Gmail posma_hutatasoit hutasoit <posmahutasoit@gmail.com>

Notification of Publication

2 messages

IKR PUBLISHERS <submit.ikrpublishers@gmail.com> Tue, May 6, 2025 at 11:21 PM
To: posmahutasoit@gmail.com

Dear Sir,

We are pleased to inform you that your paper has been successfully published.

https://ikrpublishers.com/wp-content/uploads/2025/05/IKRJAHSS0140-2025-1.pdf

posma_hutatasoit hutasoit <posmahutasoit@gmail.com> Tue, May 6, 2025 at 11:43 PM
To: IKR PUBLISHERS <submit.ikrpublishers@gmail.com>

Thank you.

[Quoted text hidden]

Strengthening Community Engagement in Environmental Restoration through Crowd Planting Initiatives in Lembata, East Nusa Tenggara, Indonesia

Posma Sariguna Johnson Kennedy
The Center for Defense Economics, Environmental, Social, and Governance Studies, and Toba Caldera (CEDESG-TC) of the Faculty of Economics and Business
Universitas Kristen Indonesia
Email/Hp : posmahutasoit@gmail.com / +62170260333

Abstract

Crowd planting is a community-based approach to environmental restoration that emphasizes active local participation in project planning and implementation. This paper examines a crowd planting initiative in Lembata, East Nusa Tenggara, Indonesia, where community involvement is crucial to the success and sustainability of reforestation efforts. By leveraging local knowledge, building trust, and providing socio-economic incentives, the initiative aims to foster a sense of ownership, enhance local welfare, and strengthen ecological resilience. The study reviews the participatory strategies implemented, the socio-cultural dynamics influencing community engagement, and the challenges encountered, ultimately offering insights and recommendations to bolster community-driven restoration efforts in Lembata.

Keywords: Community engagement, crowd planting, ecological restoration, local knowledge, Lembata, East Nusa Tenggara

1. Introduction

Environmental restoration often struggle to achieve long-term results when local communities are not actively involved. Without such engagement, projects risk losing essential local support necessary for sustainability and overall effectiveness. Community involvement in environmental restoration projects has been shown to enhance project outcomes by fostering a sense of ownership, trust, and active participation (Gilmour et al., 2015). Moreover, such engagement can also create socio-economic opportunities—for example, job creation, skill development, and strengthened community–environment relationships.

In regions like Lembata, East Nusa Tenggara, which face complex socio-economic and environmental challenges, community-based ecological restoration models, such as crowd planting, offer a particularly relevant and adaptive approach. Lembata's unique geographical

and socio-cultural context necessitates a restoration approach rooted in local understanding. Challenges in the region include land degradation, climate change impacts, dependence on traditional agriculture, and low household incomes reliant on natural resources.

One promising solution to these challenges is agroforestry based on the native Malapari tree (Pongamia pinnata), which has demonstrated resilience under extreme conditions, significant carbon sequestration capabilities, and potential for participation in carbon trading schemes through the Economic Carbon Value framework. Additionally, the seeds of Malapari can be processed into biofuel, thereby opening new economic avenues and supporting the transition to clean energy (Leksono et al., 2021; Gunawan et al., 2022).

However, the successful cultivation of Malapari (Pongamia pinnata) requires strong support from the local community, particularly through the active participation of the indigenous Lamaholot people in East Nusa Tenggara Province. The Lamaholot are an indigenous ethnic group residing in the eastern region of Indonesia, primarily on Flores Island. This indigenous ecological knowledge, passed down through generations, can play a crucial role in enhancing the sustainability of agroforestry initiatives such as Malapari cultivation. By incorporating their insights and involving them in decision-making processes, restoration projects can become more culturally relevant and environmentally effective, ultimately strengthening local resilience to climate change and fostering long-term community-driven conservation efforts. (Kennedy & Zefanya, 2023)

Crowd planting integrates ecological objectives with social and economic benefits. It involves communities in every phase of the project—from planning and species selection to implementation and long-term maintenance. This approach not only encourages tree planting activities but also ensures that local stakeholders are engaged in decision-making processes, thereby aligning ecological restoration with community well-being (Pretty, 1995; Mansourian et al., 2017).

However, crowd planting initiatives are not without challenges. Factors such as mistrust toward external actors, reliance on external resources, and socio-economic inequalities can hinder effective community engagement. Understanding these challenges and leveraging local strengths are therefore crucial to achieving sustainable restoration outcomes.

The aim of this paper is to examine the role of community engagement in the crowd planting initiative in Lembata, focusing on strategies to overcome challenges and utilize local resources to attain sustainable environmental outcomes.

2. Literature Review

2.1 Community Engagement in Environmental Restoration

Community involvement in environmental restoration underscores the critical importance of participatory planning, trust-building, and joint decision-making (Pretty, 1995). The core tenet of this approach is that when communities are engaged in both the planning and implementation phases of restoration projects, the outcomes tend to be more sustainable and effective. Active participation empowers community members to contribute not only through their labor and local knowledge but also by fostering a profound sense of ownership, which in turn promotes long-term maintenance efforts (Mansourian et al., 2017). Several studies have shown that direct community involvement enhances the value of local contributions—both in terms of manpower and indigenous knowledge—thereby facilitating the integration of local values that align the project with the specific needs and priorities of the community (Barton et al., 2009). Moreover, community participation contributes to ecological recovery while simultaneously strengthening the emotional connection between residents and their environment, potentially cultivating a robust culture of environmental stewardship for the future. However, to ensure that community engagement is effective, it is essential that the decision-making process reflects the genuine desires and requirements of the community. Therefore, an inclusive and transparent approach at every stage of planning is vital for securing sustained support and participation from all local stakeholders (Khan et al., 2018).

2.2 Crowd Planting as an Ecological Restoration Model

Mass planting, or crowd planting, represents an innovative ecological restoration approach that integrates environmental goals with socio-economic benefits by creating job opportunities and educational prospects for local communities. This model has demonstrated effectiveness in enhancing ecosystem health and delivering socio-economic benefits through the sustainable use of natural resources (Schroeder et al., 2015). By emphasizing collaboration between project managers and community members, crowd planting proves particularly effective in underdeveloped regions or areas facing economic challenges, as it not only focuses on ecological recovery but also on generating economic opportunities. These include the creation of employment, capacity-building initiatives, and increased income through the sustainable management of local resources (Schroeder et al., 2015). Moreover, by involving communities in every phase—from planning to ongoing plant maintenance—the model cultivates a sense of ownership and accountability for the project's sustainability. In addition to its socio-economic

impacts, crowd planting yields significant ecological benefits such as improved soil fertility, enhanced biodiversity, and better water retention. When communities experience tangible benefits, such as increased agricultural yields or reduced vulnerability to climate change, they are more likely to continue supporting and maintaining restoration efforts over the long term (Gilmour et al., 2015).

2.3 Challenges to Effective Community Engagement

Despite the many benefits, community engagement in environmental restoration projects encounters several challenges. One major obstacle is the mistrust between the community and project implementers, often rooted in previous negative experiences with external projects, a lack of transparency, or perceptions that the project is imposed without sufficient consultation. When community members feel excluded from decision-making processes or believe that their input is ignored, they are less likely to support or engage in the project (Meyer et al., 2020). Another significant challenge is the heavy reliance on external resources, such as financial support, technical expertise, or equipment; while such support is vital during the initial stages, overdependence may compromise the community's capacity to manage the project independently over time, highlighting the need for robust local capacity building (Mansourian et al., 2017). Additionally, socio-economic inequalities within the community can further impede effective engagement, as marginalized groups may be excluded due to limited resources or social discrimination. Consequently, it is imperative to ensure inclusive participation—particularly among vulnerable and marginalized groups—so that all perspectives are considered and the benefits of the project are distributed equitably (Khan et al., 2018). Addressing these challenges requires a comprehensive strategy that encompasses building trust through transparent communication, enhancing local capacity through training and empowerment, and ensuring that the project aligns with local needs and values. By overcoming these barriers, environmental restoration projects can operate more effectively and yield more sustainable outcomes (Pretty, 1995; Mansourian et al., 2017).

3. Methods

This study employs a qualitative Participatory Action Research (PAR) approach in Lembata, East Nusa Tenggara, to engage the community actively throughout the research process and promote both environmental and social benefits.

3.1 Data Collection

In this study, data were systematically collected through a multifaceted approach that integrated semi-structured interviews, focus group discussions, field observations, and stakeholder analysis to comprehensively assess community engagement in the crowd planting initiative. Semi-structured interviews were conducted with community members, local leaders, and project implementers to capture perceptions concerning community trust, the application of local knowledge, and the socio-cultural factors influencing participation. In parallel, focus group discussions were organized to create a forum for collective dialogue on planting practices, maintenance strategies, and restoration goals, thereby yielding a diverse array of community insights. Direct field observations complemented these methods by documenting the practical aspects of crowd planting activities, the site selection processes, and the challenges encountered during maintenance, which proved crucial for identifying technical needs and support requirements. Moreover, a stakeholder analysis was performed to identify key community influencers and evaluate their roles, ensuring effective alignment and collaboration between project implementers and the local community. The integration of these diverse data collection methods allowed for a robust evaluation of community perceptions and trust levels, providing critical insights into factors that may influence long-term project engagement (Gilmour et al., 2015; Pretty, 1995; Mansourian et al., 2017).

3.2 Stakeholder Analysis

Stakeholder analysis was conducted to identify key community actors whose influence is critical to the success of the project. This analysis served two primary purposes. First, it aimed to identify community influencers—such as traditional leaders, religious figures, and heads of local groups—whose involvement in decision-making processes is essential for garnering widespread support and serving as a vital link between the project implementers and the community. These influencers are instrumental in fostering trust and facilitating communication, thereby bridging potential gaps between external project teams and local residents (Gilmour et al., 2015; Khan et al., 2018). Second, the analysis evaluated the distinct roles each stakeholder plays in either supporting or potentially hindering the project, as well as the specific support required by each group, including the need for training, resource allocation, and enhanced inter-group coordination. By understanding these dynamics, the project can tailor its strategies to ensure that each stakeholder is adequately supported and effectively integrated into the project's overall framework, thereby promoting long-term sustainability and community-driven success (Pretty, 1995; Mansourian et al., 2017).

3.3 Evaluating Community Perceptions And Trust Levels

The study placed significant emphasis on evaluating community perceptions and trust levels regarding the project and its implementers. This evaluation sought to determine whether community members viewed the crowd planting initiative as aligning with their local needs and values or as an externally imposed effort potentially at odds with their cultural norms. To achieve this, the research employed a combination of semi-structured interviews, focus group discussions, and direct observations, which allowed for an in-depth exploration of community awareness about the objectives and anticipated benefits of the project, as well as the challenges that might arise during its implementation. Specifically, community perceptions were examined to ascertain how well the initiative was understood in terms of its environmental restoration goals and the direct and indirect advantages it could offer. Concurrently, the study assessed the level of trust that community members placed in the project implementers, recognizing that high levels of trust are fundamental for effective communication, conflict resolution, and sustained engagement over time. By analyzing these dimensions, the research was able to identify key factors that may either facilitate or hinder long-term participation, ultimately providing valuable insights into how such initiatives can be better tailored to meet the needs and expectations of local communities (Gilmour et al., 2015; Pretty, 1995; Mansourian et al., 2017).

3.4 Analysis of Socio-Cultural Dynamics

The socio-cultural dynamics in Lembata were analyzed to understand how these factors influence community engagement in the project. Cultural aspects such as traditional land management practices, land ownership systems, and indigenous values significantly affect community responses to environmental restoration initiatives. This study explored these elements by first identifying local values and norms—cultural tenets like gotong royong (mutual cooperation), collective responsibility, and a deep respect for nature—which provide a robust foundation for supporting crowd planting initiatives. By comprehending these local norms, project implementers can design activities that are culturally congruent and reinforce traditional practices. In addition, the study assessed the socio-economic impact by examining how the community's economic conditions might affect participation. For example, economic hardships may deter some community members from engaging fully in the project unless adequate incentives are offered, whereas the provision of economic opportunities through

project-related employment, such as tree planting and maintenance, can serve as a strong motivator for participation (Gilmour et al., 2015; Pretty, 1995; Mansourian et al., 2017).

4. Discussion

Community engagement strategies, including participatory planning, consistent communication, and socio-economic incentives, are critical for the success of crowd planting initiatives in Lembata. The participatory process not only increases ecological success but also enhances the long-term socio-economic independence of the community.

4.1 Community Engagement Strategies

Community engagement strategies are fundamental to the success of crowd planting projects, as they ensure that community members not only participate but also feel a strong sense of ownership and responsibility for the project's outcomes. A key element of this strategy is participatory planning and decision-making, which involves organizing regular workshops and community meetings to solicit input and ideas that tailor the project to the local ecological and cultural context. During these sessions, community members actively participate in identifying suitable plant species based on local soil and climate conditions—drawing on indigenous knowledge to select species that are both resilient and beneficial, whether through economic value or ecological support—as well as in selecting planting sites that avoid conflicts with primary local economic activities, thereby fostering a sense of ownership over the chosen locations. Additionally, communities collaborate in developing maintenance protocols through targeted training and the adoption of proper management practices, which empowers them to sustain the project independently in the long term (Mansourian et al., 2017; Schroeder et al., 2015). Equally essential is the establishment of trust through consistent communication, where transparency about the project’s objectives, challenges, and financial management is prioritized. Regular feedback mechanisms, such as community forums and suggestion boxes, not only facilitate accountability by allowing residents to express their concerns and suggestions but also ensure that project implementers can respond promptly and effectively. Open communication regarding budget allocations further dispels suspicions and reinforces the trust between the community and project leaders, thereby promoting sustained, active participation.

4.2 Socio-Economic Benefits and Incentives

Socio-economic benefits and incentives serve as critical indicators of success for crowd planting projects, which are evaluated not only based on their ecological outcomes but also on their positive impacts on local communities. By creating diverse economic opportunities and enhancing community capacity through targeted training programs, these projects contribute directly to the welfare of the community. For example, training in sustainable agriculture and ecological restoration techniques—including effective planting methods and proper land management practices—empowers community members with the knowledge and skills necessary to manage their environment independently in the long term. Moreover, crowd planting initiatives generate employment opportunities in various areas such as planting, maintenance, and monitoring, thereby providing direct economic benefits that incentivize active participation and sustained commitment to restoration efforts. In addition to these direct employment benefits, such projects open avenues for income diversification by enabling communities to produce agricultural goods or value-added products from restored lands; certain plant species, for instance, can be utilized as food sources or raw materials for crafts, further strengthening local livelihoods over time. Collectively, these socio-economic strategies not only enhance immediate economic conditions but also promote the long-term sustainability of environmental restoration initiatives.

4.3 Barriers and Mitigation Strategies

Despite the clear benefits offered by crowd planting projects in terms of ecological and socio-economic improvements, significant obstacles to effective community involvement remain. One major challenge is a history of conflict and mistrust, as communities may harbor skepticism toward new initiatives due to negative experiences with previous externally driven projects, particularly when they feel inadequately involved in decision-making processes (Meyer et al., 2020). Additionally, when a project is perceived as an external agenda that does not resonate with the community's needs or cultural values, resistance is likely to increase, underscoring the necessity of aligning project objectives with local priorities through culturally sensitive consultation (Khan et al., 2018). Another critical barrier is the overreliance on external funding and technical expertise, which can undermine the long-term sustainability of the project; communities may become dependent on outside support and consequently lack the capacity to maintain the initiative independently once such resources are withdrawn (Mansourian et al., 2017). To address these challenges, a multifaceted strategy is essential. First, local capacity building through comprehensive training and skills development

empowers community members to manage and sustain project activities autonomously, thereby reducing dependency on external resources. Second, the active involvement of respected local leaders can enhance the legitimacy of the project and serve as an effective bridge between external implementers and the community, helping to overcome entrenched mistrust. Finally, establishing transparent feedback channels—such as public consultations, regular surveys, and community forums—ensures that community concerns and suggestions are systematically integrated into the project's decision-making process, reinforcing a sense of ownership and trust among community members (Pretty, 1995). Collectively, these strategies provide a robust framework for mitigating social risks and fostering sustainable community engagement in environmental restoration initiatives.

4.4 Enhancing Engagement Through Co-creation and Empowerment

This study underscores the critical role of co-creation in establishing project goals and strategies in collaboration with community members, a process that enables crowd planting initiatives to align closely with local priorities and create a strong foundation for sustainable community engagement. Co-creation facilitates the expression of community needs and values, ensuring that the project not only delivers environmental benefits but also meets the specific requirements of the community, thereby strengthening the sense of ownership and enhancing long-term commitment (Pretty, 1995). Moreover, empowerment through capacity building is achieved by offering training and skill development programs in sustainable agriculture, ecological restoration techniques, and project management, which equips community members with the necessary expertise to assume greater responsibility in the implementation and maintenance of the project, reducing reliance on external experts (Mansourian et al., 2017). In addition, the creation of income-generating opportunities through the project, such as job prospects in planting, maintenance, and ancillary services, fosters deeper involvement as community members experience direct economic benefits that further motivate active participation and bolster support from families and the broader community. Ultimately, when communities are engaged at every stage—from planning to execution—and are provided with the skills and economic incentives needed to sustain the initiative, they are more likely to view the project as an integral component of long-term regional development rather than a temporary intervention.

4.5 Addressing Social Risks

Addressing social risks is a critical focus for ensuring the long-term success of crowd planting projects. Such risks encompass potential over-dependence on external resources, conflicts of interest, and resistance to new initiatives perceived as conflicting with longstanding traditions or community interests. Central to mitigating these risks is the imperative to build trust, which serves as the foundation of any community-based project. To reduce resistance, it is essential for project implementers to communicate objectives, strategies, and benefits clearly and transparently, thereby dispelling suspicions and strengthening the relationship between the project team and the community (Pretty, 1995). Equally important is reducing reliance on external resources; excessive dependency can jeopardize project continuity if such support diminishes over time. Continuous training and capacity-building efforts are therefore necessary to foster community self-reliance, ensuring that local stakeholders can sustain project activities independently (Mansourian et al., 2017). Moreover, implementing robust feedback mechanisms—such as satisfaction surveys, evaluation meetings, and regular consultation sessions—provides community members with a direct channel to express their views and identify areas for improvement, thereby reinforcing a bidirectional communication flow where voices are heard and valued. Finally, the active involvement of influential community figures, including traditional leaders, religious authorities, and local officials, plays a pivotal role in promoting the project. These key influencers can offer moral support and effectively persuade others to participate, ultimately enhancing community acceptance and fostering a supportive environment for the initiative.

5. Implications for Practice

The findings from this study have several practical implications for similar community-based restoration projects:

5.1 Inclusive Planning and Transparent Communication

Inclusive planning and transparent communication are fundamental to ensuring that the entire community experiences the positive impacts of a project while clearly understanding its goals, methods, and benefits. When community members from diverse backgrounds—including marginalized groups such as women, indigenous peoples, and economically disadvantaged segments—are actively involved in the planning stages, the project is more likely to incorporate a broad spectrum of perspectives that reflect local needs and values. This

inclusive approach fosters buy-in by ensuring that all stakeholders feel valued and heard, which, in turn, enhances overall community support and increases the likelihood of project success. Moreover, transparent communication practices—such as holding regular meetings and discussion sessions—create the necessary openness for building trust between project implementers and the community. By openly sharing information on resources, roles, and challenges at every stage of the project, misunderstandings that might otherwise lead to distrust are minimized, and community members are provided with a direct channel to voice concerns or suggestions. Such clear and continuous communication not only strengthens community engagement but also facilitates adaptive management, ultimately contributing to the sustainable success of the initiative.

5.2 Capacity Building for Local Empowerment

Training and capacity building are fundamental to ensuring the long-term sustainability of the project. By equipping the community with the necessary skills and knowledge, the project not only yields immediate benefits but also builds the capacity for independent, future maintenance. Comprehensive training programs covering sustainable agricultural techniques, ecological restoration practices, and project management empower community members to participate in technical aspects such as planting, maintenance, and monitoring, thereby reducing reliance on external expertise and fostering a strong sense of ownership over the project. Furthermore, enhancing local capacity diminishes dependency on external support, enabling the community to sustain restoration and conservation efforts even if external resources wane. In addition to promoting self-sufficiency, the skills acquired through these programs can boost the community's economic potential—for instance, by facilitating the adoption of sustainable agriculture practices that generate supplementary income. This holistic approach to capacity building is critical for the resilience and enduring success of environmental restoration initiatives.

5.3 Economic Incentives and Socio-Economic Benefits

Providing economic incentives and benefits to the community represents a pivotal strategy for sustaining long-term engagement in environmental initiatives. By creating economic opportunities through the project, communities can experience not only ecological improvements but also tangible enhancements to their overall well-being. For instance, crowd planting projects can generate various employment opportunities—including roles in planting, maintenance, and monitoring—which serve as additional income sources that directly improve

local livelihoods. Employing local workers for maintenance activities or involving them in reporting and monitoring processes reinforces the community's commitment to the project's success. Moreover, recognizing community efforts through public accolades, certificates, or formal acknowledgments boosts motivation by demonstrating that individual and collective contributions are valued. This recognition strengthens emotional ties to the environmental initiative and encourages active, sustained participation. Additionally, by clearly linking environmental actions to improvements in community welfare, the project effectively illustrates that environmental stewardship can yield immediate economic benefits. When community members perceive a strong connection between environmental restoration and their economic prosperity, they are more inclined to maintain long-term involvement, ensuring that the project's benefits are both immediate and enduring.

Figure 1. Conducting outreach and awareness activities on crowd planting.

6. Conclusion

The effective community engagement is critical to the success and sustainability of environmental restoration projects, particularly in regions like Lembata. By integrating participatory planning, transparent communication, and robust capacity building, crowd planting initiatives not only enhance ecological outcomes but also generate significant socio-economic benefits that foster local ownership and long-term commitment. Despite challenges such as mistrust, reliance on external resources, and socio-economic inequalities, the adoption of inclusive strategies—such as stakeholder involvement, co-creation of project goals, and the creation of income-generating opportunities—proves essential in mitigating these barriers and reinforcing community resilience. Overall, the findings underscore the importance of aligning

restoration projects with local needs and values to secure both environmental and community well-being, thereby paving the way for sustainable, community-driven development.

Acknowledgments

We extend our sincere gratitude to Yayasan Anton Enga Tifaona for their pivotal role in facilitating our activities, as well as to the Camat who participated in Lembata Regency, East Nusa Tenggara Province, Indonesia.

References

Barton, D. N., Benavides, K., Chacon-Cascante, A., Le Coq, J. F., Quiros, M. M., & Porras, I. (2009). Environmental service payments: Evaluating their contribution to conservation in Costa Rica. *Environmental Management, 44*(4), 638–649. https://doi.org/10.1007/s00267-009-9344-2

Gilmour, D., Saito, O., & Takeuchi, K. (2015). Mainstreaming community-based conservation in a transdisciplinary world. *Forest Policy and Economics, 50*, 1–8. https://doi.org/10.1016/j.forpol.2014.09.006

Gunawan, H., Yeny, I., Karlina, E., Suharti, S., Mulyanto, B., Ekawati, S., ... & Nurlia, A. (2022). Integrating social forestry and biodiversity conservation in Indonesia. Forests, 13(12), 2152. https://doi.org/10.3390/f13122152

Kennedy, P. S. J., & Zefanya, A. (2023). Diskusi mengenai Suku Lamaholot dan perubahan iklim dalam pengembangan tanaman Malapari di NTT. *Jurnal IKRAITH-ABDIMAS*, 7(3). https://doi.org/10.37817/ikra-ithabdimas.v7i3.3014

Khan, S., Pervaiz, U., Ahmad, Z., & Khan, N. (2018). Stakeholder participation in sustainable watershed management: A case study of Pakistan. *Sustainability, 10*(7), 2249. https://doi.org/10.3390/su10072249

Leksono, B., Rahman, S. A., Larjavaara, M., Purbaya, D. A., Arpiwi, N. L., Samsudin, Y. B., ... & Baral, H. (2021). *Pongamia*: A possible option for degraded land restoration and bioenergy production in Indonesia. *Forests, 12*(11), 1468. https://doi.org/10.3390/f12111468

Mansourian, S., Dudley, N., & Vallauri, D. (2017). Forest landscape restoration: Progress in the last decade and remaining challenges. *Ecology and Society, 22*(4), 38. https://doi.org/10.5751/ES-09814-220438

Meyer, K., Glaser, B., & Haase, D. (2020). Trust and participation in urban greening projects: Lessons from Leipzig, Germany. *Global Environmental Change, 60*, 102022. https://doi.org/10.1016/j.gloenvcha.2019.102022

Pretty, J. (1995). Participatory learning for sustainable agriculture. *World Development, 23*(8), 1247–1263. https://doi.org/10.1016/0305-750X(95)00046-F

Pretty, J. (1995). Regenerating agriculture: The agroecological approach. In R. B. Singh (Ed.), *Sustainable agriculture and rural development* (pp. 45–68). Sage Publications.

Schroeder, H., González, E. J., & Garibay, C. (2015). Community-based reforestation in Mexico: Balancing ecological and socioeconomic goals. *Environmental Science & Policy, 52*, 23–32. https://doi.org/10.1016/j.envsci.2015.04.016