

Cosmovisions and Environmental Governance

The Case of In Situ Conservation of Native Cultivated Plants and Their Wild Relatives in Peru

JORGE ISHIZAWA

Article 8(j) of the Convention on Biological Diversity (CBD) implicitly recognizes that valuable understanding for the sustainable use and regeneration of natural systems resides in practices of societies rooted in local cultures and ecosystems. In compliance with the CBD, the Global Environmental Facility (GEF) has provided funds for establishing project interventions for in situ conservation of the diversity of native plants and their wild relatives in centers of origin of agriculture.

This chapter examines the experience of one such project, called the In Situ Project, in the central Andes of Peru (2001–05) to explore the relationship among knowledge systems, the scaling up of project interventions, and environmental governance. The project's stated objective is to conserve agrobiodiversity in the cultivated fields (*chacras*) of campesino farmers in fifty-two locations in Peru.

The project addresses six areas of intervention: (1) the *chacra* and its surrounding areas, (2) the social organization of in situ conservation, (3) raising awareness of the importance of maintaining the diversity of native plants and wild relatives, (4) policies and legislation to promote in situ conservation, (5) markets for agrobiodiversity, and (6) an information system for monitoring agrobiodiversity.

The execution of the first three components has been contracted out to six implementing agencies, including two government research organizations and four nongovernmental organizations. Among the latter is Proyecto Andino de Tecnologías Campesinas (PRATEC), the Andean Project for Peasant Technologies.

PRATEC participates in the project by coordinating ten local community-based organizations (CBOs) in four different regions in Peru: the Altiplano region, the Central Southern highlands, the upper Amazon region of San Martín, and the northern department of Cajamarca.¹ PRATEC assists and coordinates fieldwork conducted by these CBOs in a range of ecosystems and communities across the country. It also participates in an interinstitutional technical steering committee along with the other implementing agencies involved in the execution of the project. This provides PRATEC the vantage point to reflect on the vicissitudes of implementing interventions on in situ conservation.

The value of “traditional knowledge” is also explicitly recognized in the Convention to Combat Desertification. However, traditional knowledge is generally expressed in the terms and protocols of technoscience. Even the traditions of *Farmer First* (Chambers, Pacey, and Thrupp 1989) and *Beyond Farmer First* (Scoones and Thompson 1994), influential works calling attention to the need to value and recognize farmers’ knowledge, are ultimately centered on the technical outsider. We contend that instead of attempting translation, vernacular wisdom should be considered in its own right, and bridges between scientists and indigenous holders of equally valid paths to knowledge should be sought. The concept of translation refers “in its linguistic and material connotations . . . to all the displacements through other actors whose mediation is indispensable for any action to occur” (Latour 1999a, 311). In general, the knowledge domains do not overlap; they must be displaced in order to be meaningful. In effect, scientific knowledge is thus often constructed within a confining explanatory framework, defined by expert consensus about what constitutes a scientific “fact” (Latour 1987).

“Respect” for indigenous and local cultures should be understood as going beyond the recognition of their existence as privileged informants for technical outsiders. This entails also going beyond means to value and make visible this local knowledge and to consider the cosmivision of the indigenous and local peoples in its own terms as entirely equivalent to any other as valid modes of being-in-the-world.

For PRATEC, the challenge of the In Situ Project relates to the position of the central Andes as a global center of origin of agriculture where the domestication of plants dates back at least eight thousand years (National Research Council 1989, 163). The extraordinary interspecific and intraspecific diversity of plants and animals is a distinctive characteristic of the Andean campesino agriculture today and has been nurtured for millennia by campesino communities. Logically,

these communities should be acknowledged as the real experts in conserving agrobiodiversity. Instead, the strategy privileged in the project document was to translate and reformat the campesinos' knowledge into the binding framework of a technoscientific approach. Most of the fieldwork was to be devoted to gathering data on campesino practices and knowledge, thus approaching conservationist farmers as informants. PRATEC argues that this approach is confining, restrictive, and ultimately distorting to this knowledge form.

Fortunately, the In Situ Project left room for diversity in institutional approaches to collaboration with the campesino communities. Taking advantage of this policy, PRATEC and its ten associated CBOs adopted in their participation an incremental approach that builds on what the campesinos already do for regenerating the diversity and variability of plants and animals based on their own cosmovision, knowledge, and practices.²

A summary of the Andean campesino cosmovision is presented below. The epistemological questions raised by technical interventions in order to conform to this cosmovision are taken up next, followed by an account of the PRATEC approach of cultural affirmation. The connections with the issue of environmental governance are then briefly explored. The chapter concludes by suggesting that an effort to take alternative cosmovisions at face value would advance the international conventions' purpose of achieving the planet's well-being.

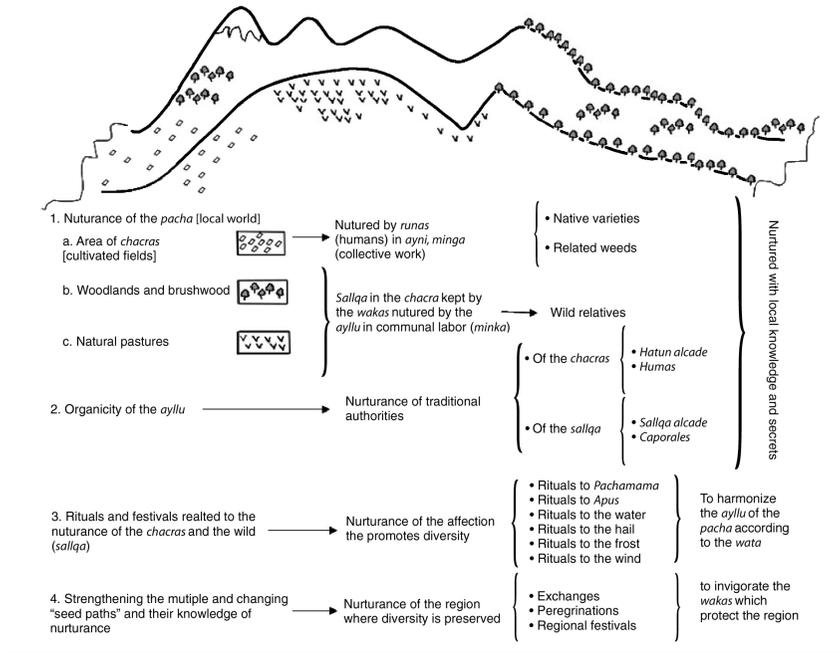
Andean Campesino Cosmovision and Cultural Affirmation

The In Situ Project's objective is to conserve agrobiodiversity in the campesinos' *chacras*; thus the project demands that its implementing institutions go beyond the management and monitoring of biodiversity, to which the technoscientific approach is confined, toward an effective intervention that promotes conservation. Before the project's inception, PRATEC had found that, for the Andean campesinos, the in situ conservation of plants and animals is tantamount to their ancestral nurturance of life as it is lived in the Andes. In other words, in situ conservation of the diversity of native cultivated plants and their wild relatives is equivalent to Andean Amazonian campesino agriculture. Hence, PRATEC's approach of cultural affirmation has consisted of the strengthening of agriculture carried out by the traditional nurturers of that diversity.

As shown in figure 11.1, the strengthening of the campesino agriculture in

Figure 11.1

Dynamics of seed regeneration in the Central Andes.



the central Andes builds on the overall process of seed regeneration carried on by the nurturing communities. It includes several areas of intervention:

- The local landscape, or *pacha*, including the area of the *chacras* (cultivated fields), the *montes* (woodlands and brushwood), and the area of natural pastures
- The organicity of the *ayllu*—that is, all the entities inhabiting a local landscape³
- The rituals and festivals related to the nurturance of *chacras* and the *sallqa* (the wild)
- The multiple and variable paths of the seeds and of knowledge of their nurturance.

The regeneration of the local landscape comprises the area of the *chacras*, the area of the *montes*, and the pasture areas. The *chacras* are nurtured by the *runas* (humans) in *ayni* or *mingas* (collective work). In the Andes, the *montes* and pasture areas are considered as being nurtured by the *wakas*, or deities.

Mutual nurturance, then, is the basic mode of being in the Andes. All nurture, and all are nurtured, in every moment. An expression found in both native languages (Quechua and Aymara) is “we nurture while being nurtured.” Julia Pacoricona Aliaga, from Conima, Puno, clarifies this expression with reference to the potato plant:

The potato is our mother because when it produces fruits it is feeding us, clothing us and giving us happiness, but we also nurture it. When they are small, we call them *wawas* (children) because we have to look after them, delouse (weed) them, clothe (hill soil) them, make them dance and feast them. This has always been done. My parents taught me to nurture them with affection and good will as we do with our children. (Terre des Hommes Germany 2001, 23)

The diversity in the *chacras* consists of native species and varieties, their wild relatives, and “related weeds.” The wild relatives and related weeds are also found in the *montes* and pasture areas. The regeneration of the local landscape is undertaken with the *pacha*’s (or community’s) own knowledge of nurturance embodied in the signs of climate, soil, water, and the “secrets” of nurturance.

The care of the *ayllu*’s organicity is encharged to the traditional authorities of the *chacra* and the *sallqa*.⁴ These authorities are not bearers of power but are mother and father to the community in their tenure, which is centered on the nurturance of the whole *pacha*, or locality (*chacras*, pastures, and *montes*). The *chacra* has distinct authorities in charge of its care and in care of the communal rituals in the agricultural cycle and of the *sallqa*: the community herds, pastures, and *montes*.

In the Andean cosmovision, it is affection and respect for the plants and their seeds that conserve diversity in the *chacras*, *montes*, and pastures. Affection and respect are vividly expressed in the rituals and festivals related to nurturing the *chacras* and the *sallqa*. They include rituals to Pachamama (Mother Earth); rituals to the Apus or Achachilas (mountain deities) for the nurturance of animals; rituals to the water asking for rain; rituals to hail, frost, wind, and snow; and *avios* (rituals of dismissal). Rituals bring harmony to the *ayllu* in accordance with the agricultural cycle. The testimony of doña María Lázaro from the community of Vicos, district of Marcará in Ancash, in the northern highlands of Peru, is eloquent:

This little potato of mine I greatly care for. I converse with my seeds.
My seeds know me because I am constantly speaking to them. This is

the reason why my potatoes never leave me. In the same way I care for my *chacra* every time I go to visit her. I always talk with her and I do likewise with all my seeds. In my house we are always together. I sleep with my seeds. I store my seeds in my *puccu* (small storehouse). There I accompany them at night. . . . This potato never disappears because she likes me a lot. (Asociación Urpichallay 1999, 24)

The motivation of the Andean campesinos to conserve is intrinsic. Conservation of seed diversity is the result of a way of life. The affection for the seeds makes their regeneration a part of the campesinos' lives.

The nurturance of the region where diversity is ritually conserved is done through strengthening the multiple and ever-changing seed paths whereby the campesinos exchange seeds. The activities include regional pilgrimages as well as regional festivals for the nurturance of the deities that protect the *pacha*.⁵

An Epistemology for Cultural Affirmation in the Andes

Implementing an approach that affirms Andean culture demands an epistemology that derives from the campesinos' cosmovision, from their lifeworld. PRATEC understands the term *lifeworld* as "the world of our immediately lived experience as we live it, prior to all our thoughts about it. It is that which is present to us in our everyday tasks and enjoyments—reality as it engages us before being analyzed by our theories and our science" (Abram 1996, 40).

Such epistemology is based on PRATEC's interpretation of testimonies of people who experience the Andean lifeworld and are able to lend it a voice. Nurturance, or attentive care, among all persons in the *pacha* is central to this lifeworld. Another important characteristic is that distinctions such as those required by Aristotelian logic are misplaced: entities share some attribute that makes them appear the same.⁶

On the origin of the diversity of maize land races, don Cipriano Armas, from the community of Recuayhuanca in Marcará, Ancash, gives his version of an explanation that we have found to be widely held in the Andean communities:

My hilling I have to finish the same day, since if I leave it for the following day, my maize plants will not go together to take their bath in

the sea. For this reason I have to finish the same day at any cost. Also, when you finish the following day, the part you have finished go to take their bath, but the other part are only ready the next day. Then they meet the plants that you hilled the day before on their way to the sea. When they reach the ocean, where they take their bath, they mix and return all mixed, of different colors. Then in the harvest you find different colors that you have not sowed, that is, it is not your original maize. (Asociación Urpichallay 1999, 28)

The epistemology that we, as external agents, bring recognizes that any interpretation we can make of such testimonies is only a working hypothesis. We can demand a coherent interpretation but must renounce the notion of a general discourse on Andean cosmovision or a unique access to it. The discourse remains limited to a specific area of application and stands or falls on its own coherence and on the consequences of the actions it suggests.

We recognize that our epistemology is external and alien to the Andean cosmovision. The epistemological enterprise is undertaken only as an exercise in an attempt to build passerelles between cosmovisions. Two distinctive characteristics must be noted in these efforts:

- There is inherently no possibility of completeness or uniqueness in the expression of Andean cosmovision. Such expression is local and circumstantial; it requires a personal voice.
- The fact that explanations similar to the one offered on the origin of the diversity of plants exist in different cultural and geographical settings is illustrative, but it is not invoked as criterion of validity. There is never a pretension of transcendent objectivity.

Technoscientific Knowledge and Modes of Intervention in In Situ Conservation

The case of in situ conservation of the diversity of native plants and their wild relatives in the central Andes is particularly interesting. Project execution has shown that substantive knowledge is present in the practices of the Andean peasant nurturers of agrobiodiversity. Indeed, they are now being recognized as longtime experts in domestication of plants and animals. In contrast,

scientific interest in in situ conservation is fairly recent. Nevertheless, most of the projects now being implemented in agrobiodiversity-rich areas for their conservation in situ still adopt a technoscientific approach.

Maxted et al. (2002) provide a recent account of on-farm conservation of germplasm from a technoscientific point of view, understood as “the sustainable management of genetic diversity of locally developed crop varieties (land races), with associated wild and weedy species or forms, by farmers within traditional agricultural, horticultural or agrisilvicultural systems.” They recognize that there is no scientific tradition in the subject area and that “the farmers ultimately undertake the conservation, not the scientists.” Even though the “farmers are aware of the importance of land races and the need for broadly-based agricultural biodiversity . . . their principal goal is economic. Agricultural security for them and their family is paramount and not the more nebulous conservation of genetic diversity. Thus, the role of the conservationist [the technical outsider] is . . . to help promote and preserve the conditions in which the traditional farmer can maintain genetic diversity in land races and related crop weeds, within the traditional production systems employed” (Maxted et al. 2002, 34).

Based on the critical assumption of the farmers’ economic motivation to conserve biodiversity, the methodology proposed consisted of setting up a process divided “into three phases: (1) project planning and establishment, (2) project management and monitoring, and (3) on-farm utilisation of diversity” (Maxted et al. 2002, 33–34).

Site selection and material incentives are key to in situ planning and establishment; both seek to ensure that selected farmers continue to cultivate and manage “the maximum possible range of genetic diversity” of the target crops and land races within their farming systems (34–37). Formulating project activities demands research on why the land races exist at the site and whether they will continue to consider the influence of modern varieties, culture, and various socioeconomic factors, including availability of land, labor, and capital; macroeconomics; and extension workers (39).

On-farm project management and monitoring starts with a baseline study documenting levels and patterns of genetic diversity, local management practices of diversity through the agricultural cycle, and the physical and biotic environment. On this basis, monitoring will be attentive to genetic erosion (Maxted et al. 2002, 41–42). Only utilization will promote conservation, especially the traditional use by the farmers for their livelihood and the use of the germplasm by breeders (43–44).

Thus stated, this technoscientific approach to on-farm conservation does not take into proper account that the real proven experts are not the “professional conservationists”—that is, scientists and technical personnel—but are the campesino nurturers themselves, who have conserved for millennia without professional help. The “professional conservationists” do not conserve. None of the activities undertaken by the project management team is directly concerned with conserving agrobiodiversity. Most of them are part of a research effort to monitor the levels of agrobiodiversity in the campesino *chacras*. Knowledge obtained through research is to be applied to conservation management and agrobiodiversity monitoring. No direct intervention for conservation purposes or for promoting conservation is contemplated.

Despite the claims of its proponents, the major blind spot of the technoscientific approach remains sustainability of conservation activities, which hinges on the motivation of the campesino nurturers to conserve biodiversity. This blind spot is basically a cultural one. The assumption of the practitioners of the technoscientific approach is that motivation is fundamentally economic or that it can be turned into such through “some form of incentives to encourage the farmer to continue cultivation of the land races.” This assumption has yet to be substantiated. To our knowledge, no research has been undertaken to test its plausibility. It has been PRATEC’s experience in the In Situ Project—contrary to what Maxted et al. (2002) state—that household livelihood effectively turns around the “conservation of genetic resources” (and diversity, generally) and hence, “conservation” is, however indirectly, the primary focus of their concerns when undertaking agricultural activities.

The following sections present some conceptual elements of an approach to in situ conservation of native plants based on the Andean campesino cosmovision.

The Concept of Contact Zone

The “contact zone” is the meeting space shared by the project personnel and the local communities. In the In Situ Project’s contact zone, importantly, peoples entertaining different cosmovisions encounter one another. It is thus a culturally and intellectually diverse space, in which the quality of the contact determines the success of the cooperative intervention. The concept is adopted here to allow an analysis beyond the populist view of the *Farmer First* and *Beyond Farmer First* perspectives on agricultural research and extension

practices (Scoones and Thompson 1994, 16–32). These perspectives assumed an agenda of active farmer participation, empowerment, and poverty alleviation. In the *Beyond Farmer First* tradition, the concepts of “interface” and “encounters” are used in an actor-oriented perspective (Long and Villarreal 1994, 41–52). They make it possible to analyze relationships between actors holding differing interests and placed in an asymmetric power relationship based on a differential access to privileged knowledge (Foucault 1980, 78–108).

In contrast, here the emphasis is on a collaborative perspective of participants whose assumption of their basic equivalence puts the focus on the relationships rather than on the actors themselves. A major reason for this approach is to consider the situation in which different actors across the “interface” are part of the same community—for instance, when the technical “outsiders” are in the process of returning to their own communities. In this case, the question is not what negotiations take place at the interface but how to dissolve the interface altogether. Hence, a different label is needed for an apparently similar concept.

Accompanying Agrobiodiversity Conservation

How can the process of seed regeneration be strengthened through project interventions? In an in situ conservation project in the central Andes, two possibilities are open at the “contact zone.” First, the project personnel may accept their role as external agents and keep to their management and monitoring tasks, inducing the campesino conservationists to continue conserving by offering, through project activities, appropriate incentives (such as markets and promotional policies) or by removing barriers. The other possibility is for the project personnel to demonstrate their belief that the campesinos’ ways of agrobiodiversity conservation are basically sound since they have worked for millennia. PRATEC’s approach proceeds from the latter possibility, using an informal partnership in which the project personnel accompany the continued regeneration of biodiversity undertaken by the Andean Amazonian peasants and the entities that make up the Andean *pacha* as depicted in the dynamics of seed regeneration (see figure 11.1).⁷

The technical personnel’s motivation for accompanying the campesino communities is important. Here it is assumed that the professionals believe that the Andean campesino ritual agriculture is a mode of life appropriate for the specific conditions of the central Andes. This is their basis for accompaniment, by which they affirm the Andean campesino mode of life.

The Concept of Incremental Interventions

Another central concept in the execution of the In Situ Project is the notion of incrementality. All interventions are incremental in that they add, in depth and extension, to what the communities involved are already doing or are, in principle, willing to do by themselves. External intervention is restricted to helping enlarge the living web of cooperative relationships already in place. The concept is closely associated with the notion of contact zone. In effect, it is postulated as a working hypothesis that both concepts will aid understanding of the partners' role in furthering the joint action while maintaining focus on the lifeworld, wisdom, and norms for governance of the local and indigenous communities. If, in the *Farmers First* and *Beyond Farmers First* perspectives, the technical outsiders still had something to bring to the encounter at the interface, in the case of in situ agrobiodiversity conservation, they come empty-handed in terms of expertise. The expertise already exists in the communities of nurturers themselves. Thus, the populist approach of *Farmers First* and *Beyond Farmers First* falls short of dealing with this case.

What are the terms in which the project's technical personnel meet with the campesino nurturers of biodiversity in the contact zone of an in situ conservation project? In PRATEC's approach, the technical participants recognize the campesino's expertise and come to the encounter with eyes, ears, and heart wide open to learn from a millenary wisdom in its own terms. The initial approach includes such technical activities as the inventory, recovery, and collection of local and regional germplasm and the testing of new germplasm for its gradual incorporation in the *chacras*. These practices involve local knowledge that is documented for later publication and dissemination in technological booklets. The project's technical personnel also accompany diverse activities of nurturance, such as sowing in communal and collective lands as germplasm *chacras* and the exchange of seeds and knowledge in communal and intercommunal meetings.⁸

What the nurturers of biodiversity bring to the encounter is their general concern about the loss of respect they feel affects their mutual relationships with seeds, deities, nature, and other people. They feel that their rituals—the show of respect and affection for their deities (mountains, lakes, and Pachamama, or Mother Earth) and for nature at large—are being forgotten. Hence, climatic variations have become unpredictable, harvests have declined, and life has turned precarious in general. There is no word in Quechua to designate respect. The understanding of respect is obtained from concrete personal behavior.

In PRATEC's case, the project's technical personnel are organized in a network of local CBOs called Nuclei for Andean Cultural Affirmation (NACA). They base their action on the local understanding of the loss of respect and affection among all entities in the *pacha*. The NACAs accompany the communities in remembering the ways in which their ancestors learned respect. Traditionally, this has been achieved through participating in rituals and exercising a *cargo* (duty) in the system of traditional authorities. In the project activities, the NACAs contribute limited material inputs, such as fresh seeds from other regions and agricultural tools from urban origin. To document the project's progress, local team members register and systematize both the diversity of seeds and the *saberes* (traditional knowledge) and secrets of nurturance involved. They also help regenerate the ancestral ways of seed provision and exchange by accompanying community groups in visits to other communities following the seed paths.

As a coordinating or second-level implementing agency, PRATEC has been providing administrative support and technical backstopping to the NACAs. A close monitoring of the activities at the project's contact zone provides PRATEC privileged access to learning from the campesino lifeworld and the NACAs' lived experience. PRATEC conceives its role as an accompanist of the NACAs and thus as a second-order accompanist of the campesino communities. A major part of the accompaniment focuses on the NACAs' personnel providing training programs for the accompanists as well as workshops for the exchange of experiences.⁹ The formation has evolved from one devoted to the training of accompanists to the communities to the training of cultural mediators. This is a major shift, since cultural mediation requires the accompanists to understand two different cultures in their roots.

Adopting the communities' diagnosis of loss of respect as the major threat to communal well-being demanded going well beyond the project's technical format to align activities around recovering respect in all its expressions. Activities included supporting the recovery of rituals associated with the regeneration of biodiversity, and promoting exchange visits by community members who wished to learn how other communities remember and strengthen rituals and celebrations and recover their traditional authorities.

The role of the accompanist at the project's contact zone can be characterized as cultural mediation. The cultural mediator is the intellectual hinge between cosmovisions—in this case, between the Andean cosmovision and the one implicit in the technoscientific approach. Two aspects of the mediation relate

to traditional knowledge vis-à-vis science and its application to environmental governance—that is, the values and norms implicit in the agreement to care for the Earth’s balance or to respect Earth law (Berry 2002; Stutzin 2002).

The accompanists have been educated for long years in a worldview that does not correspond with their original mode of living, of which they have a lived experience. Through their professional experience, they have corroborated the validity of their ancestors’ knowledge and the customs regenerated by past generations as a basis for well-being. Juan Arturo Cutipa, a young and accomplished accompanist, member of the Asociación Chuyma Aru, tells in a book written by Loyda Sánchez (forthcoming from the Asociación) how he learned the traditional knowledge from his mother, doña Anastasia Flores Chambilla, from the community of Ccota, Puno:

When I helped my parents in the fields on Saturday and Sundays I saw at harvest time that what they did was out of affection and reciprocity. I used to tell them that they were wasting money. Why are you so spendthrift with helpers? If they are not good at work stop hiring them. You can replace them with more efficient hands. My mother used to say: “This lady has no one to work on her *chacra*. Even if she works little, she talks with us and makes us laugh and thus further our work. Moreover if we do not share food with her it could even be a sin and God would chastise us. Who can give her something, if she does not have anyone to make *chacra* for her?” With my university student’s eyes I had completely forgotten mutual aid, reciprocity, compassion, even respect which is most important in the field.

The role of cultural mediators is to aid the conversation between different cosmovisions by becoming a competent interlocutor. They must realize that they are subject to colonization—that is, to the unconscious submission to alien values and norms (Sartre 1967; Freire 1969). Colonization is dual. The training the accompanist received during a long period of schooling devalues the campesino mode of life as a stage in the history of humanity that is presently obsolete. Knowledge of the ancestors is looked on with contempt as a source of the poverty that outsiders perceive in the campesino lifeworld. Thus, the professional becomes dependent on external knowledge handed over without context, the pertinence of which, in a new milieu, is based on faith and the power of those who originated it, and not on factual verification. What makes

colonization difficult to overcome personally for mediators is the apparent impossibility of renouncing the privileges of professional status and the cognitive authority that training bestows.

Scaling Up: The Incremental Approach

Our approach addresses an interesting question raised by a GEF consultant during project elaboration: how can a coherent program be made out of multiple local projects? To account for the diversity of circumstances in each project location, the local CBOs demanded autonomy. At the same time, coherent action was required. In PRATEC's approach, the contact zone between local communities and project personnel has primacy because activities jointly undertaken by the communities and the NACAs must be rooted in the community's lifeworld. We achieve coherence of our collective undertaking in different places and circumstances by different peoples and teams by adhering to a shared cosmivision of nurturance that is still present in the peoples of the central Andes. Coherent scaling up firmly rooted in specific places is thus made possible. The condition is nonetheless quality of the contact, which expresses itself in the respect and affection among participants in the collective action.

Scaling up the contact zone to the level of second-order coordinating institutions like PRATEC requires bridging the gap opened by the value–fact distinction implicit in the technoscientific approach to in situ conservation. This derives from that approach's basic assumption about the economic motivation of the farmers to conserve biodiversity. The distinction is a legacy from the founding fathers of modern science, who endeavored to create a space in which rational argument would prevail (Shapin and Schaffer 1985). Thus, in scientific activities, values were to be neatly distinguished from facts.

PRATEC's approach contains a second-order level of the contact zone at which PRATEC's action itself is located. This level allows for the reflection that produces some degree of generality needed to orient the collective action. Bringing in the values of respect and affection, which are central to the in situ conservation of agrobiodiversity to this reflection, requires the level of intellectual rigor found in the good and responsible practice of science, in which judgment and discernment must be exercised.

In a lecture titled "Moral Judgment and Political Action," included in the book *A Rumor of Angels* (Berger 1990), sociologist Peter Berger advances his understanding of what the social sciences can contribute to exercising

judgment. He proposes four criteria. First is the *discipline of detachment*—that is, demonstrating the quality of social scientists to act, not as moralists, but in their “trained capacity to assess empirical evidence.” Even though Berger restricts his injunctions to social scientists, we believe they can be applied to the practice of all scientists, especially when considering the consequences of the actions they recommend. He writes: “Part and parcel of [their] training is the discipline of detachment, that is, an ability to look at a situation clearly, to bracket off one’s own feelings and convictions in the effort to understand what others feel and believe, to listen rather than to preach. Most important is [their] ability to look at *reality* even if what comes into view is very much different from what one would wish to be there” (148).

Berger continues:

The second is the *clarification of normative and cognitive presuppositions*. In everyday life we constantly employ both kinds of presuppositions: Norms tell us what the world ought to be and how we ought to act; but these norms are supposed to maintain in a world that is real, and we hold a large number of assumptions, or cognitive presuppositions, as to what reality is. It is important to understand that norms have little if any meaning without the cognitive presuppositions that go with them. (Berger 1990, 149–50)

A major normative presupposition of the technoscientific approach to in situ conservation is that the motivation of the campesino nurturers of biodiversity for conserving is strictly economic. This is why a whole area of field research is devoted to clarifying farmers’ decision-making criteria in selection procedures, farming practices, size of plant population, and seed source. This assumption is implicit in formulating in situ conservation projects, and consequently, project activities do not include field research to substantiate it.

Berger continues in his lecture:

The third contribution is *the social location of actors and their interests*. . . . The sociologist is the character who, when confronted with any statement of belief or value, will invariably ask the prototypically mistrustful question, “Says who?” This question, disagreeable though it sounds, is of great importance in clarifying any situation in society and especially any situation within which one intends to act politically. (Berger 1990, 154)

This important aspect has to do with responsibility, both personal and corporate. The proponents of an in situ conservation project have their own interests and are socially located.

Berger concludes: "Finally, the fourth contribution—*the assessment of trade-offs*. . . . It is the easiest thing in the world to proclaim a good. The hard part is to think through ways by which this good can be realized without exorbitant costs and without consequences that negate the good" (Berger 1990, 159). This is probably the most neglected aspect of projects. The implicit costs must be considered along with the obvious benefits of well-meaning proposals.

Governance and Knowledge

By "environmental governance," we refer to the values and norms implicit in the idea of an Earth law that has the purpose of maintaining the Earth's balance. The Andean understanding of such Earth law involves mutual nurturance and respect among all entities in the *pacha*, or local world. Environmental science in the dominant technoscientific tradition has been used to produce pertinent knowledge for environmental governance. In this chapter, we have argued for the need to qualify this assertion and to explore more closely the relationship between science and "traditional knowledge."

The above account of Andean cosmovision sought to outline a perception of the world that differs radically from that of science. This cosmovision has been at the very root of a millenary form of approaching the conservation in situ of the diversity of plants (and animals) native to the Andean region, a form that has effectively conserved it. Our contention is that, viewed only from the cosmovisions, it is possible to approach the issues of environmental governance on equal footing.

Exclusively considering the knowledge from environmental science for the purpose of defining policies and adopting norms has at least two consequences. One is that laypersons are kept out of this process, and thus the popular (vernacular) knowledge they hold cannot influence decisions that may affect them—hence, the need to "translate" scientific knowledge into a format that people can understand if science is to provide space for democratic inclusion. However, this translation may not get the message through if the difference in cosmovisions is not carefully considered. The other consequence is that the definition leaves out all spiritual (or nonmaterial) connotations. The Andean case shows that the spiritual plays a crucial role in the campesinos' lifeworld. The

limits of the technoscientific approach may preclude a deep understanding of issues of environmental governance that have spiritual roots.

In the In Situ Project, environmental governance was restricted to those aspects intending to “encourage the equitable sharing of the benefits arising from the utilization of [traditional] knowledge, innovations and practices” (article 8[j], Convention on Biological Diversity). These aspects only partially address the issues raised by the campesino communities on the loss of respect for their knowledge and cosmovision. This question expresses a concern that goes beyond the project and is central to environmental governance around the globe.

Conclusions

Bridges or Common Worlds?

“Bridging epistemologies” seems a viable idea if the underlying cosmovisions are considered and made explicit. The CBD has opened avenues for a fruitful collaboration between scientists and holders of vernacular wisdom. However, our experience warns against attempting one-sided translation in the implicit belief that traditional knowledge is just an input to the scientific enterprise. PRATEC’s proposal is to undertake the challenge of considering the cosmovision implicit in Western technoscience and the cosmovision at the basis of vernacular knowledge as valid complementary modes of approaching the issue of environmental governance. Only with this explicit understanding can bridges be built between scientists, policy makers, and other actors, irrespective of the culture they embody.¹⁰

It is further proposed that the meeting ground between cosmovisions occur at the level of the contact zone, where problem identification from the grassroots can be agreed on and reformulated as a global concern. In effect, the loss of respect that affects biodiversity regeneration identified by the Andean traditional authorities can be recognized as the same basic problem at the root of the present ecological crisis. This common understanding can be the basis for interventions that incrementally contribute to problem solving.

However, bridges between technoscience and traditional knowledge may prove infeasible if conceived as entirely rational constructions. The attempt should be to build a good world in which many cosmovisions are welcomed, respected, and valued. This is always possible and desirable.

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