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Taking a Learning-Focussed Approach to Planning And Implementing Agro-Conservation Initiatives: Insights from Working with Small-Scale Farmers In Latin America

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Abstract

Community-based agro-conservation initiatives offer opportunities for learning that can help address complex issues like food security, human health, environmental degradation, poverty, and gender inequities. This paper examines five Latin American case studies that occurred over the past two decades, in which the author has been directly involved, to identify approaches that foster learning for sustainability within agro-conservation initiatives. Specific consideration is given to approaches that support meaningful engagement in decision-making, changes in farming practices, and address gender inequities in development. The analysis examines published findings from these case studies and data from a recent (unpublished) case study. Conceptual papers anchor this work within the broader field of learning for sustainability through participation in natural resources and environmental management activities. This is a research-informed, practice-focussed paper. The paper concludes with an invitation for those responsible for these types of initiatives—whether they be technical outreach activities, organizational/project planning processes, or other—to maximise learning potential when designing and implementing them. Some guiding principles and practical recommendations are provided for planning and implementing learning-focussed natural resources and environmental management activities.

Keywords: agro-conservation, learning for sustainability, gender equity in development, conditions for learning, natural resources and environmental management

Adopter une approche axée sur l'apprentissage pour la planification et la mise en œuvre d'initiatives de l'agriculture de conservation : leçons tirées du travail avec les petits exploitants agricoles en Amérique latine

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Résumé

Les initiatives d'agriculture de conservation communautaires offrent des occasions d'apprentissage qui peuvent aider à résoudre des problèmes complexes tels que la sécurité alimentaire, la santé humaine, la dégradation de l'environnement, la pauvreté et les inégalités de genre. Cet article examine cinq études de cas en Amérique latine menées au cours des deux dernières décennies, auxquelles l'auteure a participé directement, afin d'identifier des approches favorisant l'apprentissage pour le développement durable au sein des initiatives d'agriculture de conservation. Une attention particulière est accordée aux approches qui soutiennent une participation significative au processus décisionnel, les changements dans les pratiques agricoles et la réduction des inégalités entre les sexes dans le développement. L'analyse examine les résultats publiés de ces études de cas ainsi que les données d'une étude de cas récente (non publiée). Des articles conceptuels ancrent ce travail dans le champ plus vaste de l'apprentissage au service du développement durable par la participation à des activités de gestion des ressources naturelles et de l'environnement. Il s'agit d'un article fondé sur la recherche et axé sur la pratique. L'article se termine par une invitation aux responsables de ce type d'initiatives – qu'il s'agisse d'activités de sensibilisation technique, de processus de planification organisationnelle ou de projet, ou autres – à optimiser le potentiel d'apprentissage lors de leur conception et de leur mise en œuvre. Des principes directeurs et des recommandations pratiques sont proposés pour la planification et la mise en œuvre d'activités de gestion des ressources naturelles et de l'environnement axées sur l'apprentissage.

Mots-clés : agriculture de conservation, l'apprentissage au service du développement durable, égalité des sexes dans le développement, conditions d'apprentissage, gestion des ressources naturelles et de l'environnement

1.0 Context and Intention

As a global community, we face severe challenges related to climate change, biodiversity loss, food insecurity, human health, and persistent inequalities (Sims, 2021a). An essential component for addressing this urgent environmental and human well-being crisis is acquiring the skills and knowledge needed to confront these complex challenges. Moyer and Sinclair (2020) argue that societal transformation towards sustainability must be collectively elaborated, learned, and fostered. Natural resource and environmental management initiatives, including community-based agro-conservation initiatives, offer important opportunities for learning for sustainability (Diduck et al., 2012; Rodriguez Aboytes & Barth, 2020; Suskevics et al., 2019). Such learning can help address complex issues like environmental degradation, poverty, and gender inequities (Boström et al., 2018; Sims & Rodriguez-Corcho, 2022).

Since 2005, I have conducted qualitative research focussing on learning for sustainability through participation in agro-conservation initiatives with small-scale farmers in Costa Rica, Honduras, Nicaragua, and Colombia. The agro-conservation initiatives I have been involved with have ranged from participatory strategic-level decision-making processes (Sims, 2012; Sinclair et al., 2009) to collaborations to reduce pesticides (Sims, 2017, 2020, 2021a; Sims & Sinclair, 2008); to promoting agro-conservation practices through farmer cooperatives (Sims, 2021b; Sims & Rodriguez-Corcho, 2022). These initiatives shared a common purpose to address concerns around environmental degradation, human health, gender inequity, and to improve farmers' economic resilience.

The purpose herein is to reflect on these experiences to provide an overview of sustainability-related learning processes and outcomes resulting from participation in these agro-conservation initiatives. In doing so, I aim to encourage practitioners, researchers and policymakers to recognize the potential for learning-for-sustainability through participation in these types of initiatives; then, with this recognition, I hope to inspire those responsible to plan and implement activities accordingly, in direct and meaningful collaboration with rural communities and other related civil society actors, institutions, and stakeholders.

2.0 Approach

This paper examines these five Latin American case studies to identify approaches that foster learning for sustainability within agro-conservation initiatives. Specific consideration is given to approaches that support meaningful engagement in decision-making, changes in farming practices, and address gender inequities in development. For this analysis, I examined published findings (Sims, 2012, 2017, 2020, 2021a, 2021b; Sims & Rodriguez-Corcho, 2022; Sims & Sinclair, 2008; Sinclair et al., 2009) and data from a recent (unpublished) study with the Boquerón Peasant Farmers' Association in Colombia. Conceptual papers by Boström et al. (2018), Cornwall (2016), Diduck et al. (2012), Moyer and Sinclair (2020), Rodriguez Aboytes and Barth (2020) and Suskevics et al. (2019) anchor this work within the broader field of learning for sustainability through natural resources and environmental management. This is meant to be a research-informed, practice-focussed paper.

Following the introduction, an overview of the case studies, learning results and processes is explored. Next, different approaches to gender in development and learning are considered, concluding with some guiding principles and practical

recommendations for planning and implementing learning-focussed natural resources and environmental management activities.

3.0 Overview of Case Studies

This section provides a brief description of each case study, including the location, associated publications, and the acronym that will be used to refer to the particular studies throughout this paper. Then, I outline the methodology used for these studies and my role in them.

3.1 Case Study Descriptions

3.1.1. Watershed Management Agricultural Programme (WMAP) case study, Costa Rica. The WMAP case study evaluated learning through participation in the Instituto Costarricense de Electricidad's WMAP. Therein, the hydroelectric company promoted agro-conservation projects with small-scale farmers to reduce erosion and agro-chemicals from clogging up hydroelectric reservoirs (Sims & Sinclair, 2008).

3.1.2. Community-Based Strategic Environmental Assessment (Community-based SEA) case study, Costa Rica. The Community-based SEA case study involved: (i) doing a community-based SEA of the Instituto Costarricense de Electricidad's proposed second phase of their WMAP; (ii) testing an innovative, learning-focussed participatory approach to environmental assessment; and (iii) examining learning from participation in the community-based SEA process (Sims, 2012; Sinclair et al., 2009).

3.1.3. Canadian International Development Agency (CIDA) case study, Costa Rica, Nicaragua, Honduras. The CIDA case study examined learning through participation in CIDA's Community-based Pest Management in Central American Agriculture project where universities, rural communities and other stakeholders collaborated to increase human health and food security through better pest management practices (Sims, 2017, 2020, 2021a).

3.1.4. Coocampo case study, Colombia. The Coocampo case study examined learning through participation in Coocampo activities and governance. Coocampo is a dairy cooperative focussed on sustainability and gender equity (Sims, 2021b; Sims & Rodriguez-Corcho, 2022).

3.1.5. Asociación Campesina de Boquerón/Boquerón Peasant Farmers' Association (ACAB) case study, Colombia. The ACAB case study examined learning through participation in ACAB activities¹. ACAB is a cooperative made up of small-scale agro-ecological farmers (unpublished).

3.2 Methodological Approaches Used in These Studies and My Role

Across the studies, data collection methods included: semi-structured interviews, focus-group discussions, document review, and participant observation. Participants included small-scale farmers, representatives from governmental and non-governmental organizations (NGO), and other related stakeholders. Transformative learning theory was used to examine learning outcomes, processes (Moyer & Sinclair, 2020). Qualitative data analysis software was used to do inductive, thematic

¹ Ethics approval from Université de St. Boniface ETH 2019 6 février.

analysis of data. Case studies ranged in size from 13 (ACAB) to 46 (Community-based SEA) participants, for a combined total of 164 participants; 55% were men and 45% were women. All studies received ethics approval.

I am a Canadian academic working at a Canadian university; my role in these studies varied. With three of the studies (WMAP, Coocampo, ACAB), I was an outside researcher, studying learning outcomes and processes. With the Community-based SEA study, as a researcher, I designed and facilitated the community-based SEA process to test a learning-focussed participatory process to strategic environmental assessment; then I studied the learning from participation. With the CIDA project, I was the project manager (2008–2011), community-development team member (2008–2013) and researcher (2008–2016). In these different roles, I facilitated project planning and decision-making integrating a learning-focussed approach, implemented project activities with Central American collaborators, and then studied the learning from participation.

4.0 Learning Results

Herein, learning from participation in these agro-conservation initiatives is described. Table 1 provides an overview of learning results from across the case studies.

4.1 Learning Outcomes From Participation in These Agro-conservation Initiatives

Across these five Latin American case studies, all participants associated with activities that promoted farm-level agro-conservation practices (e.g., using cover crops, re-using farm-level resources to make fertilizers/insecticides, planting a variety of crops, using "good agricultural practices"²) reported learning alternative farming practices and information regarding the environment; this led to a change in behaviour. In four studies (CIDA, Coocampo, WMAP, ACAB), this change in farming practices resulted in improved human and environmental health, increased quality of life, and economic savings. In the Coocampo study, applying good agricultural practices increased production, quality of milk, and revenue. As with CIDA and ACAB research findings, Coocampo participants who adopted new agro-conservation practices (e.g., making fertilizer/insecticides) became more independent of commercial forces, thereby increasing their resiliency. These align with Rodriguez Aboytes and Barth's (2019) findings that prominent learning outcomes through natural resources and environmental management activities include new knowledge and practical skills linked to sustainability-related issues; these instrumental skills and knowledge are particularly necessary for action (Moyer & Sinclair, 2020).

To a greater or lesser extent, all participants experienced communicative learning outcomes. For example, Coocampo participants developed communicative and collaborative skills, strengthening their ability to work collectively, address conflicts and participate in local decision-making. With four of the studies (Coocampo, CIDA, Community-based SEA, ACAB), small-scale farmers and external actors working with them learnt group-working skills, gaining insight into

² According to the Food and Agriculture Organization of the United Nations, *Good agricultural practices* refer to farming methods that improve productivity while protecting the environment, supporting farmer livelihoods, and ensuring long-term sustainability of food systems (see FAO 2004 [background working paper](#) for more details).

their own and others' values and cultural norms. Coocampo participants learned how to discuss potentially contentious issues in respectful ways. Rodriguez Aboytes and Barth (2020) state that this kind of learning can help learners become more empathetic, compassionate, moving them towards more collective concerns and to valuing the environment and social justice more. According to Moyer and Sinclair (2020), communicative learning plays an important role in developing understanding and the necessary skills for participatory decision-making. Boström et al. (2018) identify learning how to handle conflict and difference in democratic decision-making as essential.

Table 1. *Overview of Learning Results from Across Case Studies*

Learning results	Factors that facilitated learning	Impact of learning
Instrumental learning: ▪ Learned alternative farming practices. ▪ Learned participatory approaches to planning and decision-making.	▪ Participating in experiential, hands-on forums that were meaningful for participants (e.g., technical outreach activities). ▪ Experimenting with newly acquired knowledge and skills.	▪ Improved human and environmental health. ▪ Increased agricultural production, quality of production, and economic savings. ▪ Increased resilience from market forces.
Communicative learning: ▪ Developed communicative and collaborative skills. ▪ Learned group-working skills.	▪ Having access to ongoing technical support and resources. ▪ Participating in deliberative, social forums, ones based on trust, respect, and reciprocity, where different life experiences and perspectives were shared, knowledge co-constructed, and where critical reflection around one's roles and responsibilities occurred.	▪ Strengthened ability to work collectively, address conflict, and participate in decision-making. ▪ Examples of collective social action.
Transformative learning: ▪ Gained confidence, a sense of self-worth and well-being. ▪ Heightened awareness around roles and responsibilities in producing healthy food and protecting the environment. ▪ Heightened awareness around gender roles and responsibilities.	▪ Participating in decision-making processes from designing initiatives to implementing them, reflecting on progress.	▪ Increased quality of life. ▪ Greater sense of stewardship for environment and community. ▪ Deeper commitment to pro-environmental behaviours. ▪ Greater attention paid to gender equity at individual/community level.

Learning how to, and the importance of, working collectively had beneficial results for ACAB study participants. For example, ACAB, along with the NGO Corporación Ecológica y Cultural Penca de Sábila (Penca), created Colyflor grocery, which provided a stable, fairly priced market for ACAB members' products. Two times annually, ACAB, Penca and another local organization voluntarily planned what they would grow individually and collectively. This, ensuring a variety of goods to sell at Colyflor whilst avoiding being in competition. ACAB members shared seeds with each other, supporting food sovereignty.

These collaboration-related learning outcomes resulted in collective social action. For example, Coocampo participants identified ongoing collaborations like the women's group, youth bakery, and tree nursery that supported economic resilience and community-led environmental initiatives. With Coocampo and ACAB, the solidarity economy reduced farmers' vulnerability; both associations had a "common fund" to support collective tasks. As cooperatives, participants described having a stronger voice when negotiating with external organizations. Notably, ACAB participated in municipal planning processes with Medellín, advocating for small-scale farmers as part of food security and water protection strategies. Through the community-based SEA, participants learned a community-based collaborative process that could be used again, allowing rural stakeholders to have a voice in proposed incoming development policies and programmes.

These experiences through Coocampo, ACAB, the WMAP, the community-based SEA, and the CIDA project, particularly for small-scale farmer participants, fostered confidence, a sense of self-worth and well-being. In four studies (ACAB, CIDA, Coocampo, WMAP), farmer participants became more aware of their important role in producing healthy food, protecting human health and the ecosystem. They described how contributing positively to the environment and community brought them deep satisfaction. In four studies (WMAP, CIDA, ACAB, Coocampo), findings show that farmer participants initially applied good agricultural practices for economic reasons. However, insights gained from their experiences applying these practices resulted in a greater sense of stewardship towards the land and for community well-being, which supported ongoing commitment to pro-environmental behaviours.

4.2 Factors That Facilitated Learning

Diduck et al. (2012) state that how natural resources and environmental management activities are designed and implemented influences learning processes and outcomes. When designing learning experiences, learners' characteristics, their needs, the context, and learning goals must all be taken into consideration (Sims, 2012, 2017; Sims & Sinclair, 2008).

Overall, case study findings reveal that the most significant component needed for facilitating learning was creating social forums for dialogue, ones where different life experiences and perspectives can be shared, where knowledge can be co-constructed and that are valuing and learning-focussed. In all of the deliberative spaces examined in the studies, learning occurred from people sharing, interacting with others [whether it was project proponent Instituto Costarricense de Electricidad to community members and visa versa (WMAP; Community-based SEA), farmer-farmer (all case studies), agro-technicians to farmers and visa-versa (WMAP, CIDA, Coocampo, ACAB), between university collaborators, students and farmers (CIDA), between consumers and farmers (ACAB)]. Sometimes these spaces were highly

deliberative (e.g., CIDA planning meetings; community-based SEA), sometimes highly experiential hands-on practical (e.g., demonstration plots, farm demonstration days) or a mix of both (CIDA, Community-based SEA, WMAP, Coocampo, ACAB).

Whether talking about gender equity or alternative-to-pesticide farming techniques in the WMAP, Coocampo, ACAB, CIDA studies, hearing alternative views was very important in terms of triggering critical reflection. This diversity of perspectives helped understand complex issues. In the CIDA study, creating courageous learning environments and establishing trustful relationships helped facilitate rational discourse, enabling participants to critique ideas and share knowledge. In three studies (CIDA, Coocampo, ACAB), problem-posing and problem-solving around a common concern and implementing ideas all supported learning processes. Rodriguez Aboytes and Barth (2020) explain that the conditions for transformative learning include "learning environments with meaningful relationships, partner facilitation, purposeful work and supported action" (p. 995).

Notwithstanding, in these rural contexts, there was a potential risk to changing behaviour: a risk to livelihood when changing farming practices or, regarding questioning gender roles, a risk of social exclusion or violence (Sims, 2017, 2021b; ACAB). It took courage to act differently. In the CIDA and Coocampo studies, relationships of trust and building a network of support gave farmers confidence to experiment with new farming practices and question gender roles in the home community.

4.2.1. Technical outreach activities. Regarding highly experiential hands-on practical forums, in four studies (WMAP, CIDA, Coocampo, ACAB), technical outreach activities, particularly farm demonstration plots, provided authentic venues to implement and experiment with newly acquired knowledge and skills. As with Suskevics et al.'s (2019) assertion that learning through intentional experimentation opens up people's minds to new ideas, in these studies, seeing the environmental/health benefits motivated farmers and technicians to be open to learning more. Access to ongoing technical support and resources supported the critical reflection process and ongoing implementation of agro-conservation practices.

Similar to other studies (Suskevics et al., 2019), providing educational mentors was identified as important for accompanying participants throughout the learning process. Community members were role models, peer educators and researchers within their communities. For example, with demonstration plots in four of the studies (WMAP, CIDA, Coocampo, ACAB), farmers researched and modelled agro-conservation techniques/practices for other farmers. In the CIDA project, farmer peer researchers were intermediaries between technical teams, communities, policy makers and academics. They provided access to local understandings and realities. Moyer and Sinclair (2020) identify participants being a model for others and sharing their learning as significant responses for learning.

Finally, in the ACAB study, the Agroecological school, run by NGO Penca, provided more formal educational opportunities for community members to learn and certify certain technical competencies around agro-ecological practices. It used demonstration plots and more conventional educational approaches to promote learning.

4.2.2. *Learning through strategic planning and project implementation.* Building on prior empirical research (Diduck et al., 2012), CIDA study findings affirmed that participatory approaches to planning and decision-making that integrate adult learning theory (e.g., incorporating the ideal conditions of learning³) can provide meaningful opportunities for: "co-creating local knowledge;...understanding local realities, values, constraints, and opportunities; and,...enabling local voice in decision-making" (Sims, 2020, p. 93). For example, with the CIDA project,

[T]he approach taken to project planning and implementation was holistic, interdisciplinary, and participatory...As university collaborators, in collective forums, this meant reflecting on challenges, engaging in a process of inquiry, asking critical questions...proposing solutions, assessing proposed actions, and making informed decisions. Putting ideas into action was a critical component of the iterative planning process as was, in a systematic way, reflecting upon progress and sharing results...These deliberative planning forums took many forms, international strategic planning meetings involved university-level collaborators..., students and community participants...Community-level planning involved farm families and national project team members. Planning at this level involved decision-making around appropriate workshops, farm demonstration days, and demonstration plots. (Sims, 2020, p. 98)

4.2.3. *Role of external agents.* In all five case studies, external organizations (e.g., governmental, NGOs, universities) had an important role in providing training, support and facilitating processes. In some cases, such as in three of the studies (WMAF, Community-based SEA, CIDA), initiatives were responding to an environmental and human health need. External actors (e.g., Instituto Costarricense de Electricidad) engaged with small-scale farmers in addressing complex natural resources and environmental management situations. In these cases, external actors initiated the process.

The ACAB and Coocampo studies revealed collective community-level responses to human health/environmental or economic crises (respectively). Their engagement with external actors was as a group of farmers organized around the solidarity economy. Coocampo participants recognized that they needed help developing their cooperative (especially due to vulnerabilities caused by low literacy levels and an isolated context). They approached the internationally funded NGO IMPACT for support and training. As for ACAB's situation, ACAB and the internationally funded NGO Penca had a longstanding relationship: Penca provided technical support to ACAB, organized workshops, ran the agroecological school, and, for many years,

³ Diduck et al. (2012) outline the ideal conditions for learning in natural resources and environmental management as participants: having "accurate and complete information;" being "free from coercion...;" being "open to alternative" perspectives; being "able to assess arguments objectively...;" being "able to critically reflect on assumptions;" and having "equal opportunity to participate" (p. 1315).

provided organizational support. For decades and until recently, ACAB and Penca were partners in Colyflor market/grocery.

Across the case studies, small-scale farmers and their organizations experienced a certain vulnerability as these external organizations evolved or funding ended. This vulnerability underlines the importance of building local capacity (e.g., community-level facilitators, peer researchers) so that community-level organizations can be independent and resilient.

4.3 Learning and Approaches to Gender in Development

With respect to learning, participation in agro-conservation initiatives and addressing questions around gender inequities, the studies revealed different approaches taken. In the WMAP study, gender was not necessarily a focus of the Instituto Costarricense de Electricidad's outreach work, however, gender-related learning outcomes did occur. For example, a seemingly unintentional outcome of implementing biodigestors provoked critical questioning of cultural norms around appropriate feminine behaviour.

In the community-based SEA process, men and women participated in the workshops with provisions provided to intentionally support their participation (e.g., childcare, day labour). The community-based SEA provided a forum for community members to propose ideas, including ones focussed on women and community development. The community-based SEA participants were able to systematically evaluate the environmental, social and economic impacts of the different ideas, including the impacts on women and others.

Gender equity was an intentional focus throughout the CIDA project. Project goals included equitable gender representation in project teams, engaging men and women in farm-level outreach activities (workshops, demonstration days) and ensuring that technical interventions responded to the often gendered nature of farm-level responsibilities [e.g., evaluating how pesticide use impacted men and women differently (spraying pesticides/washing clothes), then designing outreach activities accordingly].

Both ACAB and Coocampo shared a strong focus on gender equity, women's empowerment and development. However, their approaches and their contexts were distinct. ACAB was located in San Cristobal on the outskirts of Medellín; small-scale agro-ecological farmers were a small part of a broader regional economy. ACAB as an organization supported the principles of gender equity. Women and men participated in ACAB governance structures. ACAB financially supported farm-level agro-conservation projects led by women (e.g., small-scale poultry projects). Many ACAB members received training through the agroecological school where gender was an overarching theme; therein participants learned about women's rights and violence against women. Some female ACAB participants said that learning this information was empowering. One participant said that it led her to stand up for herself in her family/community. She said it transformed her life as she was now more self-sufficient, confident, and made her own decisions. Indeed, Cornwall (2016) identifies this learning about rights as important in the empowerment process. At least two female participants said that in their homes there was a more equitable distribution of responsibilities and income, and more respect. These female participants stated that they had a broader perspective of possibilities open to them. However, a few research participants observed that women standing

up for their rights in this predominantly patriarchal cultural context led to more violence at home and family breakdown. Although aspirational and well-intentioned, one research participant criticized that this particular feminist approach, as taken through the agroecological school, was an especially urban/academic one, and that perhaps a different feminist paradigm should be considered that might be more adapted to the rural peasant context where these farmers live.

Coocampo, located in an isolated community primarily made up of small-scale dairy farmers, was supported by the NGO IMPACT. IMPACT/Coocampo implemented an innovative gender equity and new masculinities approach to development; it was comprehensive, multifaceted, involving women and men.

It addressed questions around gender equity (through reflection around gender roles and responsibilities at a personal level and within the cooperative), poverty alleviation (by creating more equitable economies at a household level, by supporting economic initiatives, and for producers, by improving production systems), and governance (by encouraging more equitable representation in decision-making processes that reflect those involved in production and in the cooperative). (Sims & Rodriguez-Corcho, 2022, p. 8)

Teresa and Hermes, small-scale dairy farmers and Coocampo members, were trained as gender equity and new masculinities representatives by IMPACT. In Coocampo-organized workshops, they acted as locally trained facilitators to guide community-level critical conversations. Within Coocampo, this approach was impactful. It resulted in: a shift to 40% of members more equitably sharing household revenue; greater female participation in cooperative activities with men and women sharing leadership roles; and in some cases, a transformation of participants' perceptions of themselves, their roles as women and men in the family and community, and their possibilities in life. Coocampo supported the creation of alternative sources of income, notably the women's group organic fertilizer initiative.

4.4 Persistent Challenges

Doing this work, I have observed persistent challenges. As seen in four of the studies (CIDA, Community-based SEA, Coocampo, ACAB), addressing power dynamics was complex within groups. Indeed, Suskevics et al. (2019) and Diduck et al. (2012) conclude that power imbalances hinder learning. Another challenge involved a need for a visionary, motivated local and/or institutional leader to instigate these processes; however, such a person was not always available or did not necessarily have the capacity to do so. Finally, in these rural contexts, persistent vulnerabilities included lack of resources, low literacy levels and an ageing demographic, all of which can impact learning processes.

5.0 Concluding Comments and Practical Recommendations

These case studies demonstrate that learning opportunities exist in natural resources and environmental management contexts that can be beneficial when facing issues around food security, human health, gender inequities, poverty alleviation, environmental degradation, and social cohesion. Moyer and Sinclair (2020) highlight "the importance of recognizing the power of learning when designing initiatives, whether educational or governance-related,...and of capturing this potential in the planning phases, using, for example, the ideal conditions for learning" (p. 354). As such, to maximize learning potential, I invite those responsible for these initiatives to consider all forums as learning forums and to design and implement them keeping this in mind—whether they be technical outreach activities, organizational/project planning processes, or others.

Taking this into account, and building upon suggestions for learning-focussed interventions initially shared in Sims (2020), I offer the following guiding principles and/or practical recommendations. I invite those responsible (e.g., practitioners, policymakers, researchers) to reflect on what these concepts might mean and how they might apply or best be achieved in their particular contexts. To begin, when designing activities, establish clear learning goals. Consider carefully how participants interact with one another and with the natural environment. Time shared should be focussed, productive, and meaningful. Create learning environments that are safe and courageous, based on the ideal conditions for learning. Take time to build relationships based on trust and reciprocity. In the initial phases of an initiative, make sure to learn about the context, participants' cultural and livelihood characteristics, environment, social infrastructure, community and plan accordingly. Try to understand why different stakeholders (e.g., small-scale farmers) act the way they do; this understanding can help tailor interventions/activities so that they are more effective and meaningful. Invite a diversity of stakeholders to the decision-making table; this is beneficial in promoting critical reflection and understanding diverse perspectives around an issue. Especially at critical moments in an initiative's development, create "opportunities to meet, plan, problem-pose and problem-solve, share experiences, reflect upon...successes and challenges, and adapt activities to changing contextual factors" (Sims, 2020, p. 109). Ensure that decisions are made based on relevant and accurate information. Especially with larger, multi-faceted initiatives like the CIDA project, create a framework together with stakeholders that can guide project implementation based on project goals but ensure that these guidelines are flexible enough to accommodate specific contexts. To support change at a collective level, plan activities according to broader goals. For example, if a communal-level objective is to promote food security, then reflect upon individual farming practices *and* what social infrastructure and policies must be created to sustain such action and learning individually and collectively. Throughout a process, think through how "community members can support one another to become knowledge sovereign, learning and adapting as they move forward" (p. 109).

Finally, this exploration around learning through these five case studies provides a glimpse into the breadth and depth of learning that can occur through agro-conservation initiatives involving small-scale farmers in Central and South America. Participation in these kinds of initiatives can be profoundly transformative and impactful for those involved. Consequently, engage in these processes only with respect and the deepest sense of responsibility.

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