Learning to learn in tropical forests: training field teams in adaptive collaborative management, monitoring and gender

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SUMMARY

From 2011–2015, the Center for International Forestry Research (CIFOR) trained field teams in Nicaragua in Adaptive Collaborative Management (ACM) methods. ACM is a social learning-based approach to help forest communities manage their natural resources in a more equitable and sustainable way and respond to change. This paper presents the lessons-learned from the training and field work. It argues that understanding and building social learning processes among the ACM team members and facilitators are crucial components of the ACM methodology and necessary in order to recognize and address the complex nature of socio-ecological relationships. In particular, promoting women's participation in forest decision-making in their own rural communities requires not only a consideration of gender relations but also of the gender perspectives of each member of the field team.

Keywords: participation, women, social learning, indigenous, Nicaragua

Apprendre à apprendre dans les forêts vierges: former des équipes sur le terrain à la gestion collaborative adaptative, à la surveillance et au rôle des sexes

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Le Centre de recherche en foresterie internationale (CIFOR) a formé des équipes sur le terrain de 2011 à 2015 au Nicaragua en méthodes de gestion collaborative adaptative (ACM). L'ACM est une approche fondée sur l'apprentissage pour assister les communautés forestières à gérer leurs ressources naturelles d'une manière plus équitable et plus durable et à répondre au changement. Ce papier présente les leçons apprises dans le travail de formation et sur le terrain. Il débat la notion que la compréhension et la construction de processus d'apprentissage sociaux chez les membres des équipes d'ACM et chez leurs facilitateurs sont des éléments cruciaux de la méthodologie de l'ACM, nécessaires pour pouvoir reconnaître et faire face à la nature complexe des liens socio-écologiques. En particulier, la promotion de la participation des femmes dans les prises de décisions ayant trait à la forêt dans leurs propres communautés rurales nécessite non seulement une considération des relations entre les sexes, mais également une conscience des perspectives présentes chez chaque membre de l'équipe sur le terrain à cet égard.

Aprender a aprender en bosques tropicales: capacitando equipos de campo en el manejo adaptativo colaborativo, monitoreo y género

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En el periodo 2011–2015, el Centro Internacional para la Investigación Forestal (CIFOR) capacitó a equipos de campo en Nicaragua en la metodología del Manejo Adaptativo Colaborativo (MAC). El MAC es un enfoque basado en el proceso de aprendizaje social para ayudar a las comunidades forestales a manejar sus recursos naturales de manera más equitativa y sostenible para responder al cambio. Este articulo presenta las lecciones aprendidas en el proceso de capacitación y el trabajo de campo. Sostiene que el entendimiento y la construcción del proceso del aprendizaje social, entre miembros del equipo y los facilitadores del MAC, son parte sustantiva y necesaria de la metodología para abordar la naturaleza compleja de las relaciones socio ecológicas. En particular, promover la participación de las mujeres en la toma de decisiones sobre los bosques en sus propias comunidades requiere no solo una consideración de las relaciones de género sino también de la perspectiva de género de cada miembro en el equipo de campo.

INTRODUCTION

This paper presents the lessons-learned from a) training field teams how to implement adaptive collaboration management (ACM) and b) their field work in indigenous communities in Nicaragua. It presents evidence that building social learning processes among the ACM team members and facilitators is necessary in order to recognize and address the complex nature of socio-ecological relationships, and social learning is crucial to efforts to improve understanding about gender in field teams working in forest communities. Furthermore, promoting women's participation in forest decision-making in their rural communities requires not only a consideration of gender relations but also of the gender perspectives of each member of the field team and how they interact with others' perspectives in forest communities.

Learning has been defined as a process of gaining understanding about the world (Fazey *et al.* 2005). A person's understanding of the world is a product of that person's relationship with the world; new experiences change the way a person acts and thinks (Fazey *et al.* 2005). The complex nature of human-forest relationships requires an explicit recognition of the uncertainty and unpredictability of outcomes, which requires frequent adjustment and adaptation as realities are revealed (Maarleveld and Dabgbégnon 1999) in a fluctuating space where complexity, uncertainty and non-equilibrium dynamics are the reality (Leach *et al.* 2007). Taking a reductionist approach – breaking problems down into small parts – can distort the complex interactions of systems (Maarleveld and Dabgbégnon 1999). Simplified interpretations can lead to "superstitious learning" where cause and effect are erroneously connected (Fazey *et al.* 2005). This is why understanding complex issues, such as gender, requires repeated, conscious efforts to observe and reflect upon what has been observed; only then can perspectives shift and deeper connections be revealed

Learning about gender has its own complexities, because it involves understanding the set of socially-defined constructs – behaviours, tasks, responsibilities and relationships – that define interactions between men and women (Manfre and Rubin 2012) while explicitly acknowledging that the observer brings his or her own perceptions about gender to the process. While there has been research on including gender perspectives in research programs (Colfer 2013a, Mai *et al.* 2011, Manfre and Rubin 2012, Mutimukuru *et al.* 2006), there has been little discussion of how learning about gender occurs in research teams and how to create the conditions to promote that learning.

Just as social learning lies at the core of ACM (Colfer 2005a, Lee 1993, Maarleveld and Dabgbégnon 1999), training must be approached as a social learning process, with experimentation and reflectivity at its core. By documenting perspectives towards communities, gender and learning by the field team over the course of five years, it was possible to explore how adaptive collaborative management approaches can create spaces for learning about gender and catalyse shifts in perceptions about gender. This article describes experiences in how groups learn about gender relations, and in doing so, it argues that social learning and adaptive collaborative approaches provide a framework and method to address the challenges of the complex environments of forest communities, permitting team members to examine their own perspectives and biases in order to better understand gender dynamics on the ground.

Social learning in theory

In the late 1990s, CIFOR scientists and others looked for participatory methods that could explicitly acknowledge how learning occurs in uncertainty (Lee 1993), and how marginalized groups can be included in the process (Colfer 2005a). Adaptive collaborative management took those ideas as well as other concepts and integrated them with participatory action research (PAR) approaches (German *et al.* 2012). Social learning is a core part of adaptive collaborative approaches (Berkes 2009). In social learning, reality is perceived as constructivist, in the sense that people make meaning and knowledge from their own experiences and interactions with others' experiences rather than a positivist perspective, where knowledge is derived from observation of the natural world (Rist *et al.* 2007). Approaching forest management as experimentation – by encouraging social learning – is one approach to addressing change and complexity. In fact, social learning can be considered necessary in complex environments such as the human-forest interface where uncertainty requires a concerted effort to build trust and create meaningful human interactions (Armitage *et al.* 2008), particularly on deeply personal issues such as gender relations.

The core mechanism of social learning is a process of "iterative reflection" that occurs when experiences, ideas and environments are shared with others (Keen *et al.* 2005). This reflexivity means reflecting on the learning, which then generates new learning (Keen *et al.* 2005). It is fundamental to the social learning process, and it is often characterized as occurring in cycles, such as Kolb's Learning Cycle (Kolb 2014), or loops (Colfer 2005a, Kolb *et al.* 1995), where conscious phases of reflection are interspersed among the information collection processes (Colfer 2005a). When feedback from the process causes actors to reflect on and change their initial assumptions, this is referred to as "double loop learning" (Maarleveld and Dabgbégnon 1999). When there is reflection on the process itself and on the conditions that structure interactions, this is referred to as triple loop learning, i.e., learning to learn (Maarleveld and Dabgbégnon 1999). Peschl (2007) describes triple loop learning as a shift in the frame of reference, bringing about change in the fundamental perspectives of the observer, or a "reframing" where the observer steps out of his or her experience and attempts to "look at a situation as whole in a reflective act" (Peschl 2007: 139).

Reed *et al.* (2010) argue that social learning as a process must demonstrate that (1) there has been a change in understanding on the part of individuals; (2) this change extends beyond the individual to a wider community or unit; and (3) it occurs through social interactions via a social network. Vertical integration between at least two power levels must be

involved (Colfer 2005a), such as between community members and local experts. For example, Rist *et al.* (2007) argue that this interaction between experts and local people generates joint knowledge production that is crucial to improving the capacity of rural communities to define their own interests, acquire new knowledge and mobilize resources that can help them catalyse changes that are in line with their own vision and needs.

ACM is a collective problem-solving and natural resource management approach that focuses on learning from mistakes and successes to systematically adapt to change and improve management outcomes (Colfer 2005a). Specifically, ACM uses social learning, a process through which individuals work with others to observe, evaluate and decide upon actions together so that decisions about natural resource management can be more adaptive and collaborative. Social learning in ACM can be thought of as an iterative learning cycle that occurs through a process of planning, taking action, monitoring and reflecting on the process (Colfer 2005a). ACM seeks to create learning-oriented opportunities in uncertain conditions in order to adapt to change. In fact, adaptation has been characterized as learning in the facing of change and uncertainty (Ojha *et al.* 2013). ACM approaches see social learning as the starting point. Social learning in ACM occurs when various stakeholders reflect meaningfully and systematically together upon progress and results, often using information collected from monitoring. Transitioning to ACM requires applying diverse learning strategies that specifically address social-ecological feedback through experimental or experiential learning, and institutional arrangements must explicitly embrace reflection and innovation as part of the process (Armitage *et al.* 2008). Participatory monitoring, where groups collect and reflect upon information together, is one of the central learning strategies in ACM (Colfer 2005a, Cronkleton 2005, Mutimukuru *et al.* 2006). Knowledge is shared and valued among diverse groups through conscious, facilitated efforts to encourage groups to learn collectively to understand the impacts of their actions (Colfer 2013b) and is specifically oriented to "muddle" through complex systems and generate innovative solutions and thinking on aspects of resource governance and management (Wollenberg *et al.* 2004, Ojha *et al.* 2013).

Nonetheless, "the learning way is easier said than done" (Ojha *et al.* 2013: 7), as researchers acknowledge that learning takes time, capacity and resources to build trust and relationships. However, there are encouraging examples of successes of social learning in creating diverse outcomes. For example, in Canada, the presence of government biologists in native communities was the key factor in trust building in the management of narwhals and led to social learning and collective action (Berkes 2009). In Nepal, social learning cycles resulted in empowerment (Hiyama & Keen 2004, Dangol 2005), and in rural India, Bolivia and Mali social learning improved communication among diverse power structures (Rist *et al.* 2007).

As seen above, however, most research on social learning focuses on the target communities, rather than on the learning of the field teams themselves. Working at multiple scales, and with diverse stakeholders, knowledge systems and perspectives are part of the landscape of working in forest management. This landscape is frequently no less complex *within* the field teams responsible for planning and implementing projects. Field teams involved in research and community development projects can reflect a diversity of perspectives and groups: they are often heterogeneous, composed of people with varying skills, experiences and disciplines, as well as cultural differences that may include people from various ethnic groups and even nationalities. Foresters are trained to think differently from sociologists; a city-based upbringing is distinct from someone raised in a rural community. It is almost inevitable that pecking orders exist. The same challenges that ACM projects encounter in communities often also exist within field teams: diverse knowledge systems, gender differences, hierarchies, conflict and power relations. Conscious efforts to learn together through reflection – i.e. social learning – are necessary and effective in order to transform this diversity into a team's strength. It can be difficult for an outsider to identify when his or her ideas or gender biases are "foreign" to the community. Furthermore, it can be a challenge for someone from an urban setting to put aside her sense that she is "above" immersing herself in the day-to-day activities of the community. Creating learning spaces may require special attention in a multicultural context, and participatory projects in particular need to be self-reflective of the development agendas, social values and dominant norms that are inevitably present (Hiyama and Keen 2004).

There are several studies that address social learning in research teams. Banjade (2013) discusses a learning and collaborative management initiative that helped to "undo" the traditional forestry mindset (Banjade 2013: 227), including the challenges of communicating concepts with local communities, and the tensions within the research team. Colfer (2013b) discusses the challenges of developing ACM research projects in a context where reductionist (hypothesis-testing) research was privileged and the challenges of training field teams in participatory action research. Colfer *et al.* (2011) discuss the challenges of training traditional research teams in participatory action research methods. Several publications are oriented towards training facilitators in ACM related methods (Evans *et al.* 2014, 2006, Nemarundwe *et al.* 2003, Wollenberg *et al.* 2000).

Less attention in the literature has been paid to learning how to do ACM, to the learning that occurs as a part of the methodological implementation of ACM – including learning how to adapt ACM to improve the participation of women – or to social learning about gender relations in local governance processes. Gender attitudes can be frustratingly "sticky", in the sense that underlying frames of reference can be difficult to shift. Specifically, this paper seeks to understand what kind of learning is involved in the shifting of frames of reference, or in other words, how can attitudes towards gender be changed.

This paper argues that navigating the complexity of the socio-ecological space requires engagement in multi-loop learning, where research teams reflect on their methodologies and consciously adapt methods and activities in concert with

the learning and knowledge creation generated in their field work. Creating reflexive, adaptive research requires a flexibility and agility to contextualize methodologies that may make many researchers uncomfortable. It requires an internalization of constructivist knowledge generation within the scientific process and an acknowledgement that methods may need to be shifted "mid-stream". Adaptation and change can only occur as a result of evolving attitudes and understanding among researchers.

Research context

From 2011 to 2015, the Center for International Forestry Research (CIFOR) and Nitlapan Institute of Research and Development of the Central American University of Nicaragua, implemented a participatory research project, financed primarily by the Austrian Development Agency, with the overall goal of promoting women's participation in community forestry-related decisions in indigenous communities (Mwangi and Larson 2009)[1].

The study site is the forested Northern Caribbean Autonomous Region (RACCN for its initials in Spanish) of Nicaragua, an area of social and ecological flux and complexity. In the last census, indigenous Miskitus were the largest group (57%), indigenous Mayangnas represented 4% of the population[2], and *mestizos*[3] comprised 36% (INIDE 2005). The mestizo presence has increased steadily over the decade due to migration from other regions of Nicaragua; population growth was double the national rate from 1995 to 2005 (Larson and Mendoza-Lewis 2009). This migration has put pressure on indigenous lands, prompting retaliation, conflict, and complicit illegal land sales. Political conflicts have spread throughout the region, at all levels – from the community to the regional government. Over the course of the project, some community governments split into two rival factions, and incidences of violence have accompanied the conflict.

In 2001 the Nicaraguan Map of Extreme Poverty revealed that this region is the poorest in the country, with close to 95% of population in extreme poverty (INIDE 2001). While at the margins in many respects, the region has nonetheless often been a focal point for outside influence and change, e.g. the establishment of trade networks with the English in the 18th C., timber and mining enclaves in the 20th C., and the Sandinista-Contra civil war in the 1980s. Today, life is changing at an ever more rapid pace in the indigenous communities in positive and negative ways. Drug trafficking routes, which pass through the region, have widely affected even the smallest communities, bringing addiction and violence. While communities have traditionally relied on subsistence agriculture for their livelihoods, many young people are migrating away for employment; some communities have seen so many able-bodied men leave to work in the region's gold mines

or abroad that the majority of households are led by single mothers (Muller, personal communication, 2014). The area is also vulnerable to natural disasters: in 2007 Hurricane Felix destroyed the crops of 25,000 families and affected wide swaths of the forest, resulting in the destruction of an estimated 562,000 hectares of tree cover (FAO 2007).

The project selected ACM as the primary participatory field method, as ACM has demonstrated the potential to create new spaces for women to participate in other forest community contexts (Colfer 2005b, Kusumanto 2007). While ACM was not specifically chosen because of its explicit acknowledgement of change and uncertainty, nonetheless, the adaptive nature of the methodology became an integral asset in such a complex environment. Since the project team had little experience with ACM, an ACM consultant (the lead author, Evans) was hired to provide training and follow-up to the field team in ACM concepts such as social learning, participation and action research and in methods including future scenarios, participatory monitoring and governance monitoring. The trainer was from the United States and had experiences with ACM in other Latin American countries, but no experience in Nicaragua. Hence, learning by both the trainer and field team was an essential part of the process. While initially the trainer was focused on preparing the field team in ACM, it became clear that the training process was creating a rich space for experimentation about social learning, and thus observations of the process and discussions and reflections by the field team were documented and served as the basis for this article.

The field team consisted of indigenous professionals of the same ethnicity as the community members: Miskitu and Mayangna. One team member had grown up in an indigenous community and the other two had family ties to communities. They had diverse professional backgrounds – forestry, sociology and education – with connections and work experience with local partners. Nine communities were selected for the project; due to logistical constraints, six communities continued into a second phase[4].

The ACM training included workshops, remote mentoring and field mentoring. The purpose of the first ACM training workshop in 2011 was to introduce local researchers and local community partners to ACM and train them in how to initiate ACM-based activities related to the project objectives in the nine communities selected to participate in the project. The field team used scenarios planning to help communities identify ACM-based activities to be carried out in each community. The ACM activities included planting trees, starting community gardens, organizing a carpentry workshop and strengthening community governance. Additional NGO, state and donor agency partners participated in part of the training to learn about ACM. The workshop provided learning opportunities with hands-on activities so that participants could

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[1] The project included similar work in Uganda.
[2] The Mayangna are comprised of three groups: Panamahka, Tuahka and Ulwa settled in 57 disperse communities within the RACN and estimated population of 17,219 (Gros and Frithz 2010).
[3] Mixed indigenous and Spanish descent.
[4] One of the subsequent six communities was changed to another, again because of logistical constraints.

implement ACM-based projects immediately after completing the workshop. The culminating "test" of the workshop was a full-day activity where the participants became facilitators, leading a mini-ACM workshop with territorial leaders who were enrolled in a leadership program at the local university.

Following the initial workshop in 2011, team mentoring included an effort to provide follow-up at long distance through a series of extended Skype calls, to review progress and the methodology, plan activities for field visits, brainstorm on ideas and techniques appropriate to specific communities, as well as review reports and respond to questions via email. This activity presented a range of challenges. New field team members, who had not participated in the workshop, joined the team. Furthermore, the efficacy of remote training was limited, and conversations about implementing a complex method fell far short of hands-on learning. The ability to work together and collaborate was missing. Therefore, the emphasis shifted to field mentoring. From late 2011 to 2013, a series of five field mentoring experiences provided opportunities to join the team "in action", share on-the-spot feedback within the team as well as take time for extended reflection. The team worked together during these visits, which presented new opportunities to learn from each other, since they had typically facilitated processes separately and individually in the communities. The result was a better context for the work and understanding of challenges. Activities and reflections were documented throughout the process.

During the early fieldwork, the team demonstrated some reticence to start participatory monitoring activities in the field. In spite of various distance mentoring sessions, they had still not begun this phase of work by mid-2012. They were concerned because of lack of experience, but also of doubts about its potential efficacy and relevance (team reflections, 2016). These problems have been observed in other contexts (Colfer *et al*. 2010). The training shifted to an approach of learning together with community members about how to implement monitoring. Starting in October 2012, the team and trainer experimented with hands-on practice with a range of monitoring activities in the forest and in communities, and the team gained confidence as they learned and practiced monitoring with the community members. The team applied participatory monitoring approaches such as simple data collection with community members, e.g. measuring the height and diameter of tree seedlings that were planted in the ACM activities, and then reflecting on the changes seen. In this case, community members wanted to understand the growth and survival rates of the seedlings. They found that several of the seedlings had disappeared and most had grown very little. They reflected on the conditions that might have led to these results, such as sunlight levels, encroachment by other species, and human disturbance. They then discussed what types of actions could be taken to improve the survival and growth of the seedlings. The point was to demonstrate that monitoring does not have to be complicated, and that it can serve as a starting point for generating reflection and learning.

A second ACM workshop in March 2013 was held over a two-day period with regional partners (government and NGOs), focusing on intensive information-sharing about ACM and hands-on monitoring practice. Monitoring was selected as a wedge to insert participants directly into the central process of ACM and social learning (Guijt 2007). Short monitoring exercises were held throughout the workshop, and the second day focused on a hands-on monitoring activity.

By early 2014, the team had adapted their methodologies to be able to explore the interactions of community members outside of the structures of workshops. They added multiple exercises in participant observation as well as interviews. They found that women were active in various monitoring activities, such as tracking attendance at community meetings or recording timber harvest volumes. And they identified a way to address the governance concerns that many women and men had raised about their communities – by developing a governance monitoring tool through participatory workshops. Over the course of a year, the team worked with community members to identify and monitor aspects of good leadership, forest management and community governance. As a group, community members developed standards by which to monitor whether community leaders were meeting their expectations. For instance, one aspect of a good leader is that every three months she or he reported to the community assembly the results of their work (good and bad) with regard to the activities planned. These aspects of governance were generally easy to monitor; because they required simple observations, these evaluations could be done in the monitoring group meeting, which was convened every three months. By reviewing the aspects as a group, community members regularly evaluated progress in their communities. The complete list of indicators that the community monitored as well as a description of how the community members created the governance monitoring tool can be found in Evans *et al*. (2016).

Furthermore, to date, the team had had no formal gender training, and they were navigating complicated gender issues. In order to strengthen the team's ability to understand and address gender issues, they participated in gender trainings in January 2014 and then accompanied specially trained gender workshop facilitators into the communities for a series of workshops with community members. Two of the men participated in a masculinity workshop. The team members also reorganized their community visits so that they could go together and facilitate workshops as a team.

Social learning in the field

This section presents observations on the training and learning process and the reflections of the team members. The findings were processed by aggregating observations and team reflections into thematic groups. Three major themes emerged: 1) learning to learn, 2) learning about monitoring, specifically gender monitoring, and 3) learning about gender and improving the participation of women.

Learning to learn

At the initial stages, because the methodology and its approach to work with communities were new to the field team, the team was sceptical: the goals seemed abstract (learning, adaptation), the methodology seemed open and

unstructured, and the potential for impacts was unclear. At the outset of the project, the team members were comfortable in a workshop meeting format, where roles in the "theatre" of the workshop are predictable. However, they engaged with community members very little outside of the meetings. They were resistant to planning field activities or engaging in participant observation. In the case of at least one of the team members, participating in the daily activities of the community members, such as household chores or helping out with farming, pulled him out of his comfort zone, and it also challenged his status as an educated city person. Thus, when urged to participate in daily activities, he was hesitant. Furthermore, the team members had not yet accepted that making mistakes was part of the process, and that they would not be penalized if activities did not turn out as planned. One team member reflected: "At the beginning we were resistant. Now we know that not all experiences have to come out as successes. We recapture those experiences and learn from them."

The team members gradually overcame their hesitancy to experiment and set their own learning cycles into motion. They worked together with community members to experiment with useful, practical, participatory monitoring instruments that generated new knowledge and learning opportunities. The team identified their own adaptive behaviours and learning: "We sensed that we are adapting ourselves. . .we now go to a workshop with more confidence, with more ownership, and we are more collaborative. ACM not only impacts community members, but us as well. We are part of ACM. All of us [field team and community member] are part of the learning process, without distinction".

The path was not a smooth one. The team's reluctance to implement participatory monitoring demonstrated the challenges and obstacles of "learning to learn." In spite of frequent discussions about monitoring via Skype and email from late 2011 through 2012, the team had been reluctant to implement monitoring activities in part from lack of experience and confidence in the method. It was also observed that the team members struggled with navigating their indigenous identity and a reluctance or lack of comfort imposing what they identified as "outside ideas" on their own culture. The male members in particular were uncomfortable talking with women about gender roles. This added a layer of complexity when introducing new ideas or activities that they felt might challenge existing norms or traditions.

It was not until September 2012 when the team and the trainer headed to the field with the community members to develop monitoring methods together that the impacts and importance of monitoring in ACM settled in. Through hands-on practice in building monitoring mechanisms with communities, the team gained confidence in their abilities and enthusiasm for monitoring. They recognized the potential of monitoring to increase the participation of women and improve learning, and they learned that monitoring activities take the learning to the field and generate excitement about

learning. After that, the team facilitated the development of new monitoring activities, bringing about greater enthusiasm for participation from women and creating spaces for men and women to share information and appreciate each other's knowledge. "You do not need to be an expert in ACM to do it. You learn as you go," said one team member.

After having engaged with the communities in a full cycle of ACM (planning, implementing, monitoring, reflection), the team evolved a clearer sense of the potential of ACM to improve management outcomes at the community level – and of the importance of monitoring to the inclusion of women. As a group, the team commented that their reflections helped them learn how to learn: "The mutual collaboration of different visions helps to develop confidence among us as a team. The discussions helped us to learn better and gave us the confidence to practice the method in our group work…That is to say, I learned that the more I discussed a problem or needs with people, it generated concerns or questions to continue asking. By asking the question 'why?' unconsciously you learned and understood certain problems, including a vision and certain possible alternatives to plan and work with the people to suggest possible alternatives to improve" (team discussions, 2014).

In the fourth year of the project, after observing that women participate more actively in monitoring than in meetings and identifying that weak governance was a critical obstacle to the participation of women, the team decided to work with the community members in the development of a governance monitoring tool. The governance monitoring activities proved to the team that they could improvise and experiment with the methodologies: "Even though in the beginning we didn't know if [the governance monitoring activities] would work, we found that it helped people reflect, analyse and dialogue about their problems and weaknesses about governance processes. In a certain manner people grew conscious of the things that happened or their situations in the community and how to work to find a solution to the problems that they faced." (team discussions, December 2015).

Learning about monitoring

As mentioned previously, the team had been hesitant to start participatory monitoring activities, but hands-on practice led to increased confidence. The team members realized that monitoring did not have to be complicated; it could be interesting and encourage participation, particularly of women. It did, however, require flexibility and creativity. They implemented monitoring activities such as participatory mapping with students in one community and measuring timber volumes in another. The team reflected on the monitoring experiences and generated the following lessons learned.

First, the elements or aspects to monitor must come from the community members, and participants should develop the monitoring instrument. For instance, in community S[5], where the community had initiated a reforestation project, the participants brainstormed ideas about what they wanted to

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[5] Communities are identified by randomly assigned initials to preserve anonymity.

monitor about the newly planted trees, and, based on this, they developed a monitoring instrument in their notebooks.

The team learned that monitoring is not just about writing down data; the reflection and discussions that the monitoring activities generate feed the social learning curve. As one team member articulated: "Monitoring is a conversation." Guiding that conversation required preparation on the part of the field team. The team discovered that the reflection is better prepared and facilitated with open-ended questions, such as: "What did we do? What did you like? What did you not like and why? What did we learn? What was missing? How can we improve?" For instance, when monitoring participation, these questions were useful: "Why are the results like this? How can we improve?"

The team learned that monitoring can start with a simple question. For instance, in Community A, the community wanted to monitor timber extraction. An ACM team member guided them first in creating a list of questions (e.g. "How much timber is here at the riverbank?" "What types of species are here at the riverbank?"). Based on that list, they selected one question and built their monitoring activity from there. Furthermore, the monitoring tools must be easily adaptable, and the community members must continue adapting them. For example, there are advantages and disadvantages of supplying pre-printed monitoring worksheets, and the importance of having a monitoring instrument that the community members can develop themselves, using materials that they can get easily, such as notebooks (rather than computer printouts).

The team discovered that constant, informal conversations can be as useful as structured workshops. For example, in Community S, in the midst of a monitoring exercise, one team member took advantage of coming across an illegally felled tree. He did a mini-workshop about ACM with the group in the forest; the specificity of the location contributed to the learning experience because of the concrete example in situ.

Other outcomes of monitoring were identified by the team, such as improved participation, leadership and unity. One monitoring tool that was developed was a worksheet that community members used to monitor participation in meetings. Every time someone spoke or a decision was made, the person's name and gender was noted on the page. At the end of the meeting, the person taking the notes presented the results, and those attending reflected on them. The team discovered that the instrument to monitor participation in meetings served not only as a tool for reflecting on who was participating and why, but it also served to help people listen better and to motivate participation.

Learning about gender
One of the primary project objectives was to improve the participation of women in community-level decision-making, and it was hoped that ACM would create spaces for their greater participation. Through experimentation and reflection, the field team adapted the methodology to explore the interactions of gender relations and participation. The team learned several strategies for improving women's participation in meetings. These included direct questions to women, for example: "What do you think of this, Ms. X ? What do the women think of this? What could the women be doing in this activity?" In workshops, women were more likely to participate in small groups, either women-only, or mixed gender. Break-out groups with women-only groups help create an environment where women were comfortable speaking. On the other hand, putting women in small groups with men (usually best if at least two women per group), gave women an opportunity to show men they knew what they are talking about. In community S, where the women were struggling to get involved, once they were broken out into small groups, women took on important roles: actively participating in discussion, writing on the flipchart paper, and presenting the group's work in front of the larger group.

The team also learned that they must create an environment of trust in order to draw out the participation of women. They made an extra effort to connect with women and encouraged leaders to find and implement ways to help women feel welcome at meetings. Creating a welcoming environment meant inviting women directly, personally, and visiting women who had participated before in order to invite them to participate again. It required requesting permission from the community authorities[6] to involve them and requesting that the authorities accompany the team members house-to-house in order to invite the women.

As the fieldwork proceeded, a moderate increase in the attendance of women at meetings was observed. However, men continued to dominate meetings and workshops, both in discussions and decision-making. When the ACM activities were moved out of a schoolroom or community house, which were typical meeting spaces, women's participation improved, with more active discussion and expression of their opinions. Women's participation was strongest in the monitoring activities in the field, where their participation in discussions and reflections was at times fully equivalent to that of men's. This was contrary to what community leaders had said – that women would not show up for work in the forest or participate. In fact, monitoring tended to create a more welcoming space where women were more likely to participate as equals with men.

As the team engaged in understanding the role of gender relations at the community level, their own understanding of gender evolved. The two male members of the team, in particular, reflected perspectives that are common in the region among men at the outset of the project. "In my prior experience, the term 'gender' was very Western and a cultural practice from the West," said one team member. Another team member said that initially he "thought about it before like people did in the communities, that it is just about equality and rights. . ." For instance, he explained that "During the gender workshops in communities A, F and K, the people expressed that gender had to do with equal rights of men and

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[6] It is a tradition in indigenous communities to request permission from community leaders to organize communal activities such as meetings.

women, according to the community members. They also said that 'we all have rights, as men and women', but in truth it was complicated for the community members to understand the term[7], and specifically for me too, because gender is something complicated to understand from the perspective of our cultural traditions. . . . Equity is the one way that we understood [gender]: equal conditions, treatment, opportunities, roles, without discrimination in participation." (team reflection, June 2014)

In particular, the male members of the team expressed more reluctance than the female members to question or challenge the gender roles that constrained women's participation in meetings. Again, gender was perceived as a concept that was being imposed from outside their culture, and they were uncomfortable discussing or challenging the gender roles in communities because, in some thinking, preserving indigenous culture and preserving gender roles are linked. That perception evolved and became more nuanced and complex: "Through the ACM process I learned that gender is a concept about relationships and values and complementarity." Another team member contextualized the complexity of understanding gender in development projects and the tension with traditional societies: "In the end, gender equity is a social construction with a vision of human development in an equal manner. . . . But in the culture of the rural indigenous, people know how contradictory power dynamics are. For example, the man is the one who decides everything, and women second, but the focus on gender challenges the authority figure of the man in the family and the community as it does in Nicaraguan society" (team reflection, June 2014).

These changes in perspectives on gender were not simply conceptual; by changing their assumptions about how women and men relate and interact in different spaces, their new frameworks made it possible to understand women's and men's behaviours and obstacles to participation. For instance, when encountering little participation of women in meetings or in leadership positions, the male team members at first repeated what the male leaders of the community said: that the women are given opportunities to participate in meetings, but that women simply do not want to. In other words, it is women's fault for not participating. These perspectives were reinforced by what they saw in meetings and workshops: men participating and women sitting silently, with a few exceptions. Insights into the complexities and contradictions of these gender power have been explored in India and Sweden as well (Arora-Jonsson 2009).

However, when the team members began to engage in other methods – participant observation, participatory monitoring, interviews and activities outside of the meeting spaces – they observed significant obstacles to women's participation, including social exclusion and physical violence. They noted how the three most active female leaders were each sanctioned by the community at certain points. In the worst cases, one of the woman leaders was physically abused by her husband. The team learned that barriers to participation are complex, and that more in-depth understanding of dynamics at the household level would be necessary in order to fully understand the constraints on women's participation. They also noted that outside of a meeting – particularly in the field – gender roles were less rigid, and women assumed leadership roles. In one instance, during a morning activity in the forest in community K, at the end of the activity, Ms. S spontaneously led a group reflection on the activity. In contrast, in the afternoon, she sat silently in the community meeting.

The governance monitoring tool further opened up spaces for participation via the monitoring activities. As one of the team members said: "With this process, the women woke up; they gave opinions more, expressing their concerns, needs and lack of compliance by authorities who made decision about natural resources, and in a certain way they demanded that they be taken into account in the consultations about their resources or that they know better how [resources] were being managed by the authorities, with greater transparency of funds and taxes" (team reflection, December 2015). Also, "ACM promotes gender participation in a more diplomatic way through activities. For example, in the ACM workshops on monitoring, there was an activity on gender, but no one knew that that same activity encouraged the participants to have equal opportunity and rights. In this sense I believe that approach to gender in ACM works in the communities" (team reflection, December 2015).

The team began to deepen their understandings of gender: "Through practice, I learned that the community members understand gender without defining the term conceptually; better put, it is understood as complementarity in their diverse activities. For example, in the planting of rice, nobody thinks about it with a gender focus, but in practice, men and women are sharing the task in a collaborative way" (team reflection, December 2015).

In the process of encouraging the uptakes of adaptive collaborative management within the communities, it was found that the research team too adopted adaptive collaborative behaviours, learning and adapting their own behaviours. In other words, they "learned how to learn". Learning how to do ACM together – deliberately reflecting on their attitudes and the roles and interactions of women and men – generated new knowledge about gender. Furthermore, the team learned and adapted the methodology as their knowledge about gender evolved: they applied ACM learning cycles to their ACM activities. Training the team in ACM methods created an environment of constant social learning in multiple nested cycles, or multi-loop learning.

CONCLUSION

When the research project started in 2011, the initial focus was on training the field team in facilitation skills so that they

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[7] The workshops were conducted in the local indigenous languages, Miskitu and Mayangna, which added a layer of complexity when introducing terms such as "gender."

could implement ACM in the field and promote women's participation. Ironically, it was not explicitly anticipated that the trainer and team would also need to learn how to learn.

As the project progressed, it grew increasingly clear that the researchers were also actors within an evolving scenario, where the complexities of gender and governance with the environment were challenging not only to understand, but also to act upon. The environment required the team to adopt "the learning way". Constant reflection and discussion created triple-loop learning, where the team members adapted the way that they engaged in social learning. The shifting frames of reference required conscious discussion and continuous reflection not only about activities and outcomes but focused too on how the team's knowledge was changing, questioning their own ideas, beliefs and assumptions. At times team members were uncomfortable, particularly when their experiences challenged their own assumptions and identities, with regard to indigenous culture and gender.

The equally complex nature of gender relations requires learning how to learn about the ways that gender shapes communities and the interaction of individuals with the forest. It requires examining one's own gender perspective and biases in order to understand better the dynamics of gender relations on the ground. Most importantly, it confirms that in order to work in and engage with the complex environments of forest communities, everyone – trainers, researchers, and field practitioners too – must learn how to learn.

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