of plants to be produced in the nursery is estimated and decided. For example, if the requests are to plant a total of 2,000 hectares, the nursery estimates the number of plants that will be requested. In general, the PES provides resources for planting gmelina, teak and bochisia; However, CODEFORSA encouraged creativity by promoting planting of native species with flowers and other fruit trees. It is a donation campaign of 2 to 3 plants per person to promote the planting of trees. With the appearance of the German company, a greater demand for plants to be produced in the nursery was encouraged.

5. **Model of reforestation and agroforestry systems. Teak - Cacao Gmelina – Cassava Gmelina - Cacao mixed agroforestry systems. San Francisco de La Palmera.**

CODEFORSA implements sustainable forest management processes and technical practices to contribute to eco-restoration, biodiversity conservation, water management with the support of FONAFIFO and the participation of different stakeholders for PES projects ranging from 2 to 20 hectares.

In this place a relevant case is presented where the government and CODEFORSA promote sustainable forest development to improve standards of living of the inhabitants in the Northern Region of Costa Rica. Its activities are linked with PES for the conservation and protection of forests, water resources, landscapes, and the key participation of stakeholders. The Study Tour participants that visited this site observed how sustainability is ensured with the recovery of forest cover through reforestation with fast-growing species, restoration and reforestation with native species, forest protection, and water resource protection, and the importance of including agroforestry systems for small producers (less than 15 ha).

Mr. Miguel Sancho's farm has a total area of 10 hectares. Before, it was a farm where trees were removed to establish grazing areas for livestock, then in 1986 the owner bought this farm. Initially he was going to establish a family sawmill, but after listening to advice from CODEFORSA he changed the idea and, in 1990, began planting agroforestry systems with the support of the PES system promoted by FONAFIFO. It changed from being a livestock farm to a farm where mixed systems were cultivated and, currently, it is an agroforestry and landscape model where wild animals, birds, butterflies, and other local species arrive.

He planted timber trees such as cedar (*Cedrela odorata*), *Gmelina arborea*, Laurel, and other fast-growing species. In addition, the farm included fruit plants such as mango, star fruit, coconut, palm, and yucca. Most are fruit trees for family consumption. In the case of Gmelina, the owner is already harvesting and obtains some income from the sale as wood.

When asked by participants if this initiative was a business, the owner responded that it is not a total business and that he effectively obtains PES income to compensate for the work performed and the maintenance, but it is not his main source of income. There are other farms that do make a living from these activities. However, he is aware that through the support of PES he is contributing to environmental sustainability, which has not been valued. Regarding the question of whether there is control of activities and the corresponding costs, he responded that there is systematic control, as well as sales from thinning and sale of wood. What is clear is that trees of native species should not be cut, but rather should be subjected to a system of natural protection and regeneration. Forest seeds come from CATIE and other sources.

F. COOPELESCA and Juan Castro Blanco Nacional Park – 24 September

The Rural Electrification Cooperative of San Carlos, COOPELESCA R.L was founded on January 24, 1965, with a concession area of 4770 km2 that covers the cantons of San Carlos, Sarapiqui, Grecia, Alajuela, Los Chiles, and San Ramón. It began activities with 365 members and an initial capital of 45,750 Costa Rican Colones (US$5,300). The objective of the creation of the Juan Castro Blanco National Park (PNJCB), also known as the "*parque de aguas*" (water park), was to contribute to restoring, conserving, and protecting water resources and maintaining forest cover, especially as they are areas with forestry suitability. In 1975, the PNJCB was declared in the category of Forest Reserve with an area of 13,700 hectares, with a focus aimed at local communities and organizations contributing to the protection and sustainable management of the water and natural resources. More than 200 rural aqueducts are supplied from the PNJCB and 5 hydrographic basins of great importance for the Northern Zone and for the hydroelectric generation of the country are in this area.

In 1992, it was declared as Juan Castro Blanco National Park with an area of 14,258 hectares (Law No. 7297 of June 9, 1992). Article 2 declares that "Private lands suitable for forestry, included in the previous delimitation, will be susceptible to expropriation and will be considered part of the Juan Castro Blanco National Water Park, until they are acquired by the State, by purchase, through donations. or by expropriations." Thus, the purchase or acquisition of land was achieved with contributions from members, national funds and with public, private, and international donations. The cooperative also acquired land in areas adjacent to hydraulic energy projects to reduce the negative environmental effects derived from the advancement of commercial production of agricultural crops and extensive livestock farming.

Since 2013, it is the first cooperative in Latin America to participate in the carbon neutral strategy. Each member of the cooperative contributes $0.37/month to protect water sources, the forest, biodiversity, and the landscape. In 2015, the cooperative had already offset its entire carbon footprint through various environmental actions, mainly through the acquisition of land at risk of environmental degradation. With the monthly fee, the cooperative managed to acquire 293.3 hectares (236.8 hectares with forest and 56.5 hectares within the REDD+ system).

The Montaña Sagrada Natural Reserve has an area of 1,136 hectares and is located within the limits of the PNJCB. It is a reserve that protects the cloud forest and promotes the regeneration and preservation of flora and fauna (44 species of amphibians, 32 species of reptiles, 30 species of mammals, and 144 species of birds, highlighting the quetzal, goldfinch, and the guan.), especially in areas that were destined for livestock pastures. It has 10 km of trails with different levels of difficulty, it has scenic beauty such as the Pozo Verde lagoon, of volcanic origin. The motto of "Sacred Mountain" was born from a social movement against mining in the Juan Castro Blanco Forest Reserve. For the Park, it was key to have legally obtained the inscription of the Sacred Mountain motto to promote the sustainable use and current and future conservation of this reserve.

In the PNJCB the uses and benefits of water have evolved over time. From an initial perception of water for personal use, agricultural production, hydroelectric production to promoting other ecosystem services and ecotourism. The use of water has increased over time even though the resource is currently more limited and exhaustible, positioning the water resource as an essential axis in the economic and social activities in communities and cities of the Huetar Region.

Images and photographs reveal the before (1981) degraded forests and after (2016) advance of forest cover and protected areas. Since 2018, the cooperative has been practicing a biological monitoring system using cameras, which reports on water sources, species, forest cover and others. It has a control and management system for water resources. The opening of the park as ecotourism generates education and income to continue with the objective of reinvesting and creating social and economic impacts in the Huetar Norte Region and in the country.

The management, progress, and achievements of the PNJCB is an example and model to follow. It is the only Park dedicated to the protection of water resources and causes positive effects and impacts in the environmental, social, economic, and cultural spheres. It has a Management Plan and Specific Plans that contribute to effective administration, from protection and conservation, as well as the effective articulation and participation of national institutions, non-governmental organizations, private companies, communities, and appropriate technical personnel. In recent years CONELECTRICA of COOPELESCA established a clean energy solar park through a solar panel system. With this system supplies electricity energy to families in the Huetar Norte Region.

G. Poas Volcano – 25 September

The Volcano Poas is situated close to San Jose, Capital, with an altitude of 3.000 mts above the SL, with easy access by road. Covers 65 km2 and the Crater has 1.3 km of diameter and 300 mts of profound surrounded by dense forest area, emanates gases and heat constantly. The entrance costs 15 USD for foreigners and reservations should be made a day prior to the visit. This zone is rich in biodiversity and has agriculture production. The park has a variety of wild species, for example, squirrels, varied bird species (reports 79 species), a great variety of fauna, and dozens of orchids and bromeliads. A species that is characteristic of the zone is the "*sombrilla de pobre*" (poor man´s umbrella).

The Volcano Poas protects various tributaries of the Sarapiqui river. The other river of importance is the river La Paz (participants visited this river). The Volcano Poas is well protected and conserved. The volcano site has one museum, café-restaurant, and a camping area, Red Cross have permanent presence and security, and camping areas and trials are well defined for the visitors. Such services enhance the affluence of tourists. Recently, in 2022, a new trail was opened by the current administration, supervised by MINAE.

The potential of eco-tourism is enormous. For the year 2010, 350,000 visitors were reported with most of the associated businesses owned by Costa Rican. Recently the entrance of the tourist has increased to 1,500 tourists daily (formerly 1.100 tourists were allowed).

In summary, the Volcano Poas National Park offers access to visitors and provides most of the essential services for comfort and security so they can see the richness of biodiversity, both flora and fauna. Participants observed the craters as well as a museum, a café-restaurant, camping areas and hiking trails well defined for visitors. They observed that such services attract both national and international tourists to the extent of about half a million every year (they allow only 1,500 visitors per day). The participants observed that local restaurants and souvenir shops enhance the local economy, generating employment throughout the year. They observed the good quality of services, supermarkets (Walmart) and clean sanitary areas.

Annex 4: List of Participants

Government of India
Abhay Bhaskar Barapatre, Deputy Inspector General of Forests, MoEFCC
Suneet Bhardwaj, Assistant Inspector General of Forests, MoEFCC
Shivanand Shashikant Talwar, Assistant Inspector General of Forests, MoEFCC
Sanjay Kumar, Under Secretary to the Government of India, Department of Economic Affairs, Ministry of Finance, Government of India

Bihar
Abhay Kumar, Regional Chief Conservator of Forests, Bhagalpur, Bihar State Forest Department
Sudhakar Sathiaseelan, Conservator of Forests, Bihar State Forest Department
Ganga Singh, Head of Forest Forces, Kerala and Principal Chief Conservator of Forests, Kerala State Forest Department

Kerala
Rajesh Ravindran, Additional Principal Chief Conservator of Forests, and Chief Executive Officer, Compensatory Afforestation Fund Management and Planning Authority (CAMPA), Kerala State Forest Department
Pramod Gopala Krishnan, Additional Principal Chief Conservator of Forests (Vigilance), Kerala State Forest Department

Telangana
Lokesh Jayaswal, Chief Wildlife Warden, Telangana, Telangana State Forest Department
Saravanan Chandrasekaran, Chief Conservator of Forests, Basara Circle, Telangana State Forest Department
Saidulu Badugu, Chief Conservator of Forests, Charminar Circle, Telangana State Forest Department

Forest-PLUS 2.0
Ujjwal Prasad Pradhan, Chief of Party, Forest-PLUS 2.0, Tetra Tech ARD
Ashish Raj, Deputy Chief of Party, Forest-PLUS 2.0, Tetra Tech ARD

USAID/India
Varghese Paul Kottayil, Deputy Director,General Development Office, USAID/India

Annex 5: Post-Tour Survey Results

Survey question	Very High/Excellent (#)	Very High/Excellent (%)	High/Very Good (#)	High/Very Good (%)	Medium/Good (#)	Medium/Good (%)	Low/Fair	Total
1. How you rate the overall quality of the Study Tour?	8	67%	4	33%				12 (100%)
2. How you rate the overall usefulness of the Study Tour to broadening/ deepening understanding related to PES and Eco restoration?	7	58%	5	42%				12 (100%)
3. How would you rate the overall relevance of the Study Tour to your work?	7	58%	4	33%	1	8%		12 (100%)
4. To what degree did the Study Tour achieve the intended objective of exposing participants to ecological restoration initiatives and PES models and related lessons learned?	6	50%	6	50%				12 (100%)
5. To what degree did the Study Tour achieve the intended objective of providing interactive exchange opportunities?	5	42%	7	58%				12 (100%)
6. How would you rate the facilitators?	8	67%	4	33%				12 (100%)
7. How would you rate the knowledge providers by institutional representatives during the sessions?	7	58%	5	42%				12 (100%)
8. How would you rate the knowledge provided by the technical professionals in the field?	7	58%	5	42%				12 (100%)
Survey Question	**Yes**	**Yes**	**Comments**					
9. Was the knowledge gained useful for your country?	12	100%						
10. How will you apply the knowledge gained from the Study Tour in your organization and country? (Please explain)	See main text							
11. Were the materials and resources provided to you during the Study Tour appropriate?	12	100%	Some materials need to be translated into English and provided at the begining.					
12. Was the time allocated to the different sessions adequate?	12	100%	Allow time for questions and interaction.					
13. Was the time allocated in the field visits adequate?	12	100%						
Logistics Ratings	**High (#)**	High (%)	**Medium (#)**	Medium (%)	**Low (#)**	**Low (%)**		
Accommodations	11	92%	1	8%				12 (100%)
Meeting Rooms	12	100%						12 (100%)
Transportation	12	100%						12 (100%)
Translation Services	9	75%	3	25%				12 (100%)
Meals	11	92%	1	8%				12 (100%)
Free Time	4	33%	6	50%	2	17%		12 (100%)
Survey Question								
15. What activity worked best during the Study Tour?	See main text							
16. What do you recommend for improving the Study Tour?	See main text							
17. Describe three key lessons learned that you feel are most important to take to your country as result of the Study Tour?	See main text							
18. Please provide any further comments or suggestions you may have.	See main text							

19. On a scale of one to five (1 = poor; 5 = excellent), how would you rate each of the following sessions?	**5 (excellent) (#)**	**5 (excellent) (%)**	**4 (#)**	**4 (%)**	**3 (#)**	**3 (%)**	**2**	**1 (poor)**	**Total**
Pacific coast visit (Saturday)	6	50%	5	42%	1	8%			12
Orientation workshop (Sunday)	9	75%	3	25%					12
Orientation workshop (Monday)	8	67%	4	33%					12
Orientation workshop (Tuesday)	8	67%	4	33%					12
CATIE overview (Tuesday)	10	83%	2	17%					12
CATIE field visits (Wednesday)	11	92%	1	8%					12
Reventazón watershed (Thursday)	5	42%	6	50%	1	8%			12
FUNDECOR-FONAFIFO-ICT-GIZ (Friday)	11	92%	1	8%					12
CODEFORSA (Saturday)	10	83%	2	17%					12
Juan Castro Blanco National Park (Sunday)	9	75%	3	25%					12
Volcanic National Park (Monday)	10	83%	2	17%					12
Evening discussions	11	92%	1	8%					12
Lessons learned Workshop	11	92%	1	8%					12

Annex 6: Photos

Photo 1: Welcome and orientation workshop with officials and representatives of national institutions, Hotel Hilton Garden Inn, 18 September 2023

Photo 2: Farm-level field learning activity at Sarapiquí Farm, 22 September 2023

Photo 3: Gilmar Navarrete Chacón, Environmental Services Director of FONAFIFO

Photo 4: Alberto García Arguedas, Director and Executive Secretary of the Sustainable Biodiversity Fund

(Hotel Hilton Garden Inn, 18 September 2023; Photos by Carlos Reiche)

Photo 5: Mario Piedra, Director of FUNDECOR

Photo 6: Jorge Rodríguez, Former Minister of Former Minister of Environment and Natural Resources

(Hotel Hilton Garden Inn, 19 September 2023; Photos by Carlos Reiche)

Photos at CATIE: Introduction to the article on the visit to CATIE. Full article and photos available at https://www.catie.ac.cr/en/2023/09/22/funcionarios-forestales-de-la-india-visitaron-el-catie/

Forest officials from India visited CATIE

Posted by ESTEBAN RODRÍGUEZ ZAMORA | Categories NEWS | Date 22 SEPTEMBER, 2023

- *The delegation visited the international coffee collection, the agroforestry systems trial in coffee, the goat module, and the seed bank.*

On September 21, 2023. Delegation of 16 forest officials, specialists in natural resource management from various regions of India, visited CATIE (Tropical Agricultural Research and Higher Education Center) with an interest in learning about Costa Rica and the region's success and lessons learned in the areas of payment for environmental services and eco-restoration systems.

Carlos Reiche Caal, the coordinator and organizer of the institution's visit, mentioned that this group represented the USAID - INDIA (United States Agency for International Development) and the Ministry of Environment, Forests, and Climate Change of India.

"We had planned this visit for the year 2020, and the main objective is to understand how water, soil, forest, and agroforestry basin restoration is carried out, how civil society and communities participate, what contributions policies and finances make to support these government initiatives, and what the legal framework entails, among many other factors," Reiche explained.

Carlos Araya, Director of the Office of Green Business Development and Strategic Alliances, extended a warm welcome to the campus, expressing gratitude for the time they took to visit and their interest in understanding the institution's work in the region.

Other photos of the Study Tour have been provided separately.