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Source: Mountain Research and Development, 32(S1)

Published By: International Mountain Society

URL: <https://doi.org/10.1659/MRD-JOURNAL-D-11-00088.S1>

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Communities Constructing Their Own Alternatives in the Face of Crisis

Economic Globalization in Mountain Regions

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Based on our work in mountain communities in Mexico (and in other parts of Latin America), we suggest the need for a “dialogue of knowledge systems” or dialogo de saberes, a concept used in Latin America that is akin to the concept of transdisciplinarity used by some European scholars. If these societies are to liberate themselves from the globalized straitjackets imposed by international economic integration with its imperatives of “free” trade and markets, then communities have to expand beyond the improvement of individual capabilities and the exercise of individual freedoms. Although individual improvement and self-betterment continue to be significant objectives for direct intervention, we focus on

the primacy of collective determinations of the worth of their activities and the focus on collective entitlements by assuring the viability of community processes for individual participation. An alternative strategy for participating communities is proposed.

Keywords: Autonomy; sustainability; alternatives; good life (buen vivir); resilience; tradition; dialogo de saberes; transdisciplinarity; Mexico.

Peer-reviewed: October 2011 **Accepted:** November 2011

Introduction

The analysis offered in this article is derived from our work in mountain communities in Mexico and in other parts of Latin America. If these societies are to liberate themselves from the globalized straitjackets imposed by international economic integration, with its imperatives of “free” trade and markets, communities have to expand beyond the improvement of individual capabilities and the exercise of individual freedoms. Although individual improvement and self-betterment continue to be significant objectives for direct intervention, we focus on the primacy of collective determinations of the worth of their activities and on collective entitlements, which assure the viability of community processes for individual participation.

“Development on a human scale” and “solidarity economies” are terms that characterize the highest aspirations of social scientists concerned with the impact of economic progress on human welfare (Max-Neef et al 1991; Gibson-Graham 2006; Deb 2009; Hart et al 2010; Schweickart 2011). In my research collaborations with colleagues in Latin America and with people in peasant and indigenous communities throughout the region, it is clear that the fundamental obstacles to human development are related to the inability of individuals and, more significantly, their organizations to empower themselves (Gasper 2002; Hinkelammert and Mora Jiménez 2005; Lebowitz 2009, 2010). Alternative strategies can only be successful if individuals and organizations successfully assume control over the management of their

human, natural, and material resources while also improving their ability to define the limits of their efforts at self-government and specifying the spheres of local autonomy and contacts with national and international markets so as to avoid an inevitably self-destructive move toward autarchy. In Latin America, the importance of consolidating a capability to assure autonomous governance cannot be overstated: it is “a necessary condition for sustainable development in Latin America,” offering “new social parameters for a convivial civil society” (see Gabriel 2007; Gabriel and López y Rivas 2008).

It is increasingly common to raise ethical concerns about the complexities of development, and even more so in the montane reaches where significant numbers of Latin Americans live. Although the liberal approach to development, such as that of Sen (2002) among other researchers, demands that development economics transcend its traditional focus on the maximization of personal welfare, many analysts still do not recognize the importance of breaking down the structural impediments required for “righting basic social inequities or correcting ecological imbalances” (Hill 2006); these changes in social institutions and practices are necessary to impede the operation of institutional mechanisms that systematically confiscate the labor and resources that people devote to production for the market. The Human Development and Capability Association recognized the importance of deepening the work of Sen (2002) by dealing with “power as an integral part of social analysis within the human development framework” (Deneulin and Mathai 2006: 1).

Although liberal economists do not countenance this confiscation, they implicitly condone the transfer of the value of these resources in both their financial and physical forms to the global centers of economic and political power, thus exacerbating the polarization process that characterizes today's global economy; they do not accept the reality perceived by many thinkers in the "Global South" that the multiple processes of monopolization of production, unequal exchange, and proletarian subjugation are inherent features of the free market economy, although there is a grudging realization that numerous social groups may find their particular conditions affected by the abuse of power or the exercise of market power by unethical corporations or political actors (Barkin 2010).

In this light, the "development conundrum," that is, the advance of economic indicators without improvements in social welfare, is not one that can be resolved by simply raising savings rates or promoting local productive ventures (Wolfe 1996; Easterly 2002; Rahnama and Robert 2008; Rist 2008); more accumulation has proven to be a treacherous motor for plundering the environment and exacerbating inequalities, and even disenfranchisement (Foster et al 2010). Many honest practitioners focus on enhancing human capabilities, generating new capabilities for overcoming the obstacles to individual achievement, and, therefore, to social development. However, this approach relegates the underlying dynamic of accumulation to a secondary role, as if the basic processes of the monopolistic exercise of power in the political arena and the operation of markets can be tamed through the well-intentioned creation of institutions peopled by able public servants committed to promoting individual opportunities and to enabling the "free and equal" interplay of social forces.

As an alternative, many marginal mountain communities are moving to strengthen their collective capacities to govern themselves and to manage their environments; in the process, they are reevaluating the contributions of their traditional activities, their inherited knowledge, and their ecosystems to their wellbeing while also exploring ways to forge new strategies for their own advancement and the protection of their ecosystems. This was particularly evident during the sessions of the "World People's Conference on Climate Change and the Rights of Mother Earth," convened in the Andean setting of Tiquipaya, Cochabamba, Bolivia, in April 2010, where an action program was offered for protecting the planet that directly challenged the one agreed upon at the 16th Conference of the Parties to the United Nations Framework Convention on Climate Change in the beach resort of Cancun, some 4 months earlier (WPCCCRME 2010). They focused on inherited knowledge and productive systems as sources of productive potential, wealth, and a means to consolidate their cohesiveness as

societies, while critically incorporating the latest technological and scientific advances, becoming able innovators and managers, and creating new governance capacities consistent with the demands for negotiating with regional, national, and international institutions.

The inclusion of the concept of the "good life" (*buen vivir*, in Spanish; *Sumak Kawsay* in Quichua) in the new constitutions of both Bolivia and Ecuador reflects a new regional commitment to implement an alternative development strategy, which embodies the variety of cosmologies of mountain peoples throughout the Americas; similar expressions of the "good life" are a central part of the philosophical heritage of other indigenous groups, many of whom live in the highlands (Schroyer 2009; Dussel et al 2010: Part 1, 15–50). Their proposals for creating viable strategies require local control of geographic and political space, which involves alliances among peoples searching for new responses to the global forces of marginality and exclusion. The turmoil and upheavals in national politics in Argentina, Bolivia, Brazil, Cuba, Ecuador, Uruguay, and Venezuela are not very distant from the somewhat more localized movements in these same countries and others, for example, Mexico, but are often mistaken for chaos and opportunism in the United States (Warren and Jackson 2003; Postero and Zamosc 2004). These processes of conflict and accommodation are inspiring new waves of political experimentation and innovation.

The difficult process of integrating present-day epistemologies into traditional organizations and knowledge systems is generating innovative forms of collaboration and production, of political consolidation and social collaboration. The experiences in mountain communities briefly mentioned in this article offer an attempt to explain why it is necessary to expand beyond the improvement of individual capabilities and the exercise of individual freedoms, if societies are to liberate themselves from the globalized straitjackets imposed by international economic integration with its imperatives of "free" trade and markets. Although individual improvement and self-betterment continue to be significant, we focus on the primacy of collective determinations of the worth of their activities and the focus on collective entitlements, assuring the viability of community processes for individual participation.

Toward an understanding of a New Communitarian Rurality

Communities throughout the world are attempting to develop in direct consonance with their environments and the natural pressures that emanate from the ecosystems on which they depend. It seems remarkable that myriad communities developed belief systems and ways of life that enabled them to thrive in harmony with their surroundings, as is repeatedly emphasized by

contributors to this journal (eg Salomon 1985; Sarmiento et al 1993; Brown and Mitchell 2000; Loyaza and Rist 2000; Rist et al 2003); Wolf (1982) stressed the importance of adaptive behavior in “traditional” societies that enabled them to modify some of their customs in response to changing external conditions while reinforcing those that they considered of greatest significance for their identity and continued existence. Many other societies did not adapt successfully or were destroyed by waves of imperial expansion or natural causes in many periods of human history. Today, many scientists acknowledge the significance of the accumulation of knowledge of the natural world in many communities through the centuries; a considerable scientific literature in *Mountain Research and Development* and elsewhere has emerged to document and comment on their interest in and ability to develop interesting and innovative solutions to complex problems and changing social and environmental pressures (Wheeler and Hoces 1997; Bebbington 1998; Rist 2000; Tapia 2000; Mathews 2003; Byers and Sainju 2004; Llambí et al 2005).

The importance of this accumulating knowledge is appreciated by local communities worldwide and is codified into religious and lay traditions that were passed on through the ages in sacred texts by story tellers or keepers of “the word” (Hernández Xolocotzi 1985). Recently, a new academic practice humbly acknowledges our inherited debt to these numerous traditions, producing a rich cumulus of understanding about the functioning of the world and the ways in which we might better attend to our own needs and those of the planet; this new tradition spawned a literature on “postnormal” science, promoted by the European Commission (Funtowicz and Ravetz 1993; Ravetz and Funtowicz 1999), and further enriched by a field of philosophical and empirical work in Latin America known as a “Dialogue of Knowledge Systems” (*Diálogo de Saberes*) (Villoro 2004; Leff 2010; Tortosa 2010; Barkin and Fuente Carrasco 2011; Cerón Villalquirán 2011; Freire 2011). These contributions from the teachings handed down through the generations are now documented in numerous volumes of case studies (eg Frey 2000; Berkes and Davidson-Hunt 2007; Hornborg et al 2007; Toledo and Barrera Bassols 2008).

In our work in Mexico, we collaborate with many mountain communities actively involved in efforts to escape from the dynamics of social and economic marginality (Barkin 2000). Many of these communities were systematically impoverished during the process of international economic integration. During the more than a half century since the United States inaugurated its first program to provide assistance to overcome “underdevelopment” in 1949 (Point IV), more have been thrust into the columns of the poor, even as some of the worst manifestations of poverty, such as low life expectancies and high infant mortality, have been reduced (Rist 2008). The “civilization project” or capitalist

modernization attempts to impose a new rationality on these peoples, proposing to generate economic growth, or progress, through the commercialization of “nature, ecological behaviors, and cultural values” (Leff 2004: 197). Orthodox science, and the power structures that it supported, underestimated the “collateral damage” inflicted by their vision and their policies (Holling 2001; Bergh 2007; Gunderson and Folke 2011). The heightening of social inequalities and the reduction of ecological resiliency are particularly evident in the current period as open pit mining operations are emplaced throughout the mountainous regions of Mesoamerica and the Andes (Bury 2002; Boyce et al 2007; Garibay Orozco and Balzaretto Camacho 2009); this intensification of natural resources exploitation has become so widespread and devastating, that social scientists introduced a new concept, accumulation by dispossession (Harvey 2003), to describe the sacrifice of any ethical notion of distributive justice and the wholesale devastation of mountain regions worldwide, even as the same governments declare their commitment to promoting sustainability.

In response to the onslaught of “civilization,” many communities are exploring ways of constructing new paths toward alternative projects. They are reclaiming parts of their history and inviting others to join them in integrating the best of state-of-the-art practice as part of an effort to strengthen their societies (Figure 1), to join them in forging new structures that will promote a meaningful form of sustainability, assuring enduring patterns of equality and an informed process of ecosystem management for rehabilitation and conservation (Nepal 2002).

In this article, we offer a number of examples in which university-based teams are successfully interacting with these communities to strengthen their collective projects; the topography of the regions in which we work (Mesoamerica and Andean) dictates our focus on mountain peoples. This experience is based upon the idea that people codify their knowledge systems in such a way as to attempt to manage their environments and produce the goods that they need for their own wellbeing and for improving their conditions (Villoro 2004); Barkin (1998; 2000) and Toledo (2000) describe the logic underlying the alternative community organizations that integrate social and environmental objectives into unified ecosystem management systems. Similarly, European researchers have identified a different concept for systematizing their work with native people in various parts of the world, describing it as “transdisciplinarity,” they are generating a complementary literature that certainly should promote further interactions among researchers in the coming period (see Cash et al 2006; Hirsch Hadorn et al 2006; Wiesmann et al 2008; Pohl et al 2010). Our interaction with these communities is guided by a process best summarized as innovation to strengthen tradition,

FIGURE 1 Mulberry tree seedlings: widely planted in highland Mexico in the 18th century as food for silkworms and now being reintroduced in many indigenous communities as part of a collective effort to promote silk production for incorporation in handicrafts, and increasing value of artisan production, while strengthening communal strategies. (Photo courtesy of Blanca Estela Lemus Ruiz)



informed by the insights of Eric Wolf (1982), whose work demonstrated that adaptive behavior is characteristic of the most successful “traditional” communities (Barkin and Lemus-Ruiz 2011).

Innovation to maintain tradition

Our interventions are evaluated in terms of their contribution to promoting community solidarity and welfare in consonance with environmental equilibria, a combination particularly prevalent in areas managed under common property regimes (Berkes and Folke 1998); this process is increasingly appreciated in the specialized literature that examines institutions that promote resilience, that is, “societies that have the potential to sustain development by responding to and shaping change in a manner that does not lead to loss of future options. Resilient systems are dynamic organizations that develop the capacity for renewal and innovation in the face of rapid transformation and crisis” (Berkes et al 2003).

Our contribution, as outside researchers, has been to identify untapped or ill-used resources that can be better mobilized to promote community objectives. In some cases, as will become obvious, we explore the significance of institutions that have atrophied or assert new values that we consider can contribute to community objectives; two such examples are promoting gender equality and the restoration of backyard animal husbandry. By their very nature, these marginalized communities are generally

situated in fragile environments, many in montane settings; the decisions about the directions for social and productive innovation are particularly sensitive to natural conditions, placing a greater responsibility on outside collaborators in their interactions with the community and their suggestions for innovation. In the examples that follow, I emphasize the processes that accompanied these interventions, highlighting the elements that contributed to integrating the guiding principles of sustainability into a strategy for their development (briefly summarized in the conclusions), an approach that offers a theoretical approach alternative to the development paradigms of globalization or modernization theories.

Family enterprises to strengthen communities

For centuries, backyard animal husbandry has been a central element for peasant societies around the world. Transnational corporations have systematically undermined this strategy by imposing new technologies that make small-scale family units unviable. Genetic selection produced new breeds of poultry and hogs better suited to factory-like conditions for reproduction and fattening, displacing traditional breeds that are more efficient in processing household and small-farm waste streams but require more time before they can be marketed (Suárez San Román and Barkin 1990).

As part of our search for sustainable regional resource management strategies in Mexico in the early 1990s, a group of community members asked us for assistance because they were having problems marketing hogs

grazed in local avocado orchards because they lacked a layer of lard; we discovered that avocados lowered blood-serum cholesterol levels in hogs (and in people, which led to the research that identified avocados as an effective fruit for lowering cholesterol in people); people in some communities were penalized when their hogs grazed in local orchards. By introducing small modifications in traditional diets, we contributed to strengthening the role of women as new social force in their communities by deliberately producing pork lower in fat in backyard stalls as a complementary and profitable activity to strengthen the regional economy (Barón and Barkin 2001). Now, some 10 years later, many of these women innovators have become community leaders, and further innovations are under way to maintain production and guarantee quality, an example of the on-going “dialogue.”

In retrospect, the proposed innovation proved relatively easy to implement because the design fits into the existing structure of village life and political organization, and furthers the efforts to consolidate the political program. Although based on a declining activity (hog raising), the proposed changes were comprehensible to all participants who clearly understood the relationship between diet and animal nutrition; its commercial logic also was compelling, especially within today’s precarious rural economy, because of the price premium their low-fat pork commanded. Because of the focus on an activity that women have historically managed, the project struck a particularly responsive chord. Furthermore, with a growing awareness of the need to improve sanitary conditions as a result of improving channels of information and concerns about health, the project also stimulated discussion of environmental issues, such as water quality and sewage disposal and treatment (Barón and Barkin 2001), which illustrates the multicultural and transdisciplinary character of this collaborative “dialogue.”

An interesting development emerging from the work on “lite” pork was the enthusiasm generated in the communities by our “discovery” of the nutritional qualities of *verdolaga* (purslane in English), rich in omega-3, which could be valuable for feeding to hens to produce “enriched” eggs (Simopoulos 1989). The plant can be readily incorporated into the diet of laying hens, displacing the fatty omega-6 from the egg yolks, to produce a product that will have less of an impact on the cholesterol of consumers. This program is a logical follow-on to the hog project in the central highlands, harnessing a concern for the integrity of ecosystems to introduce a new activity that promises to generate new sources of income for the participants (Figure 2).

These experiences offer a singular window on the development process. Rather than concentrating on individuals and their capacities to participate effectively in regional governance activities, the approach implemented here joins the search for more productive activities with strategies for increased collective capacities

to implement sustainable regional resource management programs. In the process, people in the communities are discovering how they can implement the underlying principles of sustainability, reinforcing their assertion of and demand for autonomy, that is, their capacity to effectively organize their own local governing institutions, while integrating both women and men into new productive activities that diversify their economic base and allow for a more balanced use of their ecosystems. The communities are becoming active promoters of community programs that increase participation in productive diversification. The significant feature of this process is the relationship between individual initiatives and collective decision-making that sanctions and integrates the activities into the collective strategy for regional progress.

Mountain peoples’ management of their resources

Indigenous societies in Latin America, pushed into the mountains by successive waves of expansion by conquerors, now find themselves heirs to valuable resources in the headwaters of river basins, resources required for urban-industrial development. Along with problems of global climate change and other ecological phenomena, the lack of water is becoming particularly serious, leading to a desperate search for solutions to mitigate the crisis. Many recent proposals for “sustainable production,” based on individual economic rationality and a liberal development discourse in the market setting, advance a “modern” development strategy in which corporations and governments alike do not go beyond a process of “green washing” corporate activity (Escobar 1995; Leff 1995; Utting 2002). The sustainability discourse frequently camouflages a capitalist rationale and is tinged with a large measure of biocolonialism, a strategy in which indigenous and peasant communities in regions of megadiversity do not participate, except as ecological informants and as objects to be “rescued” for display in showcases (Bury 2001; Gedicks 2001; Ali and O’Faircheallaigh 2007).

More recently, however, this strategy is inspiring alternative approaches, based on the local appropriation of these concepts by people conscious of the wealth of inherited knowledge that can be used to ameliorate environmental problems; this dynamic interaction, the “*dialogo de saberes*,” has proved particularly valuable in facilitating collaboration while advancing the projects in the communities. Learning how to understand and collaborate with communities involved in this process, researchers in the “Global South” as well as sympathetic colleagues elsewhere (see references to transdisciplinarity above) are participating in the elaboration of alternative discourses and perspectives by working directly with people who express their demands in terms of territorial defense, alternative development, autonomy, solidarity among communities and regions, sustainability, and self-sufficiency, the basic principles for a different strategy

FIGURE 2 Community leaders involved in the search for new lines of production, providing new sources of employment and income based on the incorporation of local resources. In the photo the omega-3 eggs are featured along with handicrafts and a sign in the background pointing to a campaign against violence to women in which these women are active. (Photo courtesy of Blanca Estela Lemus Ruiz, Universidad Autónoma Metropolitana, Xochimilco)



than that offered by the modernization discourse dominant in the North (Escobar 1995; Barkin 1998; Harris 2000; Toledo 2000). The more successful of these proposals are designed from the local point of view, where the inhabitants become the protagonists of the recovery and preservation of their resources.

Our Mexican projects draw on a long history of struggle by different social groups and reflection by Southern thinkers who have promoted alternative approaches to sustainability. The basic tenets were articulated by a leading supporter of indigenous cosmologies: (a) the active participation of the local population in the design and implementation of the plans and programs, so that they generate a capacity for self-management and a recuperation of social institutions and cultural identity, and (b) the enhancement of ecological diversity as part of a program that contributes to diversifying the local economic base (Bonfil Batalla 1996). Thus, sustainability itself is a complex set of ideas that is understood differently as people assimilate the lessons into their own individual ethos. From the market

perspective, the model enables the “guardians of the forests” to earn their livelihoods by working in their own self-managed communal enterprises rather than joining the low-waged labor force, a transitory opportunity, concentrated in the development poles, so that they can become protagonists of their own sustainable regional development (Barkin and Fuente Carrasco 2011).

An example to rebuild a watershed involved an effort to reverse deforestation and compensate for the excessive withdrawals that result from a mega-tourist development. An environmental rehabilitation program invited the communities to recover their life styles, reinforcing local institutions and diversifying the productive structure, while rejecting the standard paternalistic and clientelist approach; it had 3 objectives: (a) to reconstruct and conserve the region’s basins and forests, (b) to use the ecosystems in a sustainable manner, and (c) to join the inhabitants of the coast of Oaxaca in their efforts to recover their dignity (Barkin and Paillés 2000; 2002). The collaboration promoted the diversification of the rural economy by introducing alternative production systems

FIGURE 3 Baseball bats made from the prunings of trees in the southern Pacific coastal mountain range in Oaxaca as part of a collective effort to generate income from reforestation efforts that aim at recuperating communal ecosystems and regenerating depleted aquifers. (Photo courtesy of Carlos Pailles, Director, Center for Ecological Support, Huatulco, Oaxaca, Mexico)



to raise incomes and strengthen local institutions, blending traditional knowledge systems for conservation with modern production and management techniques. If the project had not considered the enormous potential of traditional knowledge in ecosystem management, then resistance from the local communities would probably have substantially limited the results, as is common in most projects designed by official development agencies in central offices (Figure 3).

A similar effort to rebuild a watershed in the montane area of Puebla ("Agua para Siempre" or "Water Forever") by recuperating ancient technologies for land and water management was successful in creating a new base for solidarity among more than 100 communities in which some 150,000 people occupied more than a million hectares. The small-scale works promoted the recharging of aquifers, increasing the productive capacity of the land, and generating new employment opportunities for reintroducing a valuable new grain (amaranth) that is now used for producing nutritious agroindustrial products that have found ample market acceptance (Barkin 2001; Hernández Garcíadiego and Herrerías Guerra 2002).

Similar community management projects are springing up throughout Mexico. Community forest management projects now encompass more than a half of the nation's wood resources, where local groups are developing their own production programs and

complementing the protection programs with ecotourism, artisan production, water bottling, and the sale of environmental services (Figure 4). Most importantly, these programs are examples of the way in which people are learning to appreciate the value of their inherited cultural traditions and enriching them with techniques and lessons from the current era (Alvarez-Icaza et al 2007; Borrini-Feyerabend et al 2007; Bazan et al 2008; Paré et al 2008; Illsely et al 2010).

These activities have become part of a broadly successful effort throughout Mexico that is now widely recognized as the most widespread and consolidated model of community forestry in the world, based on the cooperative principles of the "solidarity economy," an application of the principles of the alternative approach to development advocated in this article; its self-management organization contributes to a diminished dependence on extraction of trees because a large number of different activities in the forest environment assure new sources of income and resources while improving local abilities for self-government and ecosystem management (Tucker 2000; Klooster 2005; Merino Pérez and Robson 2006). This is in distinct contrast to the market-based incentives of the now dominant program (REDD [Reduction in Emissions from Deforestation and Degradation]) that transforms community forests into a commodity by paying

FIGURE 4 Women weaving the entrails of a community built and operated anaerobic wastewater treatment plant for recycling domestic effluents for further use for agricultural production on communal lands in a highland community in Ixtlán de Juárez, Sierra Norte, Oaxaca. (Photo courtesy of Carlos Pailles, Director, Center for Ecological Support, Huatulco, Oaxaca, Mexico)



communities to abstain from managing their lands, an approach that also denies them the livelihood that sustainable development currently offers them (Hirsch et al 2010; Petkova 2011). The tragic history of the protected reserve of the Monarch butterfly in Mexico is a particularly poignant example of good intentions transformed into environmental tragedy (Chapela and Barkin 1995; Barkin 1999; Brenner and Job 2006). More recently, these communities have been forced to engage in important mobilizations in Mexico as well as elsewhere in Latin America to attempt to prevent the introduction of transgenic seeds in centers of germplasm origin (Mexico, in the case of maize) (Olivé 2008) and the destruction of their ecosystems by large-scale open-pit mining operations (Mestries et al 2009).

Conclusion

Traditional knowledge systems are being harnessed and enriched with findings from modern systems of science and technology to protect communities and their ecosystems throughout Latin America. Even in Mexico City, several projects take advantage of local resources to reinforce local economies and political structures. A 2500-ha degraded forest is being rehabilitated as an ecotourism site and nature preserve where tens of thousands of visitors are treated to a unique set of hiking

and biking trails and nature talks that inform and entertain while employing more than 200 members of the community; a trout nursery provides food for lunch while educating the visitors about this biological cycle (www.parquesannicolas.com.mx). A pre-Colombian amphibian, the *Axolotl*, has become a charismatic attraction in the “floating gardens” of Xochimilco as a result of one community’s decision to abandon the crass commercialism of mass tourism in favor of a tour that explains how the complex ecosystem can be managed to provide a variegated cornucopia of fruits, vegetables, and small animals that protect the environment and provide for the economic wellbeing of the people. Popularly known as a “river monster,” this amphibian has become the subject of much research by biologists in Mexico and elsewhere for its ability to regenerate its limbs, should one or more be lost (www.axolotl.org).

This anecdotal and quite selective recounting of local development initiatives cannot do justice to the breadth of activities undertaken by millions of Mexicans implementing local development strategies on the margin of and in place of international economic integration. They are strengthening traditional governance organs and creating a new generation of local cadre to promote production and conservation programs consistent with sustainable resource management strategies and responsive to local needs; in the process, they are

transforming market relations with the outside world, replacing the commercial partners with ties with fair trade organizations and other “niche” marketers that protect them against unequal exchange.

Emphasized in this essay is the importance of certain guiding principles that have distilled from analysis of this set of experiences into a strategy for sustainable regional resource management that is being repeated throughout the country and in many other countries in Latin America. It was reinforced during the 2009 New Year commemoration convened by the Zapatistas to express their “Dignified Rage” (EZLN 2010) at their plight and that of the world. The individual communities are moving beyond their local confines to build alliances within and among regions and ecosystems, garnering political and social power to defend themselves. The 5 basic principles (Barkin 2010) of this strategy are:

1. Autonomy;
2. Solidarity;
3. Self-sufficiency;
4. Productive diversification; and
5. Sustainable resource management.

But, it is no longer possible for us or for the communities with which we continue to collaborate to assume that we can design our lives around a consumption scheme like that developed in the Western

world or continue to depend on a productive apparatus such as the one that is decimating our ecosystems and provoking global warming. It is not sufficient for us to learn from the models of “good behavior” of the communities trying to defend their *páramos*, their forests, their sacred mountains; we must join them in searching for strategies to build a “good life” (*Sumak Kawsay*, as it is expressed in Quichua, an Andean language) by incorporating the principles handed down through the generations among the Andean peoples and recently coming to the fore in the World Conference of the Peoples on Climate Change and the Rights of Mother Earth, convened in Tiquipaya, Bolivia in March 2010 (Acosta 2010; WPCCCRME 2010).

If there is one lesson that can be extracted from these experiences, it is that, for tradition to survive, it must become a living process, a resource that is constantly renewed to assure its currency and its value. In Mexico, people who now comprise more than a fourth of the population, find that indigenous epistemologies are truly building blocks for constructing alternatives to globalization and thus to turning into reality a (slightly modified) slogan of today’s marchers:

MANY OTHER WORLDS ARE POSSIBLE
(and they are under construction by mountain peoples)

ACKNOWLEDGMENTS

I thank Martin Price and Bernard Debarbieux for their encouragement and support in presenting this material to the conference on “Global Change and the World’s Mountains” in Perth, Scotland. The very helpful comments during the editorial process from an anonymous reviewer and from Anne Zimmermann are especially appreciated. I received support from Mexico’s National Council for

Science and Technology and the Metropolitan University of Mexico City for much of the fieldwork. This work is the fruit of a collaboration with numerous students and colleagues in Latin America; I would like to mention Mario Fuente and Lourdes Barón and, especially, Blanca Lemus.

REFERENCES

- Acosta A.** 2010. Only by imagining other worlds, this one will be changed. Thoughts about good living. *Sustentabilidades* No 2. www.sustentabilidades.org/revista/publicacion-02/solo-imaginando-otros-mundos-se-cambiara-este-reflexiones-sobre-el-buen-vivir; accessed on 5 December 2011.
- Ali SH, O’Faircheallaigh C.** 2007. Extractive industries, environmental performance and corporate social responsibility. *Greener Management International* 52:5–16.
- Alvarez-Icaza P, Chapela Mendoza F, Ortiz Espejel B, editors.** 2007. *Perspectivas para el uso sostenible de los Recursos Biológicos de México en el Siglo XXI*. Oaxaca, Mexico: Coinbio, Conafor.
- Barkin D.** 1998. *Wealth, Poverty and Sustainable Development*. Mexico City, Mexico: Editorial Jus.
- Barkin D.** 1999. The economic impact of ecotourism: Conflicts and solutions in highland Mexico. In: Godde P, Michael P, Zimmerman FM, editors. *Tourism and Development in Mountain Regions*. London, United Kingdom: Cab International, pp 157–172.
- Barkin D.** 2000. Overcoming the neoliberal paradigm: Sustainable popular development. *Journal of Developing Societies* XVI(1):163–180.
- Barkin D, editor.** 2001. *Innovaciones Mexicanas en el Manejo del Agua*. Mexico City, Mexico: Universidad Autónoma Metropolitana.
- Barkin D.** 2010. Incorporating indigenous epistemologies into the construction of alternative strategies to globalization to promote sustainable regional resource management: The struggle for local autonomy in a multiethnic society. In: Esquith S, Gifford F, editors. *Capabilities, Power and Institutions*. Towards a More Critical Development Ethics. University Park, PA: Penn State University Press, pp 142–161.
- Barkin D, Lemus-Ruiz BE.** 2011. La Economía ecológica y solidaria: Una propuesta frente a nuestra crisis. *Sustentabilidades* No. 5. www.sustentabilidades.org/revista/publicacion-05-2011/la-economia-ecologica-y-solidaria-una-propuesta-frente-a-nuestra-crisis; accessed on 5 December 2011.
- Barkin D, Paillés C.** 2000. Water and forests as instruments for sustainable regional development. *International Journal of Water* 1(1):71–79.
- Barkin D, Paillés C.** 2002. NGO-collaboration for ecotourism: A strategy for sustainable regional development in Oaxaca. *Current Issues in Tourism* 5(3): 245–253. www.planeta.com/planeta/99/0499huatulco.html; accessed on 5 December 2011.
- Barón L, Barkin D.** 2001. Innovations in indigenous production systems to maintain tradition. In: Flora C, editor. *Interactions Between Agroecosystems and Rural Human Community*. Miami, FL: CRC Press, pp 211–219.
- Bazan C, Cuellar N, Gomez I, Illsley C, López A, Monterroso I, Pardo J, Rocha JL, Torres P, Bebbington AJ.** 2008. Producing knowledge, generating alternatives? Challenges to research-oriented NGOs in Central America and Mexico. In: Bebbington A, Hickey S, Mitlin D, editors. *Can NGOs Make a Difference? The Challenge of Development Alternatives*. London, United Kingdom: Zed Books.
- Bebbington A.** 1998. Sustaining the Andes? Social capital and policies for rural regeneration in Bolivia. *Mountain Research and Development* 18(2):173–181.
- Bergh JCM van den.** 2007. *Evolutionary Thinking in Environmental Economics*. Discussion Paper no. 07-018/3. Amsterdam, The Netherlands: Department of Spatial Economics, Tinbergen Institute Free University of Amsterdam.

- Berkes F, Colding J, Folke C.** 2003. *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change*. Cambridge, United Kingdom: Cambridge University Press.
- Berkes F, Davidson-Hunt IJ.** 2007. Communities and social enterprises in the age of globalization. *Journal of Enterprising Communities: People and Places in the Global Economy* 1(3):209–221.
- Berkes F, Folke C.** 1998. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge, United Kingdom: Cambridge University Press.
- Bonfil Batalla G.** 1996. *México Profundo: Reclaiming a Civilization*. Austin, TX: University of Texas Press.
- Borrini-Feyerabend G, Pimbert M, Farvar MT, Kothari A, Renard Y.** 2007. *Sharing Power: A Global Guide to Collaborative Management of Natural Resources*. London, United Kingdom: Earthscan.
- Boyce JK, Narain S, Stanton EA.** 2007. *Reclaiming Nature: Environmental Justice and Ecological Restoration*. New York, NY: Anthem Press.
- Brenner L, Job H.** 2006. Actor-oriented management of protected areas and ecotourism in Mexico. *Journal of Latin American Geography* 5(2):7–27.
- Brown J, Mitchell N.** 2000. Culture and nature in the protection of Andean landscapes. *Mountain Research and Development* 20(3):212–217.
- Bury J.** 2001. Corporations and capitals: A framework for evaluating the impacts of transnational corporations in developing countries. *Journal of Corporate Citizenship* 1(1):75–91.
- Bury J.** 2002. Peasant protests, livelihoods, mining and in the Peruvian Andes. *Journal of Latin American Geography* 1(1):3–17.
- Byers E, Sainju M.** 2004. Mountain ecosystems and women: Opportunities for sustainable development and conservation. *Mountain Research and Development* 14(3):213–228.
- Cash DW, Borck JC, Patt AG.** 2006. Countering the loading-dock approach to linking science and decision making: Comparative analysis of El Niño/Southern Oscillation (ENSO) Forecasting Systems. *Science Technology Human Values* 31(4):465–495.
- Cerón Villalquira E.** 2011. Del diálogo de saberes al diálogo de ignorancias, reflexiones para politizar la acción pedagógica y pedagogizar la acción política. *Sustentabilidades* No. 4. www.sustentabilidades.org/revista/publicacion-04-2011/del-dialogo-de-saberes-al-dialogo-de-ignorancias-reflexiones-para-politizar-la-accion-pedagogica-y-pedagogizar-la-accion-politica; accessed on 5 December 2011.
- Chapela y Mendoza G, Barkin D.** 1995. *Monarcas y campesinos: estrategia de desarrollo sustentable en el oriente de Michoacán*. Mexico City, Mexico: Centro de Ecología y Desarrollo.
- Deb D.** 2009. *Beyond Developmentality: Constructing Inclusive Freedom and Sustainability*. London, United Kingdom: Earthscan.
- Deneulin S, Mathai M, editors.** 2006. Introduction. *Maitreyee: Briefing of the Human Development and Capability Association*, No 6. www.capabilityapproach.com/pubs/Maitreyee6_October_06.pdf; accessed on 5 December 2011.
- Dussel E, Mendieta E, Bohórquez C, editors.** 2010. *El pensamiento filosófico Latinoamericano, del Caribe y Latino [1300–2000]*. Mexico City, Mexico: Siglo XXI editores.
- Easterly W.** 2002. *The Elusive Quest for Growth*. Cambridge, United Kingdom: MIT Press.
- Escobar A.** 1995. *Encountering Development: The Making and Unmaking of the Third World*. Princeton, NJ: Princeton University Press.
- EZLN [Ejército Zapatista de Liberación Nacional].** 2010. Digna Rabia. dignarabia.ezln.org.mx/; accessed on 5 December 2011.
- Foster JB, Clark B, York R.** 2010. *The Ecological Rift: Capitalism's War on the Planet*. New York, NY: Monthly Review.
- Freire P.** 2011. *Cartas a quien pretende enseñar*. Fifth edition [2002]. Mexico City, Mexico: Siglo XXI editores.
- Frey S.** 2000. *Environment and Society Reader*. Boston, MA: Allyn and Bacon/Longman.
- Fuente Carrasco ME, Barkin D.** 2011. Concesiones forestales, exclusión y sustentabilidad. *Lecciones desde las comunidades de la Sierra Norte de Oaxaca. Desacatos* 37:93–110.
- Funtowicz S, Ravetz J.** 1993. Science for the post-normal age. *Futures* 25: 739–755.
- Gabriel L.** 2007. *Latautonomy: autonomies multiculturelles en Amérique Latine et ailleurs*. Paris, France: L'Harmattan. For supporting materials: [www.latautonomy.org/](http://latautonomy.org/); accessed on 5 December 2011.
- Gabriel L, López y Rivas G.** 2008. *El universo autonómico: propuesta para una nueva democracia*. Mexico City, Mexico: Plaza y Valdés.
- Garibay Orozco C, Balzaretto Camacho A.** 2009. Goldcorp y la reciprocidad negativa en el paisaje minero de Mezcala, Guerrero. *Desacatos* 30:91–110.
- Gasper D.** 2002. Is Sen's capability approach an adequate basis for considering human development? *Review of Political Economy* 14(4):435–461.
- Gedicks A.** 2001. *Resource Rebels: Native Challenges to Mining and Oil Corporations*. Boston, MA: South End Press.
- Gibson-Graham JK.** 2006. *A Postcapitalist Politics*. Minneapolis, MN: University of Minnesota Press.
- Gunderson L, Folke C.** 2011. Resilience 2011: Leading transformational change. *Ecology and Society* 16(2):30.
- Harris J.** 2000. *Rethinking Sustainability: Power, Knowledge and Institutions*. Ann Arbor, MI: University of Michigan Press.
- Hart K, Laville JL, Cattani AD, editors.** 2010. *The Human Economy*. Cambridge, United Kingdom: Polity Books.
- Harvey D.** 2003. The 'new' imperialism. Accumulation by dispossession. In: Panitch L, Colin L, editors. *The New Imperial Challenge: Socialist Register*. 2004. London, United Kingdom: Merlin Press.
- Hernández Garciadiego R, Herrerías Guerra G.** 2002. Agua Para Siempre. [www.alternativas.org.mx/Agua para Siempre.pdf](http://www.alternativas.org.mx/Agua%20para%20Siempre.pdf); accessed on 5 December 2011.
- Hernández Xolocotzi E.** 1985. *Xolocotzia*. Obras de Efraim Hernández Xolocotzi. Chapingo, Mexico: Universidad Autónoma Chapingo.
- Hill M.** 2006. Confronting power through policy: On the creation and spread of liberating knowledge. *Journal of Human Development* 8(2):259–282.
- Hinkelammert FJ, Mora Jiménez H.** 2005. *Hacia una economía para la vida*. San José, Costa Rica: Editorial Departamento Ecueménico de Investigaciones.
- Hirsch Hadorn G, Bradley D, Pohl C, Rist S, Wiesmann U.** 2006. Implications of transdisciplinarity for sustainability research. *Ecological Economics* 60(1): 119–128.
- Hirsch PD, Adams WM, Brosius J, Peter Z, Bariola N, Dammert JL.** 2010. Acknowledging conservation trade-offs and embracing complexity. *Conservation Biology* 25(2):259–264.
- Holling CS.** 2001. Understanding the complexity of economic, ecological, and social systems. *Ecosystems* 4:390–405.
- Hornborg A, McNeill JR, Martinez-Alier J.** 2007. *Rethinking Environmental History: World-system History and Global Environmental Change*. Lanham, MD: AltaMira Press.
- Illesley C, Purata SE, Edouard F, Sánchez Pardo MF, Tovar C.** 2010. Overcoming barriers in collectively managed NTFPs in Mexico. In: Laird SA, Mc Lain RJ, Wynberg RP, editors. *Wild Product Governance. Finding Policies that Work for Non-Timber-Forest Products*. London, United Kingdom: Earthscan.
- Klooster D.** 2005. Producing social nature in the Mexican countryside. *Cultural Geographies* 12:321–344.
- Lebowitz MA.** 2009. *The Path for Human Development: Capitalism or Socialism?* New York, NY: Monthly Review.
- Lebowitz MA.** 2010. *The Socialist Alternative: Real Human Development*. New York, NY: Monthly Review.
- Leff E.** 1995. *Green Production: Toward an Environmental Rationality*. New York, NY: Guilford.
- Leff E.** 2004. *Racionalidad ambiental. La reapropiación social de la naturaleza*. Mexico City, Mexico: Siglo XXI editores.
- Leff E.** 2010. Imaginarios sociales y sustentabilidad. *Cultura y Representaciones Sociales* 5(9):47–121.
- Llambi LD, Smith JK, Pereira N, Pereira AC, Valero F, Monasterio M, Dávila, MV.** 2005. Participatory planning for biodiversity conservation in the high tropical Andes: Are farmers interested? *Mountain Research and Development* 25(3):200–205.
- Loyaza R, Rist S.** 2000. Development must be based on local cultures! The struggle for local independence and self-determination: An interview with Don Roman Loayza, the first peasant elected to the Bolivian Parliament. *Mountain Research and Development* 20(1):16–19.
- Mathews AS.** 2003. Suppressing fire and memory: Environmental degradation and political restoration in the Sierra Juárez of Oaxaca, 1887–2001. *Environmental History* 8(1):75–108.
- Max-Neef M, Elizalde A, Hopenhaven M.** 1991. *Human Scale Development. Conception, Application and Further Reflections*. New York, NY: Apex Press.
- Merino Pérez L, Robson J, editors.** 2006. *Managing the Commons: Indigenous Rights, Economic Development and Identity*. New York, NY: The Ford Foundation.
- Mestries F, Pleyers G, Zermeño S.** 2009. *Los movimientos sociales: de lo local a lo global*. Mexico City, Mexico: Anthropos-UAM-A.
- Nepal SK.** 2002. Mountain ecotourism and sustainable development: Ecology, economics, and ethics. *Mountain Research and Development* 22(2):104–109.
- Olivé L.** 2008. El Maíz en México: Problemas ético-políticos. *Ciencias* 92–93: 147–156.
- Paré L, Robinson D, González Otriz MA, editors.** 2008. *Gestión de cuencas y servicios ambientales: Perspectivas comunitarias y ciudadanas*. Mexico City, Mexico: Instituto Nacional de Ecología (INE), Itaca, Raises Sendas, A.C., WWF.
- Petkova E.** 2011. Forest governance and REDD: Challenges for policies and markets in Latin America. Special Issue. *Forests* 2(1):1–450.
- Pohl C, Rist S, Zimmermann A, Fry P, Gurung GS, Schneider F, Speranza CH, Kiteme B, Boillat S, Serrano E, Hirsch Hadorn G, Wiesmann U.** 2010.

Researchers' roles in knowledge co-production: Experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal. *Science and Public Policy* 37(4):267–281.

Postero NG, Zamosc L. 2004. *The Struggle for Indian Rights in Latin America*. Brighton, United Kingdom: Sussex Academic Press.

Rahnema M, Robert J. 2008. *La puissance des pauvres. Mémoires, journaux, témoignages*. Paris, France: Editorial ACTES SUD.

Ravetz J, Funtowicz S. 1999. Post-normal science. An insight now maturing. *Futures* 31:641–646.

Rist G. 2008. *The History of Development: From Western Origins to Global Faith*. Third edition [2002]. London, United Kingdom: Zed Books.

Rist S. 2000. Linking ethics and the market: Campesino economic strategies in the Bolivian Andes. *Mountain Research and Development* 20(4): 310–315.

Rist S, Delgado Burgoa F, Wiesmann U. 2003. The role of social learning processes in the emergence and development of Aymara land use systems. *Mountain Research and Development* 23(3):263–270.

Salomon F. 1985. The historical development of Andean ethnology. *Mountain Research and Development* 5(1):79–98.

Sarmiento L, Monasterio M, Montilla M. 1993. Ecological bases, sustainability, and current trends in traditional agriculture in the Venezuelan High Andes. *Mountain Research and Development* 13(2):167–176.

Schroyer T. 2009. *Beyond Western Economics: Remembering Other Economic Cultures*. London, United Kingdom: Routledge.

Schweickart D. 2011. *After Capitalism*. 2nd edition. Lanham, MD: Rowman & Littlefield.

Sen AK. 2002. *Development and Freedom*. New York, NY: Anchor Books.

Simopoulos AP. 1989. Omega-3 fatty acids in eggs from range-fed Greek chickens. *New England Journal of Medicine* 321:1412.

Suárez San Román B, Barkin D. 1990. *Porcicultura: Producción de traspatio, otra alternativa*. Mexico City, Mexico: Centro de Ecodesarrollo.

Tapia ME. 2000. Mountain agrobiodiversity in Peru: Seed fairs, seed banks, and mountain-to-mountain exchange. *Mountain Research and Development* 20(3):220–225.

Toledo VM. 2000. *La Paz en Chiapas: Ecología, luchas indígenas y modernidad alternativa*. Mexico City, Mexico: UNAM y Quinto Sol.

Toledo VM, Barrera Bassols N. 2008. *La memoria biocultural: la importancia ecológica de las sabidurías tradicionales*. Barcelona, Spain: Icaria.

Tortosa JM. 2010. *Maldesarrollo y mal vivir: Pobreza y violencia a escala mundial*. Quito, Ecuador: Abya Yala.

Tucker CM. 2000. Striving for sustainable forest management in Mexico and Honduras: The experience of two communities. *Mountain Research and Development* 20(2):116–117.

Utting P. 2002. *The Greening of Business in the South: Rhetoric, Practice and Prospects*. London, United Kingdom: Zed Press.

Villoro L. 2004. *Crece, saber conocer*. Mexico City, Mexico: Siglo XXI editores.

Warren KB, Jackson JE. 2003. *Indigenous Movements, Self-Representation, and the State in Latin America*. Austin, TX: University of Texas Press.

Wheeler JC, Hoces RD. 1997. Community participation, sustainable use, and vicuña conservation in Peru. *Mountain Research and Development* 17(3):283–287.

Wiesmann U, Biber-Klemm S, Grossenbacher-Mansuy W, Hirsch Hadorn G, Hoffmann-Riem H, Joye D, Pohl C, Zemp E. 2008. Enhancing transdisciplinary research: A synthesis in fifteen propositions. In: Hirsch Hadorn G, Hoffmann-Riem H, Biber-Klemm S, Grossenbacher-Mansuy W, Joye D, Pohl C, Wiesmann U, Zemp E, editors. *Handbook of Transdisciplinary Research*. Berlin, Germany: Springer, pp 433–441.

Wolf ER. 1982. *Europe and the People Without History*. Berkeley, CA: University of California Press.

Wolfe M. 1996. *Elusive Development*. London, United Kingdom: Zed and United Nations Research Institute for Social Development (UNRISD).

WPCCCRME [World People's Conference on Climate Change and the Rights of Mother Earth]. 2010. www.cumbrescambioclimatico.org and www.indigenouclimate.org/; accessed on 5 December 2011.