

COURSE REPORT

Tropical Forest Restoration in Mosaic Landscapes of Southeast Asia

January 25 to March 6, 2016

An online course organized by:

The Environmental Leadership and Training Initiative (ELTI)

Background: As the damaging effects of deforestation are being observed in Tropical Asia and around the world, there has been increasing interest in the restoration of tropical forests. However, many restoration projects do not meet stated goals over time because the species and methods employed do not match the biophysical and social conditions of the restoration site. The various agencies and actors involved in restoring degraded and deforested lands oftentimes establish single-species tree plantations, in many cases using short-rotation exotic species that can do little to restore the biodiversity and functioning of forest ecosystems. Meanwhile, in the tropics there are hundreds to thousands of native tree species that have potential to provide economic and ecological benefits if used for the wide range of interventions that restore tree cover, such as reforestation, assisted natural regeneration and direct seeding. Understanding the ecological processes that relate to forest functioning can guide decision-making and the development of strategies for effective forest restoration and sustainable land management.



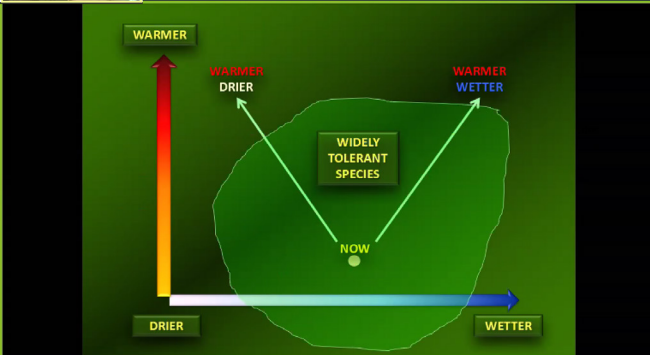
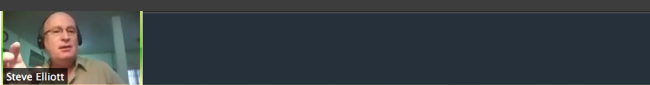
A mine rehabilitation site, surrounded by protection forest and production forest in PT Newmont Nusa Tenggara, Sumbawa Island, Indonesia, which was where course participant Mara Maswahenu focused his term paper. Photo credit: PT Newmont Nusa Tenggara



Live discussion session with Dr. Sean McNamara, Wildlife Conservation Society



Live discussion session with Dr. Mark Ashton, Yale School of Forestry & Environmental Studies



Dr. Steve Elliott explaining different potential impacts of climate change on species survival & composition during a live discussion session. Live sessions were conducted using videoconference software, "Zoom", which allowed for dialogue between course participants and invited guest experts.

This online course was designed to provide an introduction to the concepts and techniques needed to plan and implement strategies for the restoration of forests and ecosystem services in multiple-use landscapes. The course was offered to practitioners and professionals working for government agencies, NGOs, and the private sector looking to advance their knowledge about tropical forest ecology and restoration. The course provided participants with a series of presentations, discussions, and activities that guide the development of a restoration management plan, and apply the concepts learned in the weekly modules. Additionally, this course provided the opportunity for participants to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

Course Objectives:

- Present the basic principles of forest ecology, natural and anthropogenic disturbances to tropical forests, and how those disturbances affect the potential for regeneration;
- Provide the knowledge to evaluate and compare an array of tropical forest restoration methodologies and how the biophysical and socio-economic conditions of a site influence the decision-making about which strategies to utilize;
- Allow participants to analyze the ecological conditions, disturbance history, sociopolitical factors, and monitoring plans for the adaptive management of a specific restoration site; and
- Provide the opportunity for participants from different countries of South and Southeast Asia to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

Format: This six-week course was offered in English and was divided into thematic modules, each one lasting a week. The thematic modules were:

- Module 1.** Ecology and natural regeneration of tropical forests
- Module 2.** Effects of anthropogenic disturbance on regeneration
- Module 3.** Strategies to catalyze restoration in the tropics
- Module 4.** Influence of sociopolitical factors on restoration
- Module 5.** Monitoring and follow-up of restoration projects
- Module 6.** Completion of a restoration management plan



Case Study: Rainforestation

Leyte Island, Philippines



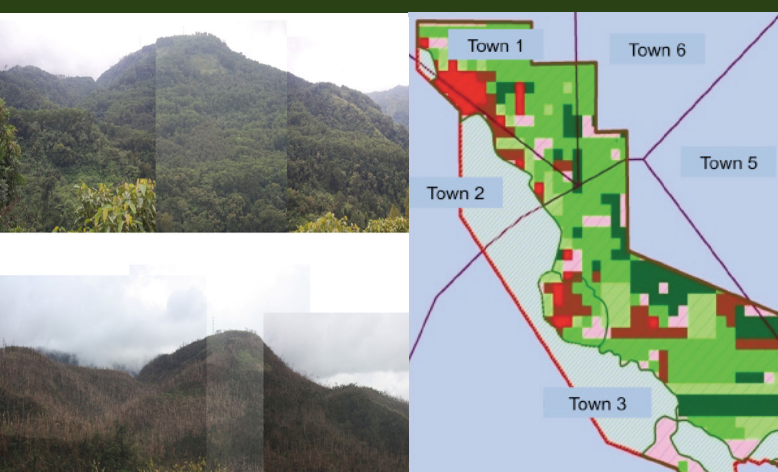
Written by: Pia Labastilla and Marito Bande, Institute of Tropical Ecology and Environmental Management, Visayas State University (ITEEM-VSU)
Hazel Consunji and Gillian Bloomfield, Environmental Leadership and Training Initiative at Yale University

Menu References Glossary Page 1 of 25

Interactive Case Study Presentation, featuring Rainforestation technique, which provided an example of restoration in the Philippines, in addition to highlighting important sociopolitical factors, when implementing restoration projects



Photo showing the forest structure of the reference ecosystem for the project site of course participant Debadityo Sinha, who focused his term paper on forest restoration for dry tropical forest in Marihan Forest Range, District-Mirzapur, India. Photocredits: Debadityo Sinha



Images and maps provided for a hypothetical project site, adapted from a real-life project of an ELTI course alumnus. The hypothetical project site offered the opportunity for participants without their own project site to apply their learning from the weekly materials, and go through the steps of developing a restoration plan.

Educational Tools:

- Pre-recorded guest lectures that depicted the video of the guest speaker, along with the PowerPoint slides;
- Interactive presentations that provided a synthesis of the core concepts of each week;
- Suggested readings to complement the presentations;
- Case studies that provided restoration examples from Indonesia, the Philippines, Sri Lanka and Thailand;
- Three online live discussion sessions with guest experts Dr. Sean McNamara, Dr. Mark Ashton and Dr. Stephen Elliott;
- Weekly discussion forums, where participants were asked to share their thoughts and questions about the weekly material; and
- Discussion forums for individual and group work towards the creation of a final project: a preliminary management plan for restoration on a site of professional interest or for a hypothetical site.

In addition to the discussion forum, participants also had to complete the following assignments for the final project: one site visit, peer-to-peer feedback on rough drafts, and literature searches. Guest expert, Sean McNamara provided feedback on all of the assignments leading up to the final project.

The participants were allowed to complete their assignments according to their own schedules within that week, with assignments due on Sunday night at the end of each week. At the end of the course, each participant who completed all of the course requirements received a certificate of participation.

Participants: From a large pool of applicants, ELTI selected participants for their achievement and potential as environmental decision-makers involved in natural resource management or restoration in South and Southeast Asia. Additionally, the course was attended by environmental leaders from Ethiopia, Madagascar, Uganda, Sudan and Haiti. Overall, the 33 selected participants came from 12 countries and work in a variety of sectors including local and national governments, non-governmental organizations, private companies, academia, and public-private partnerships.



Panoramic view of the heart of a project site, in Leyte, Philippines, where course participant Marianne Paje focused her term paper on forest restoration for a Communal Forest Stewardship Agreement (CFSA) by the Philippine government through its Department of Environment and Natural Resources. The area is located inside a geothermal reservation, being managed by the Energy Development Corporation. Photo credit: Marianne Paje

Instructors and Coordinators: The delivery and management of the course was facilitated by **Karin Bucht**, Program Associate, ELTI Online Training Program, **Gillian Bloomfield**, Coordinator, ELTI Online Training Program, and **Anna Finke**, Teaching Assistant and Master's Candidate at the Yale School of Forestry & Environmental Studies.

Substantive feedback was provided on the written homework by **Sean McNamara**, Ph.D., Wildlife Conservation Society, Lao PDR.

Guest experts who provided pre-recorded video lectures, recorded interviews, case studies, and/or live videoconferences included:

- **Mark Ashton**, Ph.D., Yale University, School of Forestry & Environmental Studies, United States.
- **Peter Ashton**, Ph.D., Harvard University, Department of Organismic and Evolutionary Biology, United States.
- **Marlito Bande**, Ph.D., Visayas State University, Institute of Tropical Ecology, Philippines.
- **Gillian Bloomfield**, M.F.S., Environmental Leadership and Training Initiative, Yale University, United States.
- **Hazel Consunji**, M.S., Environmental Leadership and Training Initiative, Yale University, Philippines Office.
- **Steve Elliott**, Ph.D., Chiang Mai University, Forest Restoration Research Unit (FORRU), Thailand.
- **Eva Garen**, Ph.D., Environmental Leadership and Training Initiative at Yale University, United States.
- **Nimal Gunatilleke**, Ph.D., Department of Botany, University of Peradeniya, Sri Lanka.
- **Savitri Gunatilleke**, Ph.D., Department of Botany, University of Peradeniya, Sri Lanka.
- **William Laurance**, Ph.D., James Cook University, School of Marine and Tropical Biology, Australia.
- **Ani Adiwinata Nawir**, Ph.D., Center for International Forestry Research (CIFOR), Indonesia.
- **David Neidel**, Ph.D., Environmental Leadership and Training Initiative, Yale University, Singapore Office.
- **Jimmy Pogosa**, Engr., Visayas State University, Institute of Tropical Ecology, Philippines.
- **Erica Pohnan**, M.E.Sc., Conservation Program Manager, ASRI, Indonesia.
- **Rakan Zahawi**, Ph.D., Organization for Tropical Studies, Costa Rica.

Pre-recorded guest lectures were developed with media and equipment provided by the Yale Broadcast Center and the Yale School of Forestry & Environmental Studies.

Outcomes and Follow-up: The majority of participants were actively engaged throughout the course, benefited from the feedback they received from the instructors and their peers, and successfully completed their preliminary management plans. In the months following the course, ELTI will follow-up with the participants to see how the course and the term paper have influenced their professional development and the management of their individual restoration sites.

For more information: please contact Online Training Program Coordinator, Gillian.Bloomfield@yale.edu or Online Training Program Associate, Karin.Bucht@yale.edu

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