

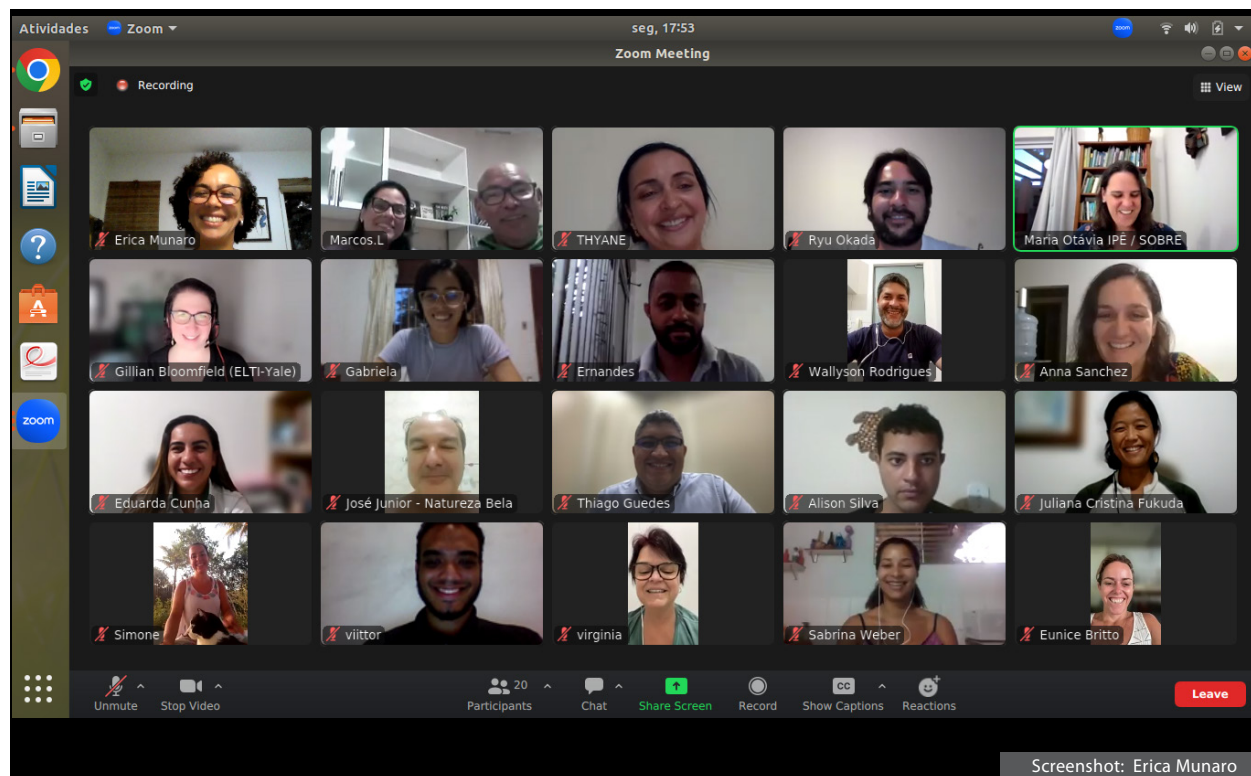
COURSE REPORT

Introduction to Carbon Markets

ELTI Training Landscapes
March 20, 2023–May 5, 2023

An online course organized by:

Environmental Leadership & Training Initiative, Yale School of the Environment
Higher School of Environmental Conservation and Sustainability, Institute for Ecological Research



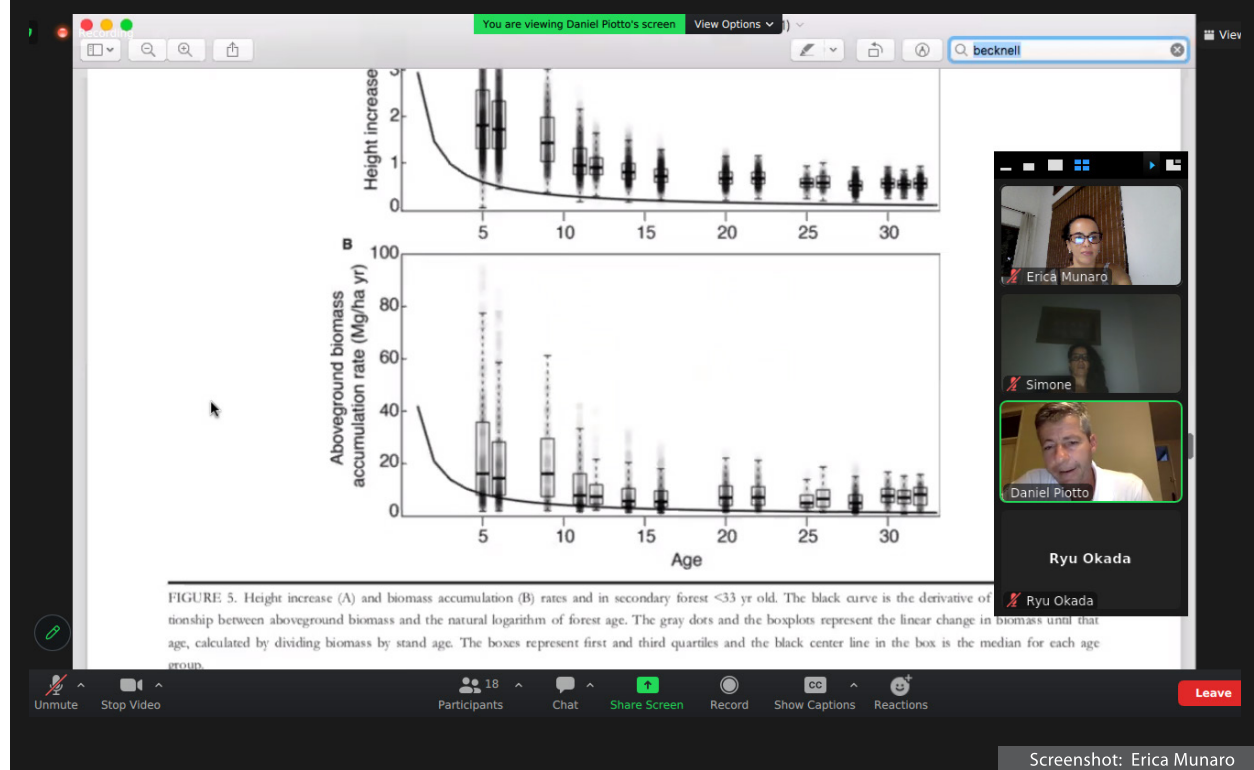
Participants and instructors during the course's opening live session, March 27, 2023.

Background: The southern region of Bahia, Brazil, boasts unparalleled botanical diversity and is renowned as a biodiversity hotspot. The remaining forest fragments in this area are part of the Corredor Central da Mata Atlântica (Central Atlantic Forest Ecological Corridor), an initiative focused on expanding forest connectivity through ecosystem restoration and promoting sustainable production systems. Given that southern Bahia is experiencing significant forest growth, investing in forest conservation and restoration in the region presents a promising opportunity for carbon credit trading.

However, the region also faces a range of socio-environmental challenges that impact both the local population and the ecosystem. Deforestation and biodiversity loss resulting from conventional agricultural expansion, encroachment of the real estate sector, and illegal logging are among the primary concerns. Another

ELTI is an initiative of:

Yale SCHOOL OF THE ENVIRONMENT
The Forest School



Daniel Piotto's lecture on restoration methods and carbon measurement, during the course's second live session, April 3, 2023.

significant challenge is associated with land conflicts and occupation driven by real estate speculation, land grabbing, and encroachment of agriculture into environmentally protected areas and indigenous lands. These issues not only create social tensions but also have detrimental effects on the environment.

Since 2005, the Bahia Forest Forum has employed The Forests Dialogue to mediate these regional conflicts and foster agreements between civil society and public authorities. This collaborative platform has played a crucial role in addressing these challenges and promoting sustainable solutions.

It is essential that the Bahia Forestry Forum's participating institutions be equipped with knowledge and tools needed to conserve and restore the region's ecosystem. The carbon market is one such tool.

Course Objectives: "Introduction to Carbon Markets" introduces concepts related to the context, modalities, design, management, and monitoring of emission reduction (REDD+) and forest restoration (ARR) projects for the carbon credit market.

Content: The course consisted of 50 hours of synchronous and asynchronous activities divided into five thematic modules. Participants watched prerecorded video lectures, completed assignments, and asked questions and shared their insights with instructors and each other during three live sessions.

Module 1. Introduction to the carbon market

Module 2. Introduction to the concept of REDD+ and ARR

Module 3. Restoration methodologies

Module 4. Carbon measurement

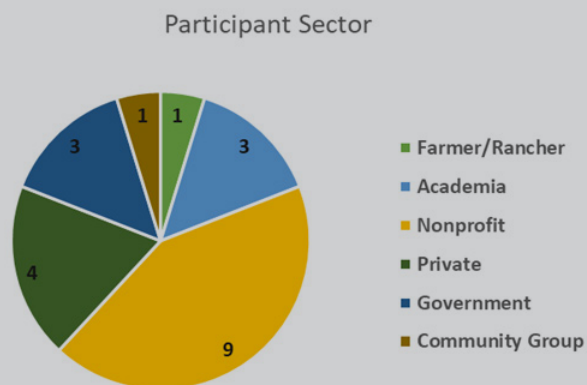
Module 5. Carbon pricing and markets and carbon market trends

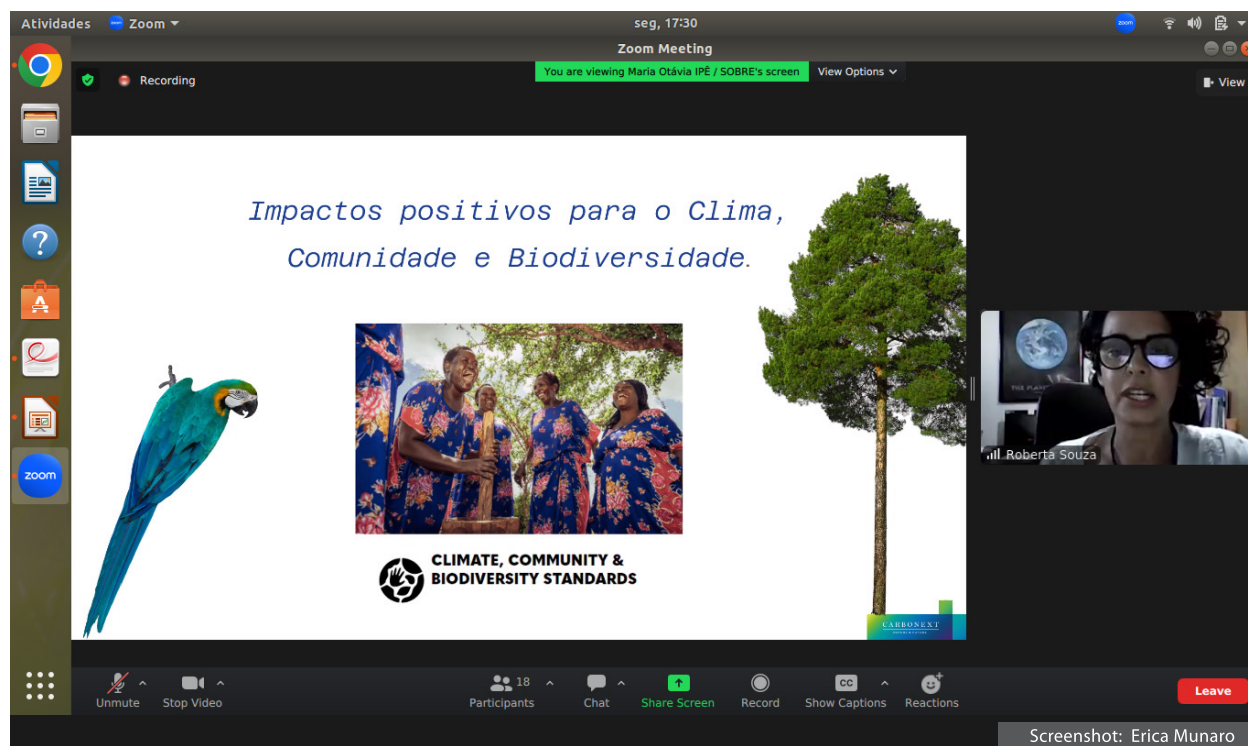
Participants : The course was delivered in Portuguese to an audience of professionals that included environmental managers, teachers, farmers, and technicians who develop socio-environmental projects in the southern region of Bahia and who are part of the Bahia Forest Forum as well as members of IPÊ partner institutions. In all, there were 21 participants from 17 institutions, as shown in Table 1.

Table 1: Bahia Forest Forum Participating Organizations

Organization	N° Participants
Agricultural Defense Agency - ADAB	1
Beautiful Nature Environmental Group	1
Bom Sossego Farm	1
Costa Dorada community	1
Cycles of Sustainability and Citizenship Institute	1
Design environmental and administrative solutions	1
Deutsche Gesellschaft für Internationale Zusammenarbeit - GIZ	1
Ecological Research Institute - IPÊ	2
ETNO Consulting	1
Federal Institute of Education of Bahia - IFBA	1
Institute of Environment and Water Resources - INEMA	1
Mother Earth Institute	2
Porto Seguro Defense Movement - MDPS	1
Secretary of Agriculture of the State of Bahia - SEAGRI	1
University of Southern Bahia - UFSB	2
Veracel Celulose	2
Verdejar d'Ajuda Socio-Environmental Association	1
Total Participants	21

**Graph 1:
Institutions by sector.**





Roberta Souza's lecture on REDD+ projects, third live session, April 10, 2023.

Course team: The course was developed and delivered by the Higher School of Environmental Conservation and Sustainability (ESCAS) at the Institute for Ecological Research (IPÊ) and the Environmental Leadership & Training Initiative (ELTI) at the Yale School of the Environment (YSE). Maria Otávia Crepaldi, Erica Munaro, and Sabrina Weber, all members of the of the ELTI- IPÊ-ESCAS Brazil team, as well as Gillian Bloomfield, Yale-ELTI's online program manager. Instructors were Caio Gallego, operations manager, and Laion Pazzian, commercial manager, both of Bioflica Ambipar Meio Ambiente, and IPÊ associate researcher Ricardo Gomes César, who contributed recorded lectures they prepared for the course.

The e-book "Introduction to Carbon Markets" (Folharini, 2022) was used as a bibliographic reference for the course.

In live sessions, Roberta Souza, project manager from Carbonext, and Cinthia Caetano, corporate vice president of Future Carbon, discussed carbon market projects and Professor Daniel Piotto from UFSB discussed carbon measurement research.

Outputs and outcomes: At the end of the course, 21 of 30 registered participants received certificates of completion. In the end-of-course survey (n=21), participants rated the course 4.8 out of 5. Participants appreciated the quality of the content, the short videos, and the live sessions.

Brazil alum, Virginia Londe de Camargos, environmental strategy coordinator at Veracel Celulose, gained valuable insights from the course, which offered a comprehensive overview of the rapidly expanding carbon market. "Veracel's entry into the carbon market prompted our quest to delve deeper into the entire process. This

Tipos de Projetos de Carbono

170 TYPES OF CARBON CREDIT

Volumes, Preços e Valores de Transações do Mercado Voluntário de Carbono 2020-2021

	2020			2021		
	VOLUME (MTCO2e)	PRICE (\$/MTCO2e)	VALUE (\$M)	VOLUME (MTCO2e)	PRICE (\$/MTCO2e)	VALUE (\$M)
FORESTRY AND LAND USE	57.8M	\$5.40	\$315.4M	277.7M	\$5.80	\$1,617.5M
RENEWABLE ENERGY	93.8M	\$1.80	\$169.5M	211.4M	\$2.26	\$478.1M
COMMERCIAL PROCESSES / INDUSTRIAL MANUFACTURING	1.9M	\$2.15	\$4.1M	17.3M	\$2.12	\$36.8M
WASTE TREATMENT	8.1M	\$2.69	\$21.8M	11.4M	\$3.82	\$43.5M
ENERGY EFFICIENCY / FUEL SWITCHING	38.5M	\$9.58	\$368.4M	18.9M	\$1.99	\$37.5M
HOUSEHOLD / COMMUNITY SERVICES	8.3M	\$4.24	\$35.2M	8.8M	\$5.36	\$47.3M
TRANSPORTATION	1.1M	\$9.84	\$10.7M	5.4M	\$1.16	\$6.3M
AGRICULTURE	8.5M	\$19.38	\$164.7M	1.9M	\$6.82	\$13.0M

Mercado em expansão
~500MtCO₂e = USD 2 Bilhões

Fonte: Ecosystem Marketplace Insights Brief The Art of Integrity State of the Voluntary Carbon Market v 2022 Q3 August 2022

Cinthia Caetano - Future Carbon Group

Cinthia Caetano's lecture on pricing versus carbon market and carbon markets trends, fourth live session, April 17, 2023.

encompassed methodologies, certifications, regulations, and the pragmatic implementation of strategies. The initiative splendidly exceeded my expectations by furnishing a solid foundation for engaging in discourse surrounding the carbon market. While our primary objective doesn't revolve around originating carbon projects, our aspiration lies in remaining well-informed about ongoing international market deliberations and the potential for ventures geared towards credit sales."

For alum Thiago Guedes Viana, special advisor to the Office of the Secretary of Agriculture of the State of Bahia, the course provided an overview of the sector, along with practical knowledge of the carbon credit agenda in Brazil. "It was a course of excellence that exceeded my expectations because of the technical depth. The speakers presented the reality of carbon market credit projects in the country, how they can be developed, the main bottlenecks, as well as the steps and steps for the project to be implemented. The material provided is of high quality and serves as a source of consultation. I would also like to point out that this course has allowed me to expand my network."

The YALE/ELTI Leadership Program opened a call for projects, inviting course participants to submit proposals requesting financial support and/or mentoring. The goal was to identify and support research, training, rural interventions, or educational materials developed in southern Bahia by alums. Three projects were submitted and are being evaluated.

This event was possible thanks to Arcadia Fund, whose Environmental Conservation grants support programmes that protect and enhance biodiversity, and provide field training and academic research.

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