Local Knowledge/Lacking Knowledge: Contradictions in Participatory Agroecology Development in Bolivia

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Abstract: Questions of who is understood to have agricultural knowledge, and how this perception influences knowledge exchange, uncover power imbalances in local, national and international relations. Analysis of fieldwork in Norte de Potosí, Bolivia, finds that NGO and state agronomists position themselves as teachers to farmer-students, masked by participatory language. Barriers to knowledge exchange and collaboration remain stubbornly entrenched even in efforts to transcend power relations and improve participatory approaches. Ironically, agronomists are positioned to hold both "expert" and "local" knowledge, which is then repackaged within agroecology. Meanwhile, farmers using compliant discourse (sometimes strategically) continue to be positioned as lacking.

Keywords: local knowledge, participatory development, farmer experience, exchange, agroecology, barriers to collaboration, Bolivia

Résumé : Comprendre qui est perçu comme détenteur du savoir agricole et comment cette perception pèse sur l'échange des savoirs met au jour les inégalités de pouvoir qui sous-tendent les relations locales, nationales et internationales. L'analyse d'une enquête de terrain réalisée à Norte de Potosí, en Bolivie, révèle que les agronomes des ONG et de l'État se positionnent comme enseignants auprès d'agriculteurs-étudiants, ce que masque le langage participatif. Les obstacles à l'échange des savoirs et à la collaboration demeurent puissants, même au sein d'actions visant à dépasser les rapports de pouvoir et à améliorer les approches participatives. Ironiquement, les agronomes se voient positionnés comme détenant à la fois des savoirs « experts » et des savoirs « locaux », ce qui se trouve ensuite reformulé dans l'agro-écologie. Parallèlement, les agriculteurs qui tiennent (parfois de façon stratégique) des discours conformes continuent d'être positionnés comme étant déficients.

Mots-clés : savoirs locaux, développement participatif, expérience agricole, échange des savoirs, agro-écologie, obstacles à la collaboration, Bolivie

Bolivian Agronomists and the Value Placed on Andean "Local" Knowledge

Livelihood strategies through organic farming and agrobiodiversity that involve collaborations between farmers and local, national and international organizations transcend geographical, social and cultural boundaries. Yet the knowledges and experiences in these encounters, even as they attempt to be collaborative, create friction (Tsing 2005). Asking who is understood to have agricultural knowledge, and how this perception influences knowledge exchange, uncovers power imbalances in local, national and international relations, as well as along lines of gender and class, that remain barriers to exchange and collaboration, even as efforts are made to transcend traditional power relations and improve participatory approaches. This article examines certain barriers to knowledge collaborations that arise among Andean Quechua-speaking farmers, a Bolivian rural development NGO and a research project initiated by the state in efforts toward building sustainable agriculture systems. Despite shared concerns for increasing agrobiodiversity, food sovereignty and organic farming, tensions are evident in the power imbalances embedded in these relationships, as well as in the divergent values and meanings assigned to participatory methodologies. While participation is hailed as the corrective to previous failed top-down approaches and rhetoric draws on notions of *collaborative knowledge*, in practice, emphasis is placed on participatory methodologies as *teaching* tools by both the state and the NGO. The tensions that arise along these lines of power are reinforced by neoliberalism as it informs sustainable development practices, while conflicting with the Bolivian government's ideological position as a "21st century socialist" republic.

Interviews and participant observation with NGO technician-facilitators and government-employed agronomists reveal a paradox in understandings of local knowledge. Everyone working with farmers talked about the value of local knowledge and about supporting farmers'

activities; yet they unanimously emphasized their roles as teachers and the importance of transmitting the knowledge they held as experts. Were the agronomists simply paying lip service to another development buzzword—*local knowledge*—while positioning themselves as experts? Or is there another way to explain how someone could describe farmers as *lacking* knowledge and, in the same conversation, say they themselves had learned so much from "local knowledge"?

In addressing these questions, this article explores the contradiction between discourse and practice to uncover how local agricultural knowledge is valued (or devalued) and who is recognized as holding such knowledge. This examination reveals contradictions in how farmers see their own knowledge as well—sometimes lacking, sometimes sufficient and, occasionally, superior to that of agronomists. Which knowledges are given precedence over others in practice—including what counts as "expert" knowledge—contributes to the barriers to developing collaborative agricultural knowledge between farmers and the NGO.

The arguments made in subsequent sections are based on findings from ethnographic research conducted in Norte de Potosí, Bolivia, in 2010. Focusing on participatory ecological agriculture development between a Bolivian NGO, ODEP[1] (in English, Ecological Development Organization of Potosí), and several participating households from two farming communities, Tomacoyo and Q'ayarumi, in the Chayanta province of Norte de Potosí (Northern Potosí), the analysis emerges from a broader project to theorize relationships between farmer knowledge and strategies, state policies and international aid in Bolivia.

With the support of a few international organizations, including a Canadian NGO, which I have simply called CANGO, ODEP works on micro-irrigation projects, agrobiodiversity and soil conservation strategies and promotes organic farming. Almost entirely staffed by agronomists, it combines scientific methods of agriculture with adaptations to centuries-old approaches to farming on steep mountainsides. ODEP describes itself as supporting small-scale farmers by empowering them through sustainable agriculture training that can make these farmers more competitive in regional and national markets, raise their self-confidence, help them adapt to climate changes and promote the protection of the rich but endangered biodiversity. One of the NGO's keys to protecting agrobiodiversity is the promotion of organic farming, strongly discouraging the use of the chemical fertilizers introduced during the Green Revolution in Bolivia (and widely promoted over a few decades by various regional and international NGOs), which resulted in a loss of biodiversity. While the training is officially technical, the NGO recognizes a need for a political component in the promotion of an organic market within Bolivia; thus, it also encourages certain farmers to involve themselves politically at the municipal level of government. ODEP works alongside other local governmental and non-governmental bodies to increase farm families' knowledge of new laws and rights within the relatively new Constitution.

One such law, law 3525, focuses on organic production and biodiversity conservation and outlines the process of building a national organic market, certifying organic farmers and ensuring food security through food sovereignty. When my research commenced, the government had yet to turn this into action in Norte de Potosí. Six months later, the Bolivian Agricultural Research Program (PROIAB), a governmental organization concerned with agricultural research (both organic and conventional), arrived with a participatory research plan. PROIAB held a series of workshops to encourage farmers in the municipality to move toward not only producing without chemical inputs but also meeting the various standards required to be certified as organic producers at the national level (more stringent regulations than local farmers were accustomed to but much easier to achieve than international standards for organic certification).

Historical tensions remain between government organizations and NGOs, with each seeing the farmers as having good reason to distrust the other. Further complicating matters are international funding institutions that wish to impose a structure on how the state can move away from doing research itself and instead oversee NGO projects from afar. In contrast to the types of collaborations that appear to be on the rise between Bolivian NGOs and between these organizations and various international actors, the government, at the time of this research, was wary of entering into such relationships. Evo Morales' Movement Toward Socialism (MAS) government reflects a shift occurring in various countries of the global south in which politically left-leaning parties have gained power in reaction to previous administrations enamoured by neoliberalism. Though it is increasingly evident that anti-neoliberal discourse does not always equal anti-neoliberal practice in Bolivia (Haarstad and Andersson 2009; Kennemore and Weeks 2011; Webber 2008), the government is cautious about entering into relationships with organizations that might be under the influence of global neoliberalism. Yet government agencies experience pressure from certain key international funding agencies and from various key Bolivian institutions to collaborate with these same

NGOs (or to play a hierarchical role in which the government audits the work of the latter). The state is in a difficult position between international pressure to conform to neoliberal approaches to development,[2] a desire to fortify indigenous cultural traditions of complementarity and the Andean perspective of "living well" (*buen vivir*)[3] and, finally, domestic political pressure to promote policies that improve Bolivians' livelihoods. In response to these competing pressures, the government skates a fine line between socialist and neoliberal-capitalist approaches (also see Kennemore and Weeks 2011; Postero 2013).

Tensions arise in international–national, national–local and governmental–NGO relations. Although aspects of these tensions relate to a particular Bolivian colonial history, the outcome of this examination has broader application. Lines are blurred between state, for-profit and non-profit actors, as states increasingly enter into "arrangements for joint governance of issues and places" with other organizations, particularly NGOs, at an increasingly global level (Holmes 2011:4). In this article I examine the efforts of these organizations toward participatory development in terms of understandings of local knowledge that reveal power imbalances, masked by sometimes contradictory participatory language.

With the turn in development toward increasing participation of local beneficiaries, "local knowledge," as a necessity for both project efficiency and sustainability, has been incorporated into the neoliberal development agenda. However, the assumed distinction between local and professional knowledge often manifests in the emphasis on teaching rural people proper, scientific management (Nightingale 2005). My research finds this tendency, bringing forth a further complication as professionals embrace local knowledge as the root of agroecological knowledge, which then needs to be taught to farmers. The decentralized neoliberal development approach emphasizes expert knowledge as part of the growing legitimacy and professionalization of NGOs. However, the dichotomy between local and expert scientific knowledge may be deceptive when the "experts" are local but trained in such a Western knowledge tradition (see Escobar 1995; Hobart 1993). They may even be university-trained agronomists from indigenous farming communities, as are several in ODEP. While this is still likely to have the effect of marginalizing local knowledge, placing value on local knowledge in a way that is defined by the dominant knowledge, with the ideals imbued in words like *partnership*, *participation*, *collaboration*, *exchange* or *empowerment*, masks familiar power relations. ODEP's concern with demonstrating successful and culturally appropriate participatory development to CANGO conflicts with the reality that employees in practice often fall short of the NGO's stated values and goals in levelling power imbalances. Hence, ideals of respecting local knowledge fall short of their potential for real collaborations of knowledge, just as sincere efforts in participatory development fall short of the type of substantial transformation suggested by Hickey and Mohan (2004).

Central to the current debate around global efforts toward "sustainable agriculture"—including who is perceived to hold agricultural knowledge and how that knowledge is acquired—are questions of the power dynamics between development projects employing scientific knowledge and those that employ the local knowledge(s) of rural peoples (e.g., Altieri 2009; Altieri and Toledo 2011; Gonzales et al. 2010; Hobart 1993; Walsh 2010). Sustainable development and agrobiodiversity conservation, as practised by ODEP, can be understood within the context of the growing agroecological movement. It has aimed to recover indigenous practices, long undermined by the power relations of scientific agricultural knowledge and technologies guided by neoliberal notions of efficiency and economic growth. Despite its growing popularity, organic agriculture remains marginal in the global market. Organic production has often found a place in niche markets for consumers in the global north, which has not readily benefited the producers of these goods (Altieri and Toledo 2011). Efforts to promote organic farming contend with a long history of indigenous farming practices being devalued both globally and locally. While Altieri and Toledo (2011) and others highlight the important implications for food sovereignty in an approach guided by farmers' local knowledge, some, like Gonzales et al. (2010), are concerned with the tendency to conflate agroecological farming with indigenous (local) knowledge. Although agroecology and Andean indigenous knowledge share important approaches in contrast to conventional agriculture, Gonzales et al. highlight the embeddedness of the former in Western science and thus the "epistemological, ontological and cosmological/spiritual differences" (2010:169).

Power relations inherent in encounters between these two (similar) agricultural knowledges imply that the agroecological approach can certainly be top-down. Moreover, such global knowledge, tied to international development, travels through networks that facilitate the movement of knowledge, while aiming to manage people's conduct and the objects of development (Ilcan and Phillips 2008). We should be cautious of accepting too readily the claims of agroecological farming that it is based in local knowledge without looking for ways in which it directs farmers toward methods that detract

from their actual lived experience and generated knowledge. We are reminded of Tsing's (2005:13) astute observation that collaboration between different knowledges creates new interests and identities that inevitably will not benefit everyone. Gaps are created where truths that are incompatible are suppressed. So globally circulating knowledge—in this case in terms of sustainable agriculture and development—creates new gaps even as it grows through the frictions of encounter (13).

This discussion also draws attention to the positioning of agroecology, as an approach that is emerging in response to the power of commercial agriculture, with its inherent problems, as well as the neoliberalization of nature. When we examine the relationship it has to the dominant scientific agriculture of the global north, light is shed on the paradox introduced above, that is, how agronomists and others could simultaneous credit "local knowledge" for teaching them, while disregarding or dismissing local knowledge in practice. I return to this issue after exploring attitudes, efforts and contradictions among farmers, ODEP workers and state-employed agronomists that both facilitate and hinder efforts to collaborate.

Persistent Barriers to Local–Professional Collaboration

Angel, an agronomist overseeing PROIAB's organic research projects across Bolivia, reproachfully recalled the lack of government oversight during previous neoliberal administrations. He was optimistic about the future of agricultural research and development now that the government was taking a more active role. "When you decide to work with participatory research," Angel explained to me, "you are dealing with the failures that other institutions have made[4] ... you create a bond of friendship with the community and the farmer is going to develop confidence in you." This idealistic picture of trust and mutual respect could apparently develop automatically through farmers participating in current Bolivian state-led research. Yet Angel's enthusiasm for his organization and the MAS government's ability to correct what he described as damage done by NGO-sector professionals did not extend to any real system of collaboration, in practice, between small-scale farmers and agronomist development workers. Imbalances in power relations were imagined to naturally smooth out by hiring staff from the general region in which they would work and by ensuring an equal number of male and female farmer participants. Previous problems would be avoided: Research and development would not be top-down, it would be effective at training farmers, local knowledge would be used, women would fit right in simply by ensuring equal numbers, and farmers would naturally trust the government more than the NGOs.

By contrast, ODEP, an NGO with years of experience in this particular region of Norte de Potosí, could articulate more clearly the specific participatory methodologies it employed, compared to the recently arrived Bolivian state employees. ODEP took a standard neoliberal development stance of training farmers to be more "productive" and more "marketable," promoting individualism in several ways, coupled with language of restoring resilient local knowledge through supporting agrobiodiversity, organic production and adaptation to climate change. A handbook for ODEP employees provides an explanation of the philosophy underpinning the NGO's many participatory methodologies as employed in the NGO's training workshops. With regard to encounters of different types of knowledge, this document portrays ODEP's ideals in participatory planning, research and development with farming communities. It provides a plan for how the agronomist transitions from a "technician"—associated with top-down development—to a facilitator (reminiscent of Chambers 1997). On the one hand, the imagined technician uses top-down methods; maintaining the attitude that people must learn from "him," he monopolizes the floor (*tomar la palabra*), poses "closed questions or suggests answers" and generally upholds the power relations that give him status. On the other hand, the facilitator is imagined (among other things) to "consider all knowledge valuable and to work along side peasants supporting them with respect."[5]

Adriano, an ODEP agronomist, explained the NGO's role to me in a similar way to the handbook, positioning farmers as holders of agricultural knowledge, whose knowledge could be strengthened with agronomy techniques:

> We are just there to orient them. Nothing else. We are just teaching them the *technologies* but they know what to do. We are not working with the Green Revolution or chemical use; what we are doing is implementing organic agriculture. The methodologies we use are because we want them to learn, to see how to improve the production and we strengthen basic knowledge.

Adriano draws attention to how his organization plays a supportive role for farmers, rather than imposing foreign (harmful) tools that have eroded local knowledge (Altieri 2009; Walsh 2010). In discourse with CANGO, Adriano is referred to as a facilitator, but on a practical day-to-day level, he is always referred to as (and calls himself) a technician (*técnico*). The distinction provided

in the handbook places the two titles of *facilitador* and *técnico* in sharp relief to create a framework for understanding the NGO's ideals. It constructs the facilitator as someone who is socially and culturally sensitive, someone who respects protocols and the etiquette of rural people and is able to recognize the changing moods of participants and adapt accordingly. Involving everyone, especially women, he or she creates "an atmosphere of trust for everyone to express himself or herself." Where the technician is dismissive of alternatives, the facilitator remembers "that everyone has something to say." Where the technician "extracts quantitative data, without trusting that people can act, analyze and understand," the facilitator strives for collaboration and feedback. Importantly, for the discussion at hand, the facilitator is also imagined as someone who "believes that learning is a mutual process" and sees himself or herself as someone who has much to learn and who puts aside issues of status and positions of prestige. In contrast to these ideals of transcending barriers along gender and class lines, *lived experiences*—as expressed in the interviews—portray challenges in practice. Importantly, facilitators are still products of their own culture, with all its biases that privilege the educated, lighter-skinned, male voice (also see Ishizawa 2010).

Local Knowledge through the Eyes of "Experts": Contradictions Uncovered

The language of ODEP—like the language of development more generally (see Cornwall and Eade 2010; also Cooke and Kothari 2001)—officially and in its literature conjures images of collaboration, participation and local knowledge. However, for the most part, individuals within ODEP talked about their roles as training or teaching farmers, in other words, passing knowledge on to them. They talked to me about the role of local knowledge only when I asked explicitly about how it might fit within their projects, which otherwise emphasized training and participation for the sake of learning, rather than for the sake of a collaboration of knowledge. The interviews with professionals were thus often characterized by contradictions in which, on the one hand, with a great sense of pride they credited local knowledge for teaching them what they really needed to know, while, on the other hand, drawing on examples of what they considered misguided approaches (whether they be superstitions or use of chemical inputs) or highlighting the current lack of knowledge to express why training was so important.

While the agronomists employed by the government organizations discussed here often spoke more generally, knew less about specific locations within Norte de Potosí and had less clearly defined ideas about how to achieve quality farmer participation, government and NGO workers did operate according to a similar logic. Tsing (2005) cautions about how easy it is to imagine local knowledge in remote places as though it is part of a "lost world," timeless and removed from all else. This notion of static and isolated knowledge and the associated romanticism have come from both the political left and right in development (Cochrane 2007; Swartley 2002). In a particularly candid statement, Mario, an agronomist from a governmental food-security organization, shared his perspective on his work in ecological agriculture within various municipalities, including in Norte de Potosí:

> What I have seen in exchanges of experience is that [the farmers'] abilities are very limited—I had imagined that they would have more knowledge. We need to keep working on that track—giving them knowledge ... What we don't want is for the producers to just replicate things, we want them to know what they are doing and why. They could also then improve on that technology.

Mario's statement concludes with the theoretical possibility for local knowledge to improve on expert knowledge—in this way there is the potential for collaboration—yet the rest of this statement shows a vertical flow of information from the organization to the farmers. Interestingly, when he was asked whether local knowledge could be used in these projects, his answer shed light on why he had expected farmers to "have more knowledge." Enthusiastically changing his tone from that of the expert with something to teach farmers to that of someone who owes his expertise to the farmers, Mario replied:

> Yes! Most of the knowledge that I have, I obtained from the producers' ancestral knowledge! At university I learned conventional and scientific agriculture but the conventional didn't help us much with organic agriculture. I owe my training to the peasants and producers—they are my teachers! The ancestral knowledge is very valuable.

In the course of a matter of minutes within the same interview, I had received vastly contrasting images of indigenous small farmers as people who lack knowledge and as holders of profound knowledge. His statements portray local knowledge as a static possession of previous farming generations. I pressed the issue throughout the interview, and later more was revealed. Central to Mario's concern, and what he saw as his role, was to be a person who can spread knowledge about organic agri-

culture in the face of a strong force of propaganda from those with power over the media, heavily supported and influenced by the global food companies and American corporations. In response to a question regarding the main obstacles for small farmers, Mario elaborated:

> First of all the lack of training, the lack of knowledge and I wouldn't say the lack of culture because they have more culture than us, but they need knowledge. The problem is that they get knowledge from the media, which is also a way to be *misinformed*, because those who control the media ... provide information that is convenient for them. For example, they simply talk about transgenic seeds because they own the companies that sell these products ... They have created a dependence. They have created disaster. It's a suicidal method. At the beginning it is very profitable, there are high yields but then the income slows down and they become indebted to the banks and the big companies. As you know, this is what conventional agriculture does. We know this, but the producer doesn't know this, so we are here to show them what others have experienced in order to learn from those mistakes.

Mario sees his role as presenting a crucial counter-discourse and practice to the dominance of the global agro-industry, yet his assessment of the farmers' ignorance of this stands in contrast to his assessment that the United Nations Food and Agriculture Organization—currently funding state-led organic agriculture research but also credited with introducing the Green Revolution to Bolivia—has changed its approach because Bolivians themselves have pushed for these changes. Implicit in this idea is that it is not the farmers but other (more educated, professional) Bolivians who are calling for food sovereignty and organic production.[6]

ODEP agronomists also tended to describe their work as part of a larger effort to resist powerful companies like Monsanto, but ODEP's approach has been to legitimize its role as representing farmers, highlighting concerns about climate change, loss of biodiversity, a desire for leadership, and so on. ODEP argues that the farmers themselves express these concerns. ODEP civil engineer Rodolfo had several years of experience working in farming communities in Norte de Potosí. As he reflected on local knowledge, he highlighted how this knowledge could not be severed from superstitions[7] and beliefs that dreams are prophetic. As I examined these themes with people in the communities, I wondered how often NGO workers, with their university training, had outright dismissed these ideas. Many of the agronomists at ODEP grew up on farms themselves. Their earliest knowledge of agriculture was couched in local knowledge, yet the Western-style training they received at university overwhelmed it. Rodolfo raises an important and often muted aspect of what local knowledge entails. Knowledge about how to seek guidance from dreams and notions of luck refuse to fit neatly into scientific understandings. It may be valued as part of culture, but it may be dismissed in encounters between different types of agricultural knowledge, contributing to defining knowledge in narrower terms.

Agronomists as Teachers, Farmers as Students

Although participatory development is treated as the proper approach to take, compared to previous top-down versions, the technicians at ODEP are trained to understand the value of participatory methodologies primarily as teaching tools. Not surprisingly, some people have taken to employing these methods with more ease than others. ODEP's handbook for agronomists facilitating workshops provides multiple examples of games, anecdotes and experiments and reinforces the idea that being shown how to do something and participating in that process is far more effective than simply seeing or hearing about it. However, new agronomists with ODEP who were recent university graduates had been trained to be "expert" technicians rather than facilitators of participatory projects. Moreover, the learning curve could be steep in terms of absorbing and applying ODEP's many methodologies for participatory development. For example, one such agronomist, Teodoro, often talked to me in terms of the knowledge he and ODEP had to transmit. He never responded to my questions with notions of exchange between the farmer and the agronomist, though he did recognize the value of the practical knowledge gained by working in the fields, as opposed to the theoretical knowledge gained in the university. He tended to describe himself in heroic terms as he talked about teaching farmers.[8]

I asked the facilitators what they found easiest and most difficult to teach the farmers. Rocío, a seasoned agronomist who left ODEP to work for PROIAB, really enjoyed promoting organic agriculture. She described the interest and ease with which most farmers understood why agrochemicals were a problem (though she recognized in her new job at PROIAB that certain potato-growing communities in the municipality, heavily reliant on chemical fertilizers, would be hard to convince to move away from such an approach). On the other hand, teaching farmers basic accounting for the entrepreneurial component of ODEP's workshops was very difficult, and she felt she had rarely succeeded in successfully teaching these skills. Teodoro, by contrast,

responded to this question by stressing that everything was hard to teach farmers. An idea or a technique had to be taught over and over, and perhaps on the third time around, the farmers would begin to understand. He felt his ability to teach was aided by holding workshops in which men, women and youth attended so that, rather than one member of the household being responsible to retain the new knowledge and share it with her or his family, at least two household members were participating.

The handbook provided to staff by ODEP highlights that the criteria used to mark success are based on how successfully the student learns, rather than how much the teacher teaches. There was no doubt that this was part of their goal, but my observations showed that women especially had a hard time retaining information as it was framed and were quick to state that they as individuals lacked the ability to remember what they learned from ODEP.

Local Knowledge and the Notion of Lacking Knowledge

The common response of farmers in the two communities to a range of questions regarding local knowledge and knowledge transfer across generations—"We didn't know anything before the institution[s] came"—portrays a narrow definition of knowledge (at least when talking to a formally educated outsider such as myself). This narrow conception emerges from uneven power relations in that what counts as knowledge is that which is acquired through formal channels, such as training by professionals and experts. Mothers and fathers, typically with only a few years of primary school behind them, compared themselves to their children, who, thanks to easy access to high school, now "know things," in contrast to their parents' perceived lack of knowledge. This knowledge through formal education opens doors for their children to go to university and become "professionals"—the dream for a child's future of almost every parent asked. Young people also sometimes responded along similar lines: When I asked 13-year-old Alcira what she had learned from her mother, she replied, "My mom? She doesn't know anything!"

Often the notion of "knowing nothing" arose in my interviews with the opportunity to contrast life before the NGOs entered the communities or before improved access to high school and university education. By marked contrast, in the same interviews people could also very confidently tell me that they had taught their children everything they would ever need to know about farming, so that after their likely move to the city, they would be able to return without difficulty to rural life. So it seemed that farm families were confident that they knew what they were doing on the land and confident in what they could pass on to their children, yet in a conversation about knowledge, in which the NGO was implicated in the discussion (either directly or indirectly), local knowledge was denigrated.

Since a great deal of local knowledge is acquired on a daily basis through action rather than narration, without having to go to a special institution (like a school or even a workshop), it is possible that this type of knowledge transfer was not seen as being on the same level as specialized knowledge taught by a professional.[9] Even when it came to what parents considered to be important knowledge to pass down to children, how this knowledge was passed down was not always registered. One of the clearest examples of this was found in talking about the gendered division of labour and teaching children: While mothers clearly taught their sons much about farming, sons were understood to be taught by their fathers.

An important contradiction persisted in the question of who is understood to have agricultural knowledge (as well as how this perception influences knowledge exchange): While the discourse of development workers and farmers alike centred on the idea that farmers now (and recently) lacked knowledge, the farmers' ancestors were imagined to have held important *saberes locales*, local knowledge (discussed further below). This is not to say that such underlying concepts were not contested. In the NGO's farmer-training workshops, I heard a few of the more confident and outspoken men express frustration with being viewed as coming from a place that was notorious for *lack*—lack of sufficient food, lack of knowledge, lack of "civilization"—as Norte de Potosí is imagined by many Bolivians as a very cold and barbaric place (Goodale 2008), intensified by the infamy of its ritualistic fighting.

The Interface of Theoretical and Practical Agricultural Knowledge

ODEP relates the idea of sustainable agriculture to the Andean world view and understanding of *Pachamama* (Mother Earth). In the first of a new series of farmer-training workshops, Rocío gave a presentation in which she described sustainable agriculture as a "mutually beneficial relationship between people, plants and animals and the Earth." ODEP agronomists drew on both their scientific knowledge and what they understood to be ancient Andean knowledge, such as in their adaptation of terraced fields on steep hillsides. Sometimes ODEP mentioned the concept of *saberes locales* to farmers, with vague references to the farming knowl-

edge of local peoples' ancestors (*los antipasados*). This can be read as a counterdiscourse to the attitude of many local farmers that local people *knew nothing* before increased formal education and the intervention of development organizations. In this sense, it was a positive reinforcement of local wisdom and culture. However, in practice this framing was too vague and temporally distant to serve this purpose effectively. Rocío had explained to the farmers when she mentioned *saberes locales* that the ancient techniques and wisdom of the farmers' *ancestors* needed to be restored. But terrace-building as an example of ancient farming knowledge in the communities of Tomacoyo and Q'ayarumi was less straightforward to the farmers in my study than the agronomists assumed. Despite the visible markers of grown-over ancient terracing further up the mountain above the communities, men and woman alike clarified to me that those had been the ancestors of *different* people (also see Zoomers 2006). The ancestors of the Quechua-speaking ethnic group on the other side of the mountain had made the terraces. ODEP recognized the distinction between these groups of people but referred to Andean ancestors at a wider scale, with which the farmers might identify as *originarios*, but, in practice, the farmers distinguished themselves from their neighbours in the surrounding valleys.

While virtually every professional interviewed emphasized that farmers could not be successful as growers unless they acquired the professionals' knowledge of agricultural techniques, many professionals also claimed that they had gained practical knowledge through working in the communities. This was especially the case for those professionals who had been working for many years, compared to those who had graduated more recently from university. For some, this was simply a product of working in the field rather than studying "theory" at university, but other professionals explained that this more practical knowledge had emerged from encounters with Norte de Potosí farmers already familiar with the land. Rocío, for example, drew attention to the regular work she did in the fields with farmers. She highlighted how conversations about growing techniques and timing happened organically in quotidian aspects of her job.

There were other circumstances in which people expressed the importance of the practical knowledge gained in the field. When I asked farmers what, if anything, they thought ODEP's agronomists might have learned from the community or from working with them, some immediately thought of the practical nature of learning in the field rather than the classroom. I asked everyone whether there was a difference and, if so, what they thought the difference was between learning about agriculture in a university and growing up in the countryside (keeping in mind that many of the agronomists also grew up in rural locales and learned on the land before pursuing formal education). Several men suggested the same answers that the agronomists tended to give me: The countryside presented opportunities for practical, rather than theoretical, learning (*aprender por uno mismo/experiencia*; *aprender con la práctica*). The common response from women was that there was a difference, but few were willing to suggest what they thought that difference might be. Others simply told me that it was the same, different but equal. Evita, the grown daughter of a couple who participated with ODEP in the hopes of improving their access to water, began her response in precisely this way, but, as she elaborated, her tone changed and her statement became more of a commentary on the power dynamics in which some forms of knowledge are given value over others:

> People that live in the country have *experience*; they know how to prepare the field, when to prepare, they know the timing! Agronomists also know but it's more theoretical, they don't *really* know, right? The people from the country know when it's going to rain, they know how to interpret the wind and the rain. The agronomist could say that ... it's going to rain but in the end, it won't rain. People from the country say it's going to rain because they have that communication with the stars. The agronomists know because they have read many things in books but people from the country know because they have *lived* it. They don't have a *diploma*, that's the difference with agronomists. Both of them learn from each other. I believe people from the country know more than the agronomists but, at the same time, the agronomists can teach us some things, like how to improve the system ... For example, they told us to grow fruit and it's good because it's good for our own consumption, for our health. But the people from the country have more experience because they have more experience looking at the sky; they know about the *stars*, they know about the *wind*.

Evita's point, that university-trained professionals lack important farming knowledge because they miss or misunderstand the signs that nature provides, is important. Her statement signals the idea that knowledge results in lived experience; it is not something that can be simply shown off with a diploma. As a rural schoolteacher, she also talked about the importance of formal education; while I was there she became increasingly interested in participating in ODEP's workshops (at the

end of which she would receive a diploma). Yet, as the following interview segment indicates, she resisted the power dynamics ingrained in the notion of agronomists teaching farmers how to farm. I asked Evita to elaborate on her motivation to participate in ODEP's training workshops:

> **Evita:** I want to anticipate some of the signs for when a plant is going to get sick, because there are various illnesses that can affect the plants. I also want to graft and know how to take care of the plants and when the best time is to plant vegetables, because my father is getting older. I want to know what I need to do to plant—when, which month. Because I have seen my father doing that each time, but I have never done that before.
>
> **Jenny Cockburn:** Is it possible for you to learn from your father?
>
> **E:** Oh yes, my father teaches me of course.
>
> **JC:** So what is the difference between the knowledge your father has and what you can learn from ODEP's courses?
>
> **E:** Some is the same of course, but if you are an agronomist, you can use that to work here too. It is very good together with the knowledge that we have here. It is better together! [She clasps her hands together for emphasis.] That's why some people in the community become agronomists—like don Romeo—and now his wife is taking courses through the university.
>
> **JC:** Can you give me an example of how that knowledge is useful when combined?
>
> **E:** Oh yes, well, with the peaches and little fruit trees that are newer here, of course ... Also, the *climate is changing and we must adapt.* Farmers know how to do that, but agronomists know about these changes too and they know about how to protect the land.

Evita indicates here the role that ODEP and similar organizations may play as a useful resource for farmers, by virtue of their knowledge about environmental problems, such as climate change, or potential improvements in pest control without the use of chemical pesticides. Another farmer, Romeo, who was trained as an agronomist, described his dreams for the future of his community, emphasizing discourse between indigenous community members:

> My vision for my community—and Bolivia really—is that *los originarios* [the indigenes] will reach a point where *we* talk about conservation and cleaning up pollution and garbage. At that point it will not just be the institutions teaching us, we will *know* and we will live better!

These farmers recognize the utility of the environmental knowledge offered by ODEP and similar organizations (including the governmental ones) for the future well-being of their families and communities. They also address the potential to take relevant knowledge and integrate it into their local knowledge. Thus, a second theme to be drawn out from Evita's statement above is a notion of hybrid knowledge that keeps local knowledge alive. Evita's desire to develop the agricultural knowledge that her father is understood to already know indicates that *local* knowledge can be maintained and developed through *inclusion* of outside influences, rather than being abandoned in favour of outside ideas (also see Dove et al. 2007; Sillitoe and Marzano 2009). It also serves as a reminder that local knowledge is not static but evolves. Yet, further complicating these questions and the discussion thus far is the fact that, among the ecological agricultural professionals, knowledge is contested.

Expert Knowledge and the Potential for Exchange

The holders of expert knowledge do not always agree about what constitutes expert knowledge; they are also not a homogeneous group. Interviews with agronomists working with other organizations, as well as those who had previously worked for ODEP, revealed these professionals' critiques of ODEP's approach. For example, Virginia, an agronomist with another Bolivian NGO working in Norte de Potosí and the daughter of a farm household participating with ODEP, criticized ODEP and similar organizations for trying to create projects that were unrealistic, and she suggested a solution for working within the limitations of the local environment:

> Micro-irrigation and reservoirs are needed but, I ask, *where* is this water coming from? I prefer to work with corn and broad beans that grow with the rain. Then when some people grow these and others grow onions there can be an *exchange*!

This local agronomist highlights the resource problem, a lack of water; however, an uncontested concept, implicit in her statement, is the idea that people should work with what they know and already have, placing more importance on the practice of exchange. The emphasis on exchange counters the potential for jealousy that comes from certain families having more than others, while also requiring less training and added community labour.

ODEP's Canadian NGO partner, CANGO, emphasizes the notion that farmers themselves are holders of expert knowledge. This perspective not only is evident

in CANGO's literature but was also part of the discourse of the various staff members who met with ODEP and visited the communities in 2010 and again in 2011, irrespective of whether their backgrounds were in social science, management or the physical sciences. It was quickly evident through observation that ODEP applied the farmer-as-expert model in a comparably limited way. Beyond the consensus among farmers and ODEP agronomists that the role of the latter was to train the former, there were few observable moments when farmers were recognized as having valuable knowledge to exchange with agronomists. Nonetheless, the participatory method of *Campesino á Campesino* ("Farmer-to-Farmer") exchange was integrated into the NGO's workshops, in the bringing together of several farmers to discuss the challenges they face with climate changes, agrobiodiversity and any number of other subjects that might be addressed formally and informally during group work or over meals.

The idea of exchanging knowledge and experience was raised often around efforts to organize or participate in farmer *intercambios*—farmer experience exchanges. However, I came to understand that these involved less of an *exchange* per se and more of a field trip for the farmers to learn some new—albeit interesting and arguably important—lesson in organic farming and environmental sustainability. At the "exchange" I attended in and around the city of Cochabamba, as one of the modules for a particular set of workshops to create local farmer-promoters of ecological agriculture in their own communities, two Bolivian male agronomists from a government organization concerned with food security (Mario and another man) spoke to the farmers about sustainable agriculture and its importance for Bolivia. They emphasized the important work that the Food and Agriculture Organization and the Bolivian government were doing in agriculture. After they introduced themselves and their topic, the director of ODEP, Juan Luis, introduced them to the visiting farmers from Norte de Potosí. He highlighted what a great opportunity this was for the government agronomists to ask the farmers from a remote area about their experiences and challenges related to farming, food security and access to the market. To my knowledge this was the only moment where the possibility for an actual exchange of experiences was stated explicitly during the three-day "exchange." However, at no point during the workshop did the government professionals ever ask the farmers anything about their experience or ask for feedback during their Spanish presentation.

Their inability to engage with the farmers reminded me of other governmental organization workshops held in the municipality in Norte de Potosí to introduce plans for participatory research and certification of organic farmers. In a workshop led by Angel from PROIAB, despite his idealized views as expressed above, Angel called on farmers only to answer closed questions and repeat back information, reflecting narrow conceptions of the purpose of participation and the challenge of transcending top-down approaches even when the intention is stated.

These instances also shed light on the challenge ODEP faced in overcoming larger (national and global) entrenched power relations regarding who is recognized for their knowledge and given a voice. In this context, it is arguable that ODEP made real efforts to facilitate the collaboration of knowledge between farmers and the NGO, so that my critique of where ODEP fell short should be read within its national and global context.

Still, the "farmer experience exchange" organized for the participants of a series of workshops geared toward training farmers to be community promoters of agroecological methods is a good example of how the notion of *participation* can serve as a loose representation. In this case, the term *exchange* is deceptive in its implication that knowledge transmission is multidirectional. The field trip does allow the Norte de Potosí farmers to participate in several farming experiences showcased by farmers and university professionals. They can ask questions and experience hands-on learning. The fact that some of the teachers were farmers themselves allows for instances that can still be considered "Farmer-to-Farmer" or *Campesino á Campesino*. But the important point here is that the Norte de Potosí farmers always remain students in this framework.

The Global-Local Position of Ecological Agriculture

Let me return to the paradox addressed at the beginning of this article, in which agronomists described local knowledge in ways that made it seem irrelevant to the work they were doing *and* talked with pride about how they had learned from local knowledge. It may be tempting to see local knowledge in this case as an idea that receives lip service, while rarely being recognized as applicable in practice. It is likely this was sometimes the case, but this assessment is too simplistic. Such a generalization of the agronomists' perspectives misses the positioning of agrobiodiversity conservation and organic agriculture as themselves a reaction to the conventional farming practices of global agribusiness, such

as the development of genetically engineered "suicide seeds" and, more locally in Bolivia, the damaging effects of the Green Revolution. The latter brought chemical inputs to solve the problem of poor soil conditions for the nitrogen-absorbing tubers but led to a much bigger problem of decreasing biodiversity and increasing reliance on chemical fertilizers (Altieri 2009; Saad 2009; Walsh 2003).[10] The ecological agriculture movement, building international momentum in the last couple of decades, has aimed to recover indigenous practices, undermined by the power relations of scientific agricultural knowledge and technologies guided by neoliberal notions of efficiency and economic growth. Efforts to promote organic farming contend with a long history of indigenous farming practices being devalued both globally and locally, so it is not surprising that ODEP emphasizes the importance of revaluing locally grown, native foods and finds ways to support these practices. Yet, in practice, power relations remain entrenched most of the time, and even Rocío, the staff member most concerned with levelling power differences, still understood her main role in the community as a transmitter of crucial agricultural knowledge.

Andean local agricultural knowledge encompasses centuries-old techniques for growing on steep mountainsides. ODEP and other actors in agroecology (non-governmental and governmental alike) place emphasis on revaluing this knowledge as vital not only for local problems of food security but also for global concerns of biodiversity knowledge. ODEP's efforts are sincere and dedicated to strengthening marginalized farming communities against the ever-encroaching forces of neoliberal global agribusiness. NGOs like ODEP participate (to varying degrees) in the growing resistance to the "agribusiness-as-usual" schemes to monopolize ownership of genes and knowledge while finding "solutions" to food shortages through the global economic market that rarely provide lasting improvements in the lives of small farmers (the prevalence of "suicide seeds" is a good example). Altieri and Toledo (2011:609) shed some light on what is needed in a way that reflects the beliefs underlying ODEP's work:

> Dismantling the industrial agrifood complex and restoring local food systems must be accompanied by the construction of agroecological alternatives ... Of key importance will be the direct involvement of farmers in the formulation of the research agenda and their active participation in the process of technological innovation and dissemination through *Campesino á Campesino* models where researchers and extension workers can play a major facilitating role.

This is, in part, what ODEP employees and the employees of other similar NGOs and government agencies intend as they form alliances not just with other organizations or local governments but also with universities, in addition to potential future ties with schools. It is helpful to recall Cooke and Kothari's (2001) recognition that participation that involves sharing knowledge, negotiating power relations and engaging in political activism may challenge oppression and injustices. Yet development workers may draw on these concepts in describing participation, while the participation in practice may actually conceal and reinforce oppressive power relations and injustices in their various manifestations (Cooke and Kothari 2001:13). How this argument can be applied to ODEP's participatory approach to working with farm households and communities depends on the scale.

At a larger, transnational scale, ODEP's work with farmers involves working against the dominance of agribusiness giants and unjust global market relations. It involves both technical and political approaches to increasing food security and draws on both traditional Andean farming knowledge and scientific knowledge to do this. Shepherd argues that:

> NGOs cannot succeed in utilizing local knowledge without challenging some of the fundamental tenets of development, not only in terms of development's reliance on external or foreign technologies but also in terms of the kinds of narratives that are invoked to define the problematic of the local environment. (2005:36)

ODEP's promotion of organic agriculture, agrobiodiversity and food sovereignty challenges the reliance on external/foreign technologies. It challenges the narratives invoked to define the problematic of the local environment, that is, in terms of drawing on, as well as translating, aspects of the Andean cosmovision (such as *buen vivir* or gender complementarity) to present to their international funders.

Meanwhile, at the *local* scale of relations between NGOs and participating farmers, in many ways power relations remain entrenched, with agronomists as teachers and farmers as students, and participatory approaches are recognized to be the most beneficial for their promise to transfer knowledge to the student. In ODEP's use of the *Campesino á Campesino* model, information flows in one direction most of the time. Participatory language masks tendencies to fall into traditional patterns; as this article shows, what qualifies as "exchange" may be unidirectional.

Who Holds Agricultural Knowledge? Imbalance Hides in "Exchange"

Despite much discourse to the contrary during exchanges among NGOs and in ODEP's literature, the relationship between the Bolivian NGO in this case and the farmers shifted easily and routinely into a common power dynamic in which, as Hobart (1993:11) put it, the relationship of developers and developed is usually regarded hierarchically by *both parties*. Thus, "communication easily becomes the giving of information or instructions by those with expert knowledge" (11). So farmers expressed their lack of knowledge as they defined it in terms of formal education, saying things like "we did not know anything before ODEP came." Time and participant observation provided insight into which farmers really seemed to feel this way, compared to those who made such statements but also recognized that they, as farmers, had much more practical local knowledge than the agronomists. But the traditional power dynamics encourage rural people with local knowledge to defer to professionals with scientific knowledge, even when they *recognize* that the value of their own knowledge is muted under these dynamics.

ODEP's efforts to raise the confidence of farmers are undermined by the limitations of their definition (in practice) of local knowledge. Treating local knowledge as something that the farmers' *ancestors* held—reifying this aspect of indigenous cultural heritage—emphasizes what the farmers today lack. And, in a context where farm families readily identify knowledge as something that one attains from formal education, few of the agronomists are challenged to transcend the comfortable position of relative power they enjoy. Rocío was exceptional in thinking critically about how to resist traditional hierarchical relations along class lines and incorporating this into her work (i.e., discouraging formal titles or sitting and cooking with women). At the same time, however, she readily embraced her role as knowledge provider and participated in transmitting the notion of local knowledge as lost. There is a disconnect between that practice and the conscious effort to collaborate and treat these different types of knowledge as equal. While ODEP's handbook, as discussed above, guides agronomists to think like "facilitators," if this is not part of a re-education process, many agronomists will not automatically make such a shift, having received training that undermines this view.

The farmers who choose to work with ODEP participate in this dynamic by devaluing their own knowledge. While windows of opportunity arise through the efforts of individuals with a strong dedication to removing barriers along class/status and gender lines, such as Rocío, this does not mean that the players involved will be open to such exchanges. The farmers themselves do not often offer their own knowledge and experience without being asked very pointed questions, and those who enjoy expert status in agriculture do not necessarily recognize the resource of farmer knowledge.

Building on Tsing's (2005) observation that collaboration is not a simple sharing of information but creates gaps where truths that are incompatible are suppressed, we can look at sustainable agriculture, through organic production and agrobiodiversity conservation, as "globally circulating knowledge" that creates new gaps even as it grows through the frictions of encounter. ODEP and other professionals draw parallels between some of their techniques and ancient local knowledge, while either ignoring or relegating to cultural mythology the ancestral knowledge that farmers described as the *practices* of their parents and grandparents.

Group work, such as within workshops, does allow for a degree of farmer-to-farmer knowledge exchange in important ways. The chance for farmers who live in different communities within the same region to work in groups on given issues leads to interesting possibilities for collaborative knowledge across commonalities and differences. However, the subjects are shaped by the NGO facilitators and ultimately lead to learning—and reinforcing—certain concepts, such as resource management and marketability, rather than shared rituals of other types. Traditions are repackaged to make sense within scientific knowledge as something that is morale-boosting for participants, such as Mario's assessment that "they" have more culture than "us" but lack knowledge.

Local Knowledge Repackaged

My field experience indicates that people with some education are in a position to talk about knowledge in ways that the majority may not be. Interviews quickly revealed how much more easily Evita and Romeo, as farmers *and* country schoolteachers, could talk about agriculture, culture and knowledge, compared to many other adult community members. The tendency to use as few words as possible to explain something to me or to say, "I don't know," "It's just what we do" or "It's just custom," may also reflect a discomfort with a superficial imposition to *narrate* their knowledge. It also sometimes reflected expectations regarding what I was capable of understanding as an outsider (not limited to white foreigners but also including urban professionals and even extension workers from a range of professions). The inability or unwillingness to engage in a

process of narrating lived, experiential knowledge might at times be misinterpreted as a lack of knowledge, particularly if those same farmers pay lip service to that idea and say they need to be trained by knowledgeable professionals.

The issue of exchange raises another question about how knowledge is interpreted by those whose aim is to "facilitate." Mario, a state-employed agronomist, determined through "experience exchange" that small farmers had less knowledge than he had expected. I may risk romanticizing local knowledge by insisting that it was *there* and he just could not see it; however, the above discussion demonstrates that farmers do possess knowledge and in certain contexts—usually when it is not being compared with the knowledge of professionals—place value on that knowledge. This raises the question of how, despite sincere efforts to facilitate it, the design of exchange between farmers might be framed in a way that does not necessarily achieve its goal.

Facilitators shape the vehicles of knowledge transmission. Within this framework some knowledge will be communicated, and some will not. The participants are still influenced by underlying power relations. It seems likely that when farmers remained silent when a professional voiced his or her wish to hear from them, they were deferring to the professional, accepting preestablished power dynamics. Moreover, I suggest that farmers were dismissive of their own knowledge as a strategy to gain institutional support within the established power relations—from colonialism and dependent capitalism to neoliberalism—that portrayed farmers as lacking knowledge. While ODEP's analysis was that farmers needed outside intervention to raise their self-confidence, certain farm households did not truly believe their own knowledge was deficient and attended ODEP's training sessions only to secure assistance with their more pressing concerns, such as improved irrigation.

The treatment of local knowledge as something rooted in a vague glorified ideal of the Andean past, as the knowledge of ancestors, lends extra legitimacy to modern ecological agriculture practices. The development organizations intervening in these communities can thus position themselves as *re-establishing* local knowledge. But placing value on local knowledge as something that has been or is being lost but that is restored through the work of ecological agriculture has a greater implication than "simply" maintaining power relations that stubbornly persist. Ultimately, an enormous irony is at work. Farmers remain positioned by this framework as lacking both scientific agricultural knowledge *and* local knowledge, whereas the agronomists who resist conventional agriculture can become the holders of *both* scientific knowledge and local knowledge. The agronomists, already enjoying the position of experts, are then able to impart these knowledges in a combined, repackaged way to the farmers with whom they work.

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Notes

1 NGOs, government organizations, people and communities have been given pseudonyms. It is not my wish to criticize specific organizations or individuals. The issues here are not restricted to these particular institutions or places but can be found in international development and interfaces of knowledge more generally. The tensions between understandings of who holds agricultural knowledge (in practice) have broader application for "sustainable" agriculture development.

2 During previous neoliberal administrations, Bolivia, like Latin America more broadly, saw a proliferation of private-sector organizations. Later phases of neoliberal reform emphasized the development of human resources (such as human capital and capacity-building), through social inclusion and alleviation of rural poverty, as an imperative for sustainable economic growth (Haarstad and Andersson 2009). Andolina et al.'s (2009) notion of *social* neoliberalism is helpful for conceptualizing the sequenced transformations that neoliberalism has undertaken, as the analytical term recognizes the shift from earlier narrow versions of neoliberalism that focused primarily on privatization, downsizing the state and trade liberalization (see also Hale 2002 and Molyneux 2008). This paradigm expands notions of development's potential by placing terms like "diversity, inclusion, sustainability and stakeholders alongside terms such as efficiency, self-management, productivity, and capacity" (Andolina, Laurie and Radcliffe 2009:10). Participation in development is understood to be rational and responsible, making local communities and individuals "partners" in the development process.

3 *Buen vivir* or *vivir bien*, meaning "to live well," emerged as an alternative concept to Western classical development approaches, based in indigenous traditions. Within the Bolivian constitution, the term is used to cover various rights, including the rights of the Earth. For more on this subject see Gudynas 2011.

4 Throughout the interview with Angel, he pointed to failures in agricultural research and development as a result

of top-down approaches and, importantly, privatization during neoliberal regimes, which allowed an ever-growing number of NGOs to enter rural areas with their own agendas. He alleged that NGOs generally had disregarded farmers' concerns while withholding resources.

5 Because ODEP is a pseudonym, a reference cannot be provided for the text in question.

6 While at the national level the call for expanding the market for organic production as well as food sovereignty has come from farmer's associations, more research would be needed to know how much of this call comes from farmers in Norte de Potosí. At the workshops I attended, the *ayllu* leaders (traditional authorities) spoke of these issues and supported the work of ODEP in promoting these ideas among farming communities.

7 For example, I asked Rodolfo, who was overseeing the current micro-irrigation project, whether local knowledge could be applied to the issue of "harvesting" water (*cosecha de agua*). His response was that

> over the years when [the community members] didn't have water, they would go up to the top of the mountain and sacrifice a sheep for *Pachamama* in the hopes that she would give them more water. Irrigation is defined by what [current farmers] saw from their grandparents, now [they] have continued with these methods of irrigation but it's not optimal. The irrigation only happened monthly, so in between the plants were very dry. That's not a good situation, that's why we need to change it with training.

8 For example, Teodoro often responded with authority, emphasizing his teaching (even suggesting he was teaching women to cook less familiar vegetables). He was also competitive with his colleagues in his responses: "It's because *I* am fluent in Quechua that I can *really* teach the classes," he told me, in referring to the other male agronomist in the district, who was still working on improving his language skills and tended to alternate between Spanish and Quechua when talking to farmers.

9 It is possible that, among themselves, farmers distinguished between the knowledge they passed down among themselves and the knowledge they gained from working with the NGO. Since my interviews were mostly conducted in Spanish or translated into Spanish, the same words were used (e.g., *saber*, *aprender*, *enseñar*).

10 The agronomists interviewed here often referred to an ongoing process that picked up momentum in Bolivia in the late 1960s and carries on today despite the countermovement of agroecology and the emphasis in Bolivia on increasing agrobiodiversity.

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