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Source: Tropical Conservation Science, 12(1)

Published By: SAGE Publishing

URL: https://doi.org/10.1177/1940082919887589

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Opinion Article

Strategic Insights for Capacity Development on Forest Landscape Restoration: Implications for Addressing Global Commitments

Tropical Conservation Science
Volume 12: 1–11
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DOI: 10.1177/1940082919887589
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Abstract

Global initiatives such as the Aichi Targets and Bonn Challenge have inspired governments to pledge to restore millions of hectares of degraded lands. Many of these calls to action and policy frameworks identify capacity development as important for implementing and scaling-up restoration activities to meet global targets. However, there is little explanation about what capacity development actually involves. How is capacity development approached in the context of restoration? What makes it more or less effective? This article aims to help fill that gap by identifying four components of what an effective approach to capacity development might look like, drawing upon a number of examples in practice. We believe that capacity development initiatives can more effectively support stakeholders to address the complex nature of forest landscape restoration (FLR) if they include the following four components: (a) activities tailored to stakeholder needs and context, (b) knowledge and applied experience from diverse sources and disciplines, (c) skill sets for selecting among a suite of restoration interventions, and (d) inclusion of multiple subjects and skill sets (e.g., social, financial, legal, etc.) in addition to technical or ecological themes. As exemplified by the organizations discussed in this article, these four elements of capacity development can help to support restoration professionals and other stakeholders to think holistically, moving from the scale of an individual farm or plot to the landscape scale where they must address more diverse stakeholder interests, societal trade-offs, and socio-ecological heterogeneity. This more holistic approach to FLR planning and implementation is needed to more effectively accomplish ambitious FLR targets worldwide.

Keywords

capacity building, capacity development, ecological restoration, forest landscape restoration, forest restoration, reforestation, restoration implementation, restoration training

Introduction

The restoration of trees and forests in tropical landscapes is recognized as a global priority to address the widespread decline in the quality, productivity, and resilience of ecosystems and to maintain services that support biodiversity, mitigate climate change, and promote human well-being (Aronson & Alexander, 2013; Holl, 2017). In this article, we use the term *forest landscape restoration* (FLR) to encompass a broad set of strategies and approaches for increasing tree and forest cover in deforested or degraded landscapes and balancing different goals and socioeconomic values (Laestadius, Buckingham, Maginnis, & Saint-

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Received 5 April 2019; Accepted 14 October 2019

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Laurent, 2015; Sabogal, Besacier, & McGuire, 2015). FLR includes a range of interventions outside and within forests, such as agroforestry, natural regeneration, planted forests, silviculture, improved fallows, watershed protection, and erosion control (Chazdon et al., 2016; International Union for Conservation of Nature [IUCN] & World Resources Institute [WRI], 2014).

Inspired by the Convention on Biological Diversity's 2010 Aichi Targets, the 2011 Bonn Challenge and other related regional initiatives, national and subnational governments around the globe have collectively pledged to restore hundreds of millions of hectares as part of environmental legislation and programs at multiple scales (Mansourian, Stanturf, Derkyi, & Engel, 2017; Murcia et al., 2016; Suding et al., 2015). In addition, restoration has played an increasingly prominent role in broader international environmental and development frameworks, such as the United Nations (UN) Framework Convention on Climate Change, the UN Convention to Combat Desertification (Aronson & Alexander, 2013), the New York Declaration on Forests (UN Climate Summit, 2014), the Paris Climate Agreement (Griscom et al., 2017), and the UN Sustainable Development Goals (Bloomfield et al., 2018). Meanwhile, despite the political will exemplified by national pledges to implement FLR, by April 2019, only 18% of the lands pledged have been classified as undergoing restoration (New York Declaration on Forests Assessment Partners, 2019).

Capacity development or capacity building (hereafter *capacity development*) has been identified as an important component to advance and scale-up FLR (Chazdon et al., 2017; Meli, Schweizer, Brancalion, Murcia, & Guariguata, 2019). Capacity development includes activities that enhance the "understanding, skills and knowledge base of individuals and organizations . . . " (Gordon & Chadwick, 2007, p. 15) and provides a platform for networking and knowledge exchange among people working at different scales and in different contexts (Menz, Dixon, & Hobbs, 2013). By providing people with access to knowledge, skill sets, and networks, capacity development supports those people to plan, incentivize, implement, and scale-up restoration activities, ultimately addressing diverse FLR goals. Capacity development, therefore, is best viewed as a process, often nonlinear, that involves multiple activities, people, and institutions.

Global efforts to plan and implement FLR are increasing at an unprecedented rate. The focus of these large-scale efforts poses two primary risks: (a) excluding landholders and local-level institutions during national-level prioritization exercises and (b) placing a disproportionate emphasis on hectare-based targets over the social and ecological benefits of restoration within a landscape (Brancalion & Chazdon, 2017; Mansourian et al., 2017). Studies have found that restoration activities are problematic or unsuccessful when specific interventions do not match the ecological conditions of a site (Bullock, Aronson, Newton, Pywell, & Rey-Benayas, 2011; Fernandes et al., 2016) and address the objectives and needs of local stakeholders (Brancalion et al., 2017; Meli et al., 2017). Similarly, these efforts cannot ignore governance and other socioeconomic dimensions such as financial incentives and disincentives, legal and institutional structures, land tenure, and local empowerment (Guariguata & Brancalion, 2014; Mansourian, 2016, McLain, Lawry, Guariguata, & Reed, 2018). Upscaling FLR is needed to meet ambitious global targets, yet its success depends heavily on the suitability of interventions to site-specific biophysical and socioeconomic conditions and their ability to support the livelihood needs of local people and communities (Evans, Guariguata, & Brancalion, 2018; Holl & Aide, 2011; Lazos-Chavero et al., 2016; Murcia et al., 2016).

Capacity development programs and initiatives can be designed to help address these challenges. However, guidance is needed on how best to approach capacity development in a range of socioecological contexts so that FLR can be more effective in practice (Meli et al., 2019; Nelson, Bowers, Lyndall, Munro, & Stanley, 2017; Sansevero et al., 2017). Although many of the international agreements and related policy frameworks identify capacity development as an important step for meeting global sustainability targets ("Bonn Challenge,"2011; UN, 2015; UN Framework Convention on Climate Change, 2015), there is little explanation about what it actually involves. Similarly, in reviewing the academic literature about restoration,[1] many articles reference a need for *capacity building* or *capacity development* (see Loo, Souvannavong, & Dawson, 2014; Rodrigues et al., 2011; Shono, Cadaweng, & Durst, 2007) without discussing how to address this process in practice. How is capacity development approached in the context of FLR? Which approaches and activities are more or less effective and why?

This article discusses key strategies to guide capacity development for FLR by drawing upon examples from selected organizations that employ multiple activities and approaches to capacity development (Table 1). These organizations represent only a few of many that are focused on FLR and capacity development around the globe, but their experiences offer useful insights into effective approaches and strategies. Specifically, this article proposes that capacity development efforts for FLR

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Table 1. Eleven Organizations Involved in Capacity Development on Restoration in Tropical Countries.

Program/initiative	Description	Countries
Atlantic Forest Restoration Pact of Brazil (AFRP—*Pacto para la Restauração da Mata Atlântica*)	A coalition of private companies, NGOs, governments, and research institutions to foster large-scale restoration in the Atlantic Forest biome. The AFRP is working to advance the restoration of 1 million hectares of Atlantic Forest by 2020 and 15 million hectares by 2050.	Brazil
Center for Environmental Research of the Northeast Brazil (CEPAN—*Centro de Pesquisas Ambientais do Nordeste*)	A nonprofit organization with the mission to advance strategic solutions for biodiversity conservation through science, human development, and an open dialogue with society. CEPAN works in the northeastern region of Brazil in the Atlantic Forest, Caatinga, coastal marine, and urban biomes.	Brazil
Center for Research on Sustainable Agricultural Production Systems (CIPAV—*Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria*)	An NGO working on research, capacity building, and raising awareness about sustainable agricultural systems and agroecological restoration in Latin America. Based in Colombia, CIPAV works in many different ecosystems and regions of the country and regularly collaborates on projects in other countries of Latin America.	Colombia (primary), Latin America
EcoLogic Development Fund (EcoLogic)	A nonprofit organization that empowers rural and indigenous people to restore and protect tropical ecosystems in Central America and Mexico. EcoLogic currently works in eight different sites across four countries.	Guatemala, Mexico, Honduras, Belize
Environmental Leadership & Training Initiative at Yale University (ELTI)	A capacity development initiative of the Yale School of Forestry and Environmental Studies, in partnership with local organizations, with the mission of training and supporting people to restore and conserve tropical forest landscapes and support biodiversity and livelihoods. ELTI conducts capacity development activities in training landscapes in five tropical countries and globally through the online program.	Brazil, Colombia, Indonesia, Panama, Philippines, Global
Institute of Tropical Ecology and Environmental Management at VSU	A research institute of the VSU which promotes the dissemination and implementation of native species reforestation throughout the Philippines through trainings cross visits and by providing technical assistance. VSU collaborates with multiple partners as part of the Rain Forest Restoration Initiative to promote native species restoration throughout the Philippines.	Philippines
International Foundation for Ecosystems Restoration (FIRE—acronym in Spanish)	A nonprofit organization joining research institutions, NGOs, and private companies executing ecosystem restoration projects in Europe and Latin America. FIRE works in Spain and multiple temperate and tropical biomes of Latin America.	Brazil, Colombia, Costa Rica, Mexico, Paraguay
International Union for Conservation of Nature (IUCN)	A membership union composed of government and civil society organizations. It provides public, private, and NGOs with the knowledge and tools that enable human progress, economic development, and nature conservation to take place together. IUCN has offices in more than 50 countries and works with a network of organizations across the globe.	Global
Pronatura Veracruz, A.C. (Pronatura)	A nonprofit organization working on conservation and restoration of native ecosystems while improving local livelihoods. Pronatura Veracruz's capacity development programs focus on montane cloud forest and mangrove forest biomes in three states of Mexico: Puebla, Veracruz, and Tabasco.	Mexico

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Table 1. Continued.

Program/initiative	Description	Countries
Reforestamos México, A.C	A nonprofit organization with the mission of reducing deforestation, improving sustainable forest management, and enabling the restoration of degraded lands. It promotes activities to increase the competitiveness of the forest sector among different stakeholders. Reforestamos México works in many different regions of Mexico, and some of the capacity development activities attract participants from throughout Latin America.	Mexico
The Nature Conservancy-Brazil	The national unit of an international NGO working on research, capacity building, and training on conservation and restoration.	Brazil

Note. NGO = nongovernmental organization; VSU = Visayas State University.

are most effective when they include the following four components:

1. Activities tailored to stakeholder needs and context;
2. Knowledge and applied experience incorporated from diverse sources and disciplines;
3. Skill sets for selecting among a suite of restoration interventions; and
4. Multiple subjects and skill sets in addition to technical and ecological themes.

By incorporating these four elements, we believe that capacity development initiatives can better help stakeholders address the complex and interdisciplinary nature of FLR. Capacity development plans structured along these elements can help prepare professionals to be versed in the multidimensional nature of FLR and to deal with diverse stakeholder interests, societal trade-offs, and socioecological heterogeneity. This holistic approach is essential for policy makers, practitioners, landholders, and others to effectively plan and implement FLR targets and national plans.

Activities Tailored to Stakeholder Needs and Context

Capacity development is a process consisting of different activities (such as training events, courses, technical assistance, education, and organizational development) that are implemented with diverse types of participants (Lavergne & Saxby, 2001). When selecting the activities in which to engage, each should be seen as a tool with which to leverage the potential of stakeholders to achieve successful FLR according to their values, goals, and socioecological contexts. The organizations reviewed engage in a variety of capacity development activities (Table 2), which they conduct at different times depending on stakeholder needs and context. In particular, they have tailored their activities to develop restoration capacity in a way that addresses the needs and interests of stakeholders and increases their involvement in decision-making. While not straying too far from their own mission, the organizations begin to determine a capacity development approach by consulting with communities and local institutions and responding to their needs and interests for training. In addition, FLR planning and diagnostic tools (see Evans & Guariguata, 2019; Hanson, Buckingham, Dewitt, & Laestadius, 2015; IUCN & WRI, 2014) can further help organizations identify capacity development needs at different scales.

In Mexico and Central America, for example, the EcoLogic Development Fund (hereafter EcoLogic—http://www.ecologic.org) supports rural and indigenous communities to first diagnose local needs and then collaboratively develop action plans and corresponding training activities. In Honduras, EcoLogic partners with the Association of Water Committees of the Southern Sector of the Pico Bonito National Park to strengthen the capacity of different stakeholders to conduct: (a) mentorship activities and training of trainers events to help community leaders learn how to administer funds for watershed conservation; (b) workshops with communities on nursery construction, seedling production, reforestation, and other silvicultural aspects; (c) learning exchanges among rural farmers and decision makers to share experiences; and (d) educational materials on environmental themes designed and created with youth, including diverse media sources such as poetry, dance, and music (Dávila et al., 2016, Kramer & Vallarino, 2016).

In Brazil, the Northeast Center for Environmental Research (CEPAN—*Centro de Pesquisas Ambientais do Nordeste*—http://cepan.org.br) has carried out capacity development for restoration to improve the conservation value of landscapes as well as increase jobs and incomes in rural and marginalized communities within those landscapes. As part of this work, CEPAN first

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Table 2. Variety of Capacity Development Activities for Restoration.

Activity	Details	Examples
Training courses and workshops	Present theoretical, technical, and practical knowledge and build skills through classroom instruction, guided visits to demonstration sites, and pilot farms and practical exercises Integrate different sources of knowledge and facilitate the exchange of experiences	VSU and ELTI hold training courses on the "rainforestation" method of native species reforestation. Some of these courses are tailored to the needs of a specific stakeholder group (e.g., communities or local governments) while others are designed to bring together and facilitate exchange among different stakeholder groups.
Online training courses	Present theoretical, technical, and practical knowledge and build skills through recorded lectures, case studies, video conferences, assignments, and discussion forums Facilitate the exchange of experiences across national and continental borders and bring together diverse stakeholders representing many countries	FIRE, Pronatura Veracruz, and partners have been offering online courses for audiences in Latin America that highlight the range of restoration interventions that can be applied in the region, across different ecosystems and degradation contexts. During these courses, participants sometimes develop action plans for which they select specific restoration interventions, explain their decision-making process, and articulate other details about the site, budgets, timelines, and social factors.
Peer-to-peer exchanges	Provide the opportunity for people to learn from others experiences and perspectives through farmer-to-farmer exchanges and other types of local, regional, or international exchange Demonstrate in the field the successes and challenges land managers have faced implementing restoration activities	CIPAV and ELTI have been holding an annual event which brings together innovative ranchers and their children in order to promote an intergenerational exchange of ideas, to strengthen a network for knowledge exchange among young farmers, and to empower a new generation of land managers.
Training of trainers events	Enhance the knowledge and leadership capacity of individuals who can then lead other training activities Address the large demand and limited resources for capacity development	EcoLogic holds training of trainers workshops for representatives 28 different communal water committees in Honduras. These events prepare the community leaders to lead communal watershed restoration activities and specifically train them how to meaningfully include women and children in community decision-making.
Mentorship and technical assistance	Demonstrate and provide personalized support for the technical aspects of restoration Strengthen the ability of individuals and organizations to set up legal, financial, and institutional mechanisms for the completion of project goals	ELTI provided mentorship and technical assistance to members of a rural producer association in Panama throughout the multiyear process of (a) applying for project funding for restoration and silvopastoral systems, (b) implementing the grant according to donor stipulations, and (c) communicating the results of their work through public outreach and social media.
Strengthening cooperatives and community organizations	Help forest and farm producers strengthen existing or form new cooperatives or associations Facilitates opportunities for knowledge exchange and creates a favorable environment for private and public investment in restoration activities	TNC-Brazil and partners worked with 22 rural workers from the Piracaia-São Paulo region to form a cooperative called Cooperativa Ambiéncia in 2010. This cooperative has restored over 200 ha with the support of local businesses as part of their mission to restore and protect the water supply provided by the Cachoeira reservoir.
Restoration manuals and guides	Synthesize applied experience and connect restoration practitioners with the results of cutting-edge scientific research	AFRP's Technical and Scientific Advisory Board has synthesized science generated from over 30 years of applied research into training manuals, monitoring protocols and other capacity development materials.

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Table 2. Continued.

Activity	Details	Examples
Other media	Raise awareness through creative uses of print, online, and other media	CIPAV use media and music to raise awareness and teach key concepts for restoration. They have supported the development of music by local artists to reinforce the value of native ecosystems and local cultures and to promote novel environmental and productive practices.

Note. AFRP = Atlantic Forest Restoration Pact; CIPAV = Center for Research on Sustainable Agricultural Production Systems; ELTI = Environmental Leadership & Training Initiative at Yale University; FIRE = International Foundation for Ecosystems Restoration; TNC-Brazil = The Nature Conservancy-Brazil; VSU = Visayas State University. Adapted from, Pinto et al. (2014), Slusser, Calle, and Garen (2015), Dávila, Bloomfield, and Calle (2016), Kramer and Vallarino (2016), and Bloomfield et al. (2018).

diagnosed different types of stakeholders working within the restoration production chain, including: (a) seed collectors and the producers of plant material for restoration, (b) businesses that provide the services to implement restoration, and (c) businesses that purchase products and ecosystem services. CEPAN engages in diverse capacity developing activities for these different groups. For example, they have held technical and administrative training events, along with activities to help farmers learn how to grow seedlings, set up nurseries to sell those seedlings to restoration projects, and form a native seedling producers association (Dávila et al., 2016; Pinto et al., 2014).

Knowledge and Applied Experience Incorporated From Diverse Sources and Disciplines

There are many sources of scientific, traditional, and practical knowledge on effective restoration practices and their multiple benefits from different disciplinary perspectives (Chazdon et al., 2017; Endangered Landscapes Programme, 2017; Naveh, 2005). Local knowledge about trees species (Garen et al., 2009), indigenous knowledge on traditional practices (Reyes-García et al., 2019), experiences of farmers and other land managers who have increased tree and forest cover in the landscape (Reij & Winterbottom, 2015), and the results of research published in scientific journals (Chazdon et al., 2017) can all provide useful and relevant information for implementing FLR.

A key role of capacity development is to identify and integrate relevant information from these diverse perspectives and sources of knowledge to relay to others. Some strategies for incorporating diverse knowledge sources among the organizations reviewed for this article include (a) presenting and synthesizing the findings of scientific research from different academic disciplines in lectures and training materials; (b) incorporating local knowledge and practical experience through the use of case studies, demonstration sites, and activities to facilitate exchange and peer-to-peer learning; (c) providing a platform for instructors from local or traditional communities to share their knowledge, perspectives, and experiences; and (d) facilitating opportunities for participants to exchange ideas and share their knowledge.

The Center for Research on Sustainable Agricultural Production Systems (CIPAV—*Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria*—http://www.cipav.org.co) uses an interactive approach to integrate diverse sources of knowledge into capacity development in the context of silvopastoral systems and restoration in agricultural landscapes. Their approach involves facilitating opportunities for cattle ranchers to visit the model farms of early adopters of innovative silvopastoral systems in Colombia and other Latin American countries. For the past 30 years, CIPAV researchers have utilized these farmer-to-farmer exchanges to effectively disseminate key restoration concepts, motivations, techniques, financial details, and other practical aspects of on-farm restoration to land managers (Calle et al., 2013). The farmer exchanges and the sharing of research results, accompanied by technical assistance, have inspired cattle ranchers across the region to adopt more sustainable ranching practices.

The Environmental Leadership & Training Initiative at Yale University (ELTI—https://elti.yale.edu) also implements capacity development activities designed to integrate applied research with perspectives and experiences of diverse land managers. ELTI team members implement field courses, workshops, peer-to-peer learning exchanges, and mentorship activities with partners within training landscapes, which are networks of demonstration sites for experiential learning, exchange, and innovation. These training landscapes, located in Brazil, Colombia, Indonesia, Panama, and the Philippines, include areas with a history of on-site research and nearby model farms with passive and active restoration systems managed by local landholders. Classroom

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lectures, training materials, and exercises link participants with scientific data and theory. Participants, who often come from different sectors and backgrounds, interact, exchange ideas and work collaboratively during course exercises, and engage with landholders and other stakeholders managing diverse restoration strategies during visits to demonstration sites and pilot farms. These landholders share their perspectives and experience with visitors and are recognized as coinstructors and experts in sustainable cattle production and native species reforestation (Slusser et al., 2015).

Skill Sets for Selecting Among a Suite of Restoration Interventions

As mentioned, FLR often involves a combination of several strategies and interventions. It can include active to passive methods to increase forest cover (Holl & Aide, 2011), strategies to integrate trees into production systems using agroforestry and silvopastoral techniques (Garen et al., 2009), and other tree-based solutions to address specific challenges, such as watershed protection and erosion control (IUCN & WRI, 2014). Capacity development activities can be designed to present these diverse approaches and equip stakeholders with the knowledge and skill sets to evaluate trade-offs and select interventions that are most appropriate for their socioecological contexts (Lazos-Chavero et al., 2016; Locatelli et al., 2015).

Many of the organizations reviewed for this article use a combination of courses, technical assistance, action planning, and follow-up support to help participants learn how to assess, select, implement, and monitor restoration activities. In contrast to top-down approaches that instruct stakeholders on how to implement a specific restoration intervention, this more dynamic and integrative approach can be a form of empowerment. It recognizes the ability of participants working at different scales to apply the information they learn to their own projects or own land use decisions.

In Brazil, for example, the Atlantic Forest Restoration Pact (AFRP—*Pacto para la Restauração da Mata Atlântica*—https://www.pactomataatlantica.org.br) holds training activities at a network of research and demonstration sites at which they teach participants about an array of technical interventions. These interventions include land use planning to address environmental legislation, site and landscape diagnosis for cost-effective restoration, production of timber and nontimber forest products in novel restoration schemes, and restoration monitoring according to standardized methods that allow comparisons among different projects and dissemination of successful restoration approaches (Pinto et al., 2014). The AFRP also focuses on the prioritization of land uses in agricultural landscapes in order to maintain production and comply with the Brazilian forest law. AFRP helps train landholders to identify (a) ecologically sensitive areas of priority for native species restoration, (b) areas with steep slopes and less intensive agriculture which are likely to regenerate quickly, and (c) areas that remain production and are most suitable to maintain and enhance agricultural production (Holl, 2017).

From 2016 to 2017, ELTI and the IUCN (https://www.iucn.org) partnered to provide online training to government officials and representatives of nongovernmental organizations engaged in national- and subnational-level planning for FLR in 32 countries of Africa, Asia, and Latin America. These courses provided theory and examples on the range of different interventions within the umbrella of FLR. Course exercises guided participants to reflect on how biophysical, social, and financial considerations influence which interventions they would prioritize within the landscapes in which they work or influence. During follow-up surveys and interviews, participants explained that the courses introduced them to the multifaceted aspects of FLR interventions when they had previously viewed restoration as only encompassing tree planting or as returning land to an undisturbed state. Some participants later worked within their institutions to advocate for FLR policies to include diverse approaches. Others designed their own capacity development activities to train local stakeholders (ELTI & IUCN, 2017).

Multiple Subjects and Skill Sets in Addition to Technical or Ecological Themes

Implementing successful FLR initiatives requires much more than the application of technical expertise (Aguilar et al., 2015; Calmon et al., 2011). Rather, it requires the integration and application of skills and knowledge about broader sociocultural, economic, legal, and political aspects of implementing restoration at different scales (Chazdon et al., 2017). For example, practitioners involved in FLR need diverse business and leadership skills to mobilize funds and access financial capital, which may involve grant writing, applying for loans or lines of credit, accounting, budgeting, and connecting goods and services to broader commodity markets (Brancalion et al., 2017; Meli et al., 2019). Restoration on a plot or site level can be a mandatory activity for complying with environmental laws, such as those included in biodiversity offsetting and land use policies (e.g., Murcia, Guariguata, Quintero-Vallejo, & Ramírez, 2017). Understanding the complexity of these laws and learning how to apply them on the ground are critical for scaling-up restoration (Chaves, Durigan, Brancalion, & Aronson, 2015). In addition, the stakeholders must often maneuver governance challenges, such as financial or

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regulatory disincentives, unclear and contested land tenure, and other complex social issues (Guariguata & Brancalion, 2014; Mansourian, 2016).

Capacity development related to FLR activities can be designed to address these diverse themes. The organizations reviewed for this article use a variety of different approaches, sometimes holding courses that integrate social and economic considerations along with the technical information presented, or other times using skill-building workshops to focus on one specific aspect of FLR. To complement training via formal events (e.g., courses and workshops), many of the groups have found that one-on-one mentorship and guidance are important activities to enhance skills and literacy of participants related to business, finance, policymaking, communications, and project management. Even if specific activities focus on one subject area, it is important for capacity development to have a holistic and interdisciplinary view of the broader picture.

Reforestamos Mexico (https://www.reforestamosmexico.org) works to develop leadership skills with a focus on business and entrepreneurship. Through their Young Forest Entrepreneurs program, they work with forestry schools in Mexico to complement the conventional technical education on forest management with programs to build skills about planning and running sustainable forest enterprises. Many participating students come from rural communities and compete to create proposals for new businesses for forest products within their community. Staff members from *Reforestamos Mexico* guide them by providing ongoing mentorship opportunities and holding networking events to help participants strengthen their capacity to develop business plans and pitch their business ideas to representatives of the forest sector (Bloomfield et al., 2018).

In the Philippines, Visayas State University (https://www.vsu.edu.ph/departments-cfes/institute-of-tropical-ecology) and partners have had success developing the capacity of community associations to navigate complex land tenure arrangements, which have helped the communities obtain the legal rights to conduct restoration activities. They promote a restoration methodology referred to as *Rainforestation*, which uses native species for reforestation and agroforestry. While *Rainforestation* training includes technical aspects, the technical aspects are only one component of a lengthy capacity development process. As part of their participatory approach, community organizers affiliated with Visayas State University (a) help community groups form associations and apply for formal registration of their farmers associations, (b) facilitate engagement between community members, local government units and the Philippine Department of Natural Resources, and (c) guide the association through the process of securing recognition of their rights to manage the land and harvest trees (Bande et al., 2016).

Conservation Implications

With global efforts to restore tropical forest landscapes increasing at an unprecedented rate, capacity development is a key approach for diverse organizations to bring national commitments from pledges into action on the ground, thereby achieving the ecological and social goals of FLR. However, many experiences with capacity development for restoration are highly distributed and focus on purely ecological aspects and plot-level scales, which results in a major barrier for designing capacity development activities tailored to the FLR context. To advance the knowledge base for effective implementation of FLR, we see a need for more studies and articles within the academic literature that synthesize, elaborate, and evaluate approaches to capacity development relevant to the interdisciplinary and multiscale dimensions of FLR.

This article, therefore, serves as a starting point to catalyze the synthesis and sharing of experiences on capacity development for FLR. By tailoring capacity development to stakeholder needs, integrating information from diverse sources, exposing participants to the full suite of restoration interventions, and reaching beyond only the technical aspects of restoration, we suggest that capacity development initiatives can help stakeholders address the multidimensional nature of FLR. These strategies for effective capacity development are especially relevant as the national commitments expand the spatial scale of restoration interventions, which adds to the biophysical and social complexity of these interventions. We hope that these components of effective capacity development can help diverse organizations successfully advance the implementation of FLR commitments in a range of socioecological contexts.

Acknowledgments

The authors thank representatives of the 11 organizations discussed in this synthesis, including Zoraida Calle, Severino Rodrigo Ribeiro Pinto, Marina Merlo Campos, Gabriela González García, Carlos Estrada, Miriam Kuzee, Saskia Santamaría, Jacob Slusser, David Neidel, Hazel Consunji, Marlito Bande, Aníbal Ramírez-Soto, and José Carlos Martínez-Hernández, José María Rey Benayas and many others who during numerous discussions and collaborations have shared their experiences and insights into capacity development for restoration.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: G. B., E. G., and E. T. thank Arcadia, a charitable fund of Lisbet Rausing and Peter Baldwin. P. M. acknowledges Fundação de Amparo à Pesquisa do Estado de São Paulo for a postdoctoral grant (2016/00052–9). P. H. S. B. thanks the National Council for Scientific and Technological Development of Brazil (Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), grant #304817/2015–5). M. R. G. acknowledges funding from the CGIAR (https://www.cgiar.org) Program on Forests, Trees and Agroforestry and the United States Agency for International Development.

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Note

1. We searched for the academic literature with the words "restoration," "rehabilitation," and "recovery" in the context of trees and forests. This included, but was not limited to, the literature on "forest landscape restoration" specifically.

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