



# INDIGENOUS ECOLOGY AND THE POLITICS OF LINKAGE IN MEXICAN SOCIAL MOVEMENTS

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Paper prepared for delivery at the International Workshop on *Democracy, Civil Society, and Societal Change: Mexico in the Post-NAFTA Era*, September 22-24, 1995, CERLAC, York University, Ontario.

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**INDIGENOUS ECOLOGY AND THE POLITICS OF LINKAGE  
IN MEXICAN SOCIAL MOVEMENTS**

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**Abstract**

This is a study of ecology as a focal point for social mobilization in rural Mexico. The paper analyses cross-movement alliance formation between contemporary environmentalism and indigenous resistance, taking a first cut at the study of linkages between two unlikely partners. Environmental groups, staffed predominantly by the urban, educated middle class, have found a convergence of interest with existing peasant and indigenous organizations, representing the most marginalized segment of Mexico's rural poor. These alliances stem from an effort to preserve and defend "traditional ecological knowledge", and to incorporate culturally embedded understandings about the stewardship of natural resources into creative experimentation with sustainable development.

## Introduction

□ Students of social movements are increasingly attentive to the growing phenomenon of alliance formation between social movements and between social movement organizations. Horizontal and vertical linkages, networks, coalitions, and alliances are widely interpreted as an important manifestation of a "thickening" civil society. As such, they have taken centre stage in much of the recent literature on social movements, as scholars strive to interpret the strategic implications and the historical and theoretical significance of emerging forms of cross-movement affiliation (Esteve 1987; Fuentes and Gunder Frank 1989; Moreira Alves 1989; Brecher and Costello 1990; García-Barrios 1990; Rubin 1990; Fox and Hernández 1992; Keck and Sikkink 1992; Macdonald 1992; Castañeda 1993; Dresser 1994; Fisher 1994; Hellman 1995).

This paper is intended to provide a first cut at analysing a category of cross-movement alliance formation which has heretofore received comparatively little attention, especially in the case of Mexico: the nexus between contemporary environmentalism and indigenous resistance. This is thus a study of linkages between two seemingly unlikely partners. New environmental groups, whose members are largely modern, urban, educated, and middle class, have found a convergence of interests with indigenous organizations, whose members represent the poorest and most marginalized segment of Mexico's poorest group--the rural peasantry.

In this analysis, the term "indigenous political ecology" is used to refer to the consolidation of alliances between environmental and indigenous social movement organizations--alliances based in an effort to preserve and defend traditional ecological knowledge (TEK). These linkages have taken root in a shared hope that traditional knowledge, embedded in indigenous and peasant culture and practice, may provide a living model of sustainability in the relationships between humankind and nature. Indigenous political ecology, then, refers to these social movement alliances as a central part of a politics of organizing to defend, apply, and integrate traditional ecological knowledge into grassroots development efforts.

I begin with a discussion of the Mexican environmental movement, with particular attention to an emerging critique of industrial agriculture and the growing call for a more sustainable alternative. I then turn to the indigenous movement, focusing on efforts to revalidate and revitalize traditional ecological knowledge. I conclude with an orientational discussion of some of the theoretical and political implications of these alliances.

## Mexico's Environmental Movement

As in most developing nations, organized environmentalism is a recent phenomenon in Mexico, arising as a response to increased awareness of extreme environmental degradation. Ecological damage in Mexico has reached levels as grave as those found anywhere on earth, and along many dimensions, from deforestation and desertification, to aquifer, fisheries and soil depletion, to species extinction, to some of the world's most contaminated urban air and water (DeVoss 1986; Nuccio and Ornelas 1987; Goldrich and Carruthers 1992; Mumme 1992).

Rapid industrial development in the post World War II period, under the prevailing economic model of import substitution industrialization (ISI), proceeded with a primacy on high rates of economic growth, and with virtually no concern for the attending ecological consequences. For many decades, the economic pie grew sufficiently rapidly to mask the enormous "environmental debt" that was accumulating during the high-growth decades of the "Mexican Miracle" (Nuccio and Ornelas 1987).

But in 1982, when Mexico launched the Latin American debt crisis by announcing an inability to service its external debt, that mask was stripped away. The administration of President Miguel de la Madrid, like the leaders of most debtor nations, acquiesced to the strict mandates of "structural adjustment" and the harsh austerity measures imposed by the International Monetary Fund (IMF), the World Bank, transnational banks, and the Northern creditor nations, in order to renegotiate Mexico's 110 billion dollar debt (Canak 1989; Cypher 1989).

The imposition of structural adjustment measures heralded a remarkably sharp reversal in

Mexico, given its proud history of revolutionary economic nationalism. The policy package that accompanied the renegotiation of foreign debt--privatization of state industries and services; government deregulation; elimination of trade barriers, of basic food and transport subsidies, and of price supports; currency devaluation; wage restraints; sharp reductions of public expenditure on health and welfare; and promotion of exports--was consistent with the resurgence of market-based economic development formulas that were supplanting ISI throughout the developing world, generally known in Latin America under the rubric of Neoliberalism.

### **Neoliberalism Versus Sustainable Development**

The "lost decade" of the 1980s, with dose after dose of the harsh prescriptions of neoliberal adjustment, shattered the illusion that countries like Mexico were on a unilateral trajectory that would duplicate the historical development experience of the wealthy industrialized nations. Consequently, the notion that Mexico's ominous environmental problems could be resolved at some future point, presumably once Mexico achieved First World status and the wealth that would enable its leaders to muster the requisite political will, likewise lost credibility. In a context of paralysing foreign debt, deepening economic dependency, increasing poverty and malnutrition, urbanization, population pressure, and strict government austerity, ever greater portions of the Mexican population felt first hand the inescapable effects of a sharp downward spiral of deepening poverty and environmental degradation, with both rural and urban manifestations.

In addition, the imposition of neoliberal adjustment also severely damaged the social and political consensus that had long undergirded Mexico's extraordinary political stability. The 1980s was a decade of explosive growth in independent social movement organizations and political opposition, generating a new wave of strikes, confrontations, and popular protests.

Within that broad social mobilization, and for the first time in Mexican history, a number of

important environmental organizations appeared on the Mexican stage. Groups like the Mexican Ecology Movement (MEM), the Ecologists' Pact (*Pacto de Ecologistas*), the Ecological Alliance (AE), the Pact of Ecological Groups (*Pacto de Grupos Ecologistas*), and the high profile Group of One hundred ("*El Grupo de los Cien*," comprised of many of Mexico's leading artists, intellectuals, and celebrities), began to articulate environmental concerns (Redclift 1987; Gerez 1991; Mumme 1992). That perspective took root in a climate of expanding awareness and deepening disenchantment, both with the accumulated environmental legacy of ISI, and with the increasingly evident failure of the neoliberal development model to take the environment into account.

Much of the environmental mobilization of the 1980s was targeted to specific regional and national concerns. The greatest participation was naturally in Mexico City, where extremely high levels of air, land, and water pollution made the tangible ecological costs of unregulated industrialization and hyper-urbanization inescapable (DeVoss 1986; Nuccio, Ornelas, and Restrepo 1990; Goldrich and Carruthers 1992). The Northern border region was another focal point, with growing awareness of the public health effects of the *maquiladora*, or "in-bond" assembly plants and their uncontrolled toxic discharges (Kochan 1989; Nuccio, Ornelas, and Restrepo 1990; Tomaso and Alm 1990).

The proposed development of nuclear power plants in the states of Michoacán and Veracruz generated powerful opposition and popular protest among local populations (Gerez 1991), as did a proposed hydroelectric facility that threatened to inundate historic Nahua lands in Guerrero (Good 1992). And the modernization of agriculture came under increasing scrutiny, with attention to the public health problems associated with chemical pesticides and fertilizers and to unsustainable patterns of abuse of soil and water; we will return to the critique of modern agriculture below.

For our purposes here, what is most noteworthy about increasing environmental mobilization across the 1980s and into the 1990s was the emergence of an environmental critique of the

larger notion of "development" itself. For decades, development in Mexico had been interpreted at the policy level as synonymous with economic growth, based in rapid industrialization. The ISI years had in practice seen little wealth trickling down to the popular classes, and a critique of the prevailing pattern of "growth without development" had been firmly established in the structuralist literature throughout Latin America. But the imposition of neoliberal adjustment and the concurrent rise of an environmental perspective heralded another, environmentally based reexamination of the idea and the pursuit of development.

In Mexico, scholars and activists like Gustavo Esteva (1987), Víctor Toledo (1989, 1992), Iván Restrepo (1988), David Barkin (1987, 1990), Enrique Leff, Julia Carabias (Leff and Carabias 1993), and others took an environmental critique of the prevailing development model as a point of departure for the exploration of alternative, "bottom-up" conceptions of development, based in the revitalization of communities, the empowerment and participation of disenfranchised groups, and a firm grounding in the principles of ecological sustainability and environmental stewardship. New grassroots support organizations (GRSOs) like the Centro de Ecodesarrollo (Ecodevelopment Centre), the Programa PASOS (Systematization and Diffusion of Rural Development Practices), the GEA (Environmental Studies Group), the ERA (Rural Studies and Advising), the PAIR (Integral Use of Natural Resources Program) and the Centro de Estudios Sociales y Ecológicos (Social and Ecological Studies Centre) incorporated those principles and ideas in myriad publications and in their direct support for grassroots development efforts, especially in training and technical support for peasant organizations and "pilot projects" for community based, ecologically sound development efforts throughout Mexico.

This quest for sustainable alternatives attempted to build on lessons from the past. Across many decades, Mexican development strategies had been predicated on the assumption of infinite economic growth. But attention to global patterns of resource exploitation suggested that the levels of consumption associated with Northern affluence could not be sustained indefinitely, let alone be

generalizable to Mexico or to the rest of the "developing" world. Assuming an infinite capacity for growth, both in economic and population terms, was not consistent with a world of finite resources and a finite capacity to absorb the wastes and byproducts of production (Daly 1973; Daly and Townsend 1993).

Mexico's pursuit of economic development at any cost had been extremely damaging, in both human and ecological terms. Socio-economic polarization, chronic unemployment, fiscal crisis, political instability, foreign debt, poverty, hunger, malnutrition, and illiteracy provided abundant evidence that rapid industrial development had failed to deliver what it had promised. Not only were these existing problems left unresolved, but many were deepened, especially social and economic dislocation, marginalization, and the migration and hyper-urbanization they generate. And the drive toward development had created grave new problems, especially environmental degradation so severe that the carrying capacities of many Mexican ecosystems--rural, urban, coastal, desert, forest, and alpine--were approaching or had already passed critical thresholds, beyond which future resource utilization or production would be seriously jeopardized.

For many Mexican environmentalists, then, the crisis of the 1980s highlighted not only the failures of previous development strategies, but also the lessons that had not been learned by Mexico's political and economic elites. And from an environmental perspective, the economic priorities of Neoliberalism established a context even more inimical to sustainability than its predecessor (Barkin 1990; Faber 1992; Goldrich and Carruthers 1992).

Neoliberalism is equally "growthmanic" in its assumptions (Daly 1973), and leaves unanswered long established critiques of market based economic formulas regarding the externalization of the social and ecological costs of production. Austerity measures undercut spending on environmental restoration, placing ecological concerns on a cold back burner. And because of the privileged role enjoyed by transnational corporations (TNCs), the locus of decision regarding the local exploitation of resources is shifted upward, to distant corporate headquarters, far from the communities where the

ecological costs are born. Finally, in an international climate of unprecedented capital mobility, state capacity to negotiate the environmental terms of TNC investment is sharply reduced (Carruthers 1989; Daly and Cobb 1989).

The triumph of Neoliberalism thus imparted a new urgency to the quest for more humane and ecologically sustainable forms of development. This was of course not unique to Mexico. The late 1980s and the early 1990s saw a global effort to articulate an alternative vision of hope for the Third World, gathered under the rubric of "sustainable development" (Redclift 1987; WCED 1987; Reid 1989; Goodman and Redclift 1991; Leff 1993a, 1993b; Thrupp, Cabarle, and Zazueta 1994). The concept of sustainable development has since acquired hundreds of meanings and definitions, arising to global prominence when it served as the organizing principle of the 1992 Earth Summit, i.e., the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil.

I offer here a brief definition of sustainable development, abstract enough to synthesize the key principles put forth in the broad literature, but concrete enough to serve the analytical purposes of this paper. First, sustainable development is concerned with meeting basic human needs in the present, and in such a way that meeting basic needs in the future is not jeopardized. This refers not just to food, shelter, and clothing, but also to health care, education, and the opportunity to live a full, meaningful life in a stable environment; it is the opposite of deprivation. Secondly, it is fundamentally democratic, not just at the institutional level, but also at the base. It is predicated on the full incorporation of grassroots participation in design and decision making, tapping into local knowledge and promoting local control over local outcomes. Finally, it is based in environmental stewardship, recognizing that nature provides the basis for both present and future development, and ensuring that production and consumption reflect long term ecological compatibility.

### **The Green Revolution Versus Agroecology**

With this historical and analytical backdrop in mind, I now narrow our focus to Mexico's agricultural sector. Agriculture offers a logical point of departure for this analysis for several reasons. First, agriculture forms the most basic intersection between human society and nature (Allen 1993, 2). Mexico's vast peasant and indigenous populations live close to the land, and it is in this ancient and rich agricultural tradition that much local ecological knowledge is embedded. The agricultural sector is also an especially illustrative microcosm of the problem of sustainable development. The modernization of Mexican agriculture has precipitated a grave environmental crisis, is critically linked to marginalization and migration, and is demonstrative of the conflict between sustainability and the deepening of Neoliberalism. Finally, for all of these reasons, it is in peasant and indigenous agricultural communities that the most innovative experimentation toward sustainability is being carried out, supported by environmental and grassroots support groups like those noted above.

Many of these efforts are appropriately understood as components of an emerging "agroecology" movement in Mexico, fueled by a growing recognition of the extremely high ecological costs of industrial agriculture. It is beyond the scope of this analysis to develop a thorough critique of agroindustrial modernization; the environmental and social consequences of Mexico's "Green Revolution" have been beautifully chronicled elsewhere (Sanderson 1986; Toledo 1989; Barkin 1990; see especially Wright 1990). I offer here only a sketch of some of the most pressing environmental and developmental contradictions.

According to David Goodman and Michael Redclift (1991), modern agriculture provides the archetype for illustrating what is not sustainable about current development patterns. Among the costs associated with industrial agriculture in Latin America, they cite the following: 1) the conversion of land to forage crops and livestock, resulting in the loss of sustainable rural livelihoods and rising rural poverty; 2) the decline in per capita food production, resulting in rising malnutrition (a function of export,

"cash" crops displacing basic grains for domestic consumption); 3) skyrocketing energy costs associated with the shift to fossil fuels, both in machinery and petroleum derived agrochemicals; 4) increased dependence on imported foods, associated with the displacement of staple crops; 5) high economic and ecological costs associated with irrigation (particularly acute in Mexico's arid North); 6) high costs, dependency, and unsustainability of imported agricultural technologies; 7) degradation of land, erosion of soils, declining water quality, sedimentation; 8) loss of forest cover, both temperate and tropical; and 9) loss of genetic resources, as locally micro-adapted seed stock is displaced by imported "monocultural" variants (1991, 2). As the authors note, this list could be much longer, and does not even touch on the public health costs surrounding highly toxic pesticides (Wright 1990).

The critique of industrial agriculture reaches far beyond Mexico and Latin America. The critical response has been global, and has come with varying names and emphases. It has generated a prodigious literature, including regular publications like the Institute for Agriculture and Trade Policy's *Sustainable Agriculture Week*, and a number of specialized academic journals, such as the *American Journal of Alternative Agriculture*, *Agriculture and Human Values*, and the *Journal of Sustainable Agriculture*.

For our purposes, the agroecology movement is best understood as a key component in the quest for sustainable development, and shares the definitive characteristics noted above.

Loosely defined, agroecology often incorporates ideas about a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological sustainability of the productive system (Hecht 1987, 4).

Definitions and interpretations vary, but most of the agroecology literature, based as it is in the science of ecology, seeks not only the narrow understanding of ecological phenomena in a crop field, but also seeks to incorporate human, social, and cultural dimensions of the agroecosystem (Allen and Van

Dusen 1988; Altieri 1987, 1993; Altieri and Hecht 1990; Carroll, Vandermeer, and Rosset 1990; Soule and Piper 1992; Carabias, Provencio, and Toledo 1993). As a consequence, both in scientific and practical terms, agroecology fuses the social and natural sciences (Allen 1993).

The fact that agroecology is a global movement, and one that can be defined at this level of abstraction, should not disguise important distinctions in the way it is practiced in localized settings. Agroecology as it is emerging in Mexico and throughout the Third World differs from its First World counterparts. In North America, Japan, and Western Europe, the products of organic agricultural techniques are primarily destined to urban markets, and are consumed almost entirely by the middle and upper classes, whose economic security permits them the luxury of higher prices in exchange for healthier eating. In the Third World, most of the products of organic agriculture stay in local, rural markets, and are primarily consumed by peasants and the rural poor.

These differences in consumption patterns are a reflection of fundamentally different production incentives. The growth of alternative agriculture in the First World is rooted in a commitment to ecological sustainability and in an increasing popular environmental sensitivity. "Green" principles, combined with a generalized concern for healthier eating, undergird a growing demand for organic foodstuffs, and producers have responded in kind.

In Mexico, by contrast, the shift to organic agriculture has been driven largely by economic necessity (Toledo et al. 1989; CNOC 1993a; IATP 1994). Economic crisis in the rural areas, combined with a chronic, now deepening lack of state support for small scale producers, has left many smallholders with virtually no access to modern agricultural inputs, from machinery to pesticides and fertilizers, to irrigation. The rural situation grew much more dire during the crisis of the 1980s, as neoliberal adjustment was manifest in the countryside in the Mexican government's sharp and sudden withdrawal of credit, technical assistance, and the state agencies charged with support for production and marketing of agricultural products.<sup>1</sup>

This distinction between the First World and Mexican patterns must be understood with reference



to Mexico's "bimodal" or "dualistic" agrarian and land tenure structure (Stavenhagen 1970; de Janvry 1981). In Mexico, as throughout Latin America, an important legacy of conquest and colonialism has been an enduring bifurcation between large scale, export-oriented production and small scale production for domestic consumption. In modern times, large landowners have concentrated both land and capital, and were the chief beneficiaries of the Green Revolution. Production has become highly mechanized, and has received enormous support from the state in both inputs and outputs, including irrigation, infrastructure, research and development, credit, technical assistance, production, marketing, and distribution. The smallholder sector, in contrast, is one of very small plots and low-yield subsistence production on rainfed and marginal lands. This sector also includes the majority of the *ejidos*, the land tenure form comprising the plots distributed in the post revolutionary agrarian reform. It is predominantly the smallholder sector that has turned to alternative agriculture.

In the wealthy nations of the North, organic agriculture is afforded only by the ability of consumers to make the financial trade off, paying more for a healthier product. The products of alternative, organic agriculture tend to be more costly than agroindustrial goods, due to huge economies of scale and massive state subsidies to the latter, including not just direct subsidies and price supports, but also indirect supports such as credit, extension services, research and development, and infrastructure for irrigation, transportation, and distribution.

And in ecological terms, modern agricultural products are made even cheaper by the perversion of a pricing mechanism which fails to incorporate the long term ecological and health costs of industrial agriculture. The costs of pesticide poisoning, aquifer depletion and contamination, topsoil loss and nutrient depletion, erosion, deforestation and so forth are invisible in the supermarket price, as are the horrendous social and public health costs born by migrant and Third World labourers in an increasingly globalized food production system (Wright 1990).

In contrast, sustainable agriculture in

Mexico, as in the Third World more generally, is not luxury but necessity. Because it takes place largely in the smallholder and subsistence sector, most of its products are destined for household consumption or local sale. For poor subsistence farmers, low input agriculture is not just cost effective, it may be the only alternative to hunger or starvation. In rural Mexico, on the fringes of the modern cash economy, industrial agriculture loses its comparative advantage, even ignoring the fact that its advantages accrue due to the ecological perversity of a market mechanism which incorporates the environment at zero cost (and workers for only pennies a day).

One important exception to this general portrayal is the case of organic coffee. Coffee is of course a cash crop, and is one of Mexico's most important exports. While coffee exports in general fit the bimodal pattern, *organic* coffee is somewhat peculiar in that it is grown overwhelmingly by smallholders, organized into hundreds of small producer's associations throughout the mountainous, poor, and indigenous regions of Southern Mexico; it is concentrated in Chiapas and Oaxaca, but also in the indigenous zones of Guerrero, Veracruz, Puebla and San Luis Potosí (CNOG 1993a, 12-13). In fact, Mexico is the world leader in the export of organic coffee, and was the pioneer in developing organic coffee cultivation techniques (CNOG 1993a, 22).

Organic coffee cultivation is interesting, not just because it constitutes a blurring of the lines of agricultural dualism, but also because it has become a focal point for social mobilization, especially in indigenous zones. Regional umbrella groups like the CEPCO (State Coordinator of Coffee Producers of Oaxaca), the UCIRI (Union of the Indigenous Communities of the Isthmus Region), the UPCV (Union of Coffee Producers of Veracruz), the UCIZONI (Union of Indigenous Communities of the Northern Sierra of the Isthmus), ISMAM (Indigenous People of the Sierra Madre de Motozintla "San Isidro Labrador," in Chiapas), the CARTT (*Tosepan Titataniske*, or "We Shall Overcome" Regional Agricultural Cooperative, in the Sierra Norte of Puebla), and scores more smaller groups, have established a bewildering web of networks and associations, local, regional, and

national, to better negotiate the land, credit, and environmental policies that impact them (Ejea and Hernández 1991; Moguel 1991; Olvera 1991; Pérez Arce 1991).<sup>2</sup>

Though perhaps more advanced organizationally, and atypical as an export cash crop, organic coffee provides an excellent illustration of the factors that draw indigenous smallholders into alternative, organic cultivation. According to Jose Juárez of the AMAE (Mexican Association of Ecological Agriculturalists) and the *Unión de Ejidos de la Selva* (Union of Jungle *Ejidos*--from the Lacandón Jungle of Chiapas), there are three distinct routes that have brought indigenous communities and organizations into organic coffee cultivation. The first, most important, and most successful, has "mystical-religious" origins.

God gave us this land, she is our mother, and we should not damage her; she is the queen of God on earth. There is a cosmology of caring for nature that in social practice goes far beyond techniques and technologies. It informs a model for living (Juárez 1993; translation mine).

The second, as noted earlier, is based in economic necessity. According to Juárez, most smallholders who practice organic cultivation did not resist the Green Revolution intentionally; they simply lacked access--the systematic lack of support for smallholders typical of agricultural dualism. In the case of coffee, the disastrous 50 percent drop in world coffee prices of 1989, coupled with the 1991 withdrawal of the INMECAFE (Mexican Coffee Institute--the state production and marketing agency), forced smallholders who had previously benefitted to either abandon their plots or to look for low input, non-chemical alternatives, after the package of technologies, supports, and inputs provided by INMECAFE disappeared. Importantly, Juárez observes that this kind of shift to agroecology relies fundamentally on social organization:

It can only occur within groups. Isolated producers usually cannot find a way out. It requires rediscovering, relearning, and rescuing knowledge (*conocimientos*) and re-recognizing its value (*revalorización*) (Juárez 1993; translation mine).

The third route is the most recent, going back only about five years. It has its origins directly in the rise of environmentalism, in science, in social organization, and in practice. These are cases arising specifically out of the ecological orientation of university researchers and environmental activists. They take place mostly in protected areas and biological preserves, "animated by agroecology and supported by institutional action" (Juárez 1993; translation mine). This category characterizes many, though certainly not all of the cases of indigenous political ecology noted in Appendix A--projects and groups linked with increasingly rich ties to grassroots support organizations like PAIR, PASOS, GEA, ERA, and PSSM.

Even more recently, Juárez observes that the demand for organic crops such as coffee, mango, sesame, vanilla, and avocado has begun to attract medium to large scale private producers. Though currently marginal, to the extent that this market continues to develop, a part of Mexican agroecology will more closely approximate the Northern experience.

The agricultural sector lies at the heart of the crisis of development. Agroecology, whatever its motivation, is a critically important component of any strategy that strives toward sustainability. The reemployment of the peasantry and the revitalization of rural communities is no mere illustration or subcategory of sustainable development; it is an essential component. The well established linkages between rural decay and the larger crisis of development are fundamental (Sanderson 1986; Barkin 1987, 1990; Adelman and Taylor 1990; García-Barrios and García-Barrios 1990; Wright 1990; Goldrich and Carruthers 1992).

Even putting aside ecological concerns for the moment, the modernization of agriculture must be recognized as a key factor driving the marginalization and displacement of peasants and smallholders at rates that far exceed the capacity of the urban, modern sector to absorb them. The policy biases of agricultural dualism are not accidental; decades of policy designed to "modernize" the peasantry have instead pushed them onto the fringes, idling both millions of hectares of abandoned rainfed lands, and millions of peasants whose last recourse is

migration across the Northern border or into the shantytowns surrounding Mexico's enormous cities (Goldrich and Carruthers 1992; Barkin 1987, 1990). Hyper-urbanization has in turn exploded the informal sector of the economy, further driving down urban wages (García-Barrios and García-Barrios 1990). Rural revitalization is thus an essential starting point in stopping or reversing the larger social ills rooted in rural decay and systematic bias against smallholders.

From an environmental perspective, these larger social and economic costs of rural deterioration further exacerbate the ecological crisis of modern agriculture. That is, above and beyond the direct ecological costs of agroindustrial production noted above, the displacement, marginalization, and erosion of the smallholder sector contribute to even greater environmental degradation, as the rural poor are pushed onto ever steeper slopes, more marginal lands, deeper into temperate or tropical forests, or into precarious urban settlements. It is truly a downward spiral, a mutually enhancing interaction between deepening poverty and deepening environmental decay, both functions of unsustainable agricultural practices (García-Barrios and García-Barrios 1990).

The imposition of neoliberal economic formulas greatly magnifies these negative trends. Though the entire process of structural adjustment was extremely painful for the rural poor, the hardest impact would be felt with the culmination of Neoliberalism in NAFTA (the North American Free Trade Agreement, which went into effect on January 1, 1994) and in the 1992 reforms to Article 27 of the Mexican Constitution.<sup>3</sup> It was clear from the outset that the agricultural beneficiaries of Mexico's rapidly deepening integration into the world and the U.S. economies would be export-oriented agroindustrial firms linked to transnational capital, especially cattlemen and firms specializing in winter fruits and vegetables for Northern markets (whose "comparative advantage" is itself a direct product of decades of favourable policy).

In contrast, smallholders and *ejidatarios* producing basic food crops for local consumption are extremely vulnerable. Recognition of deepening

displacement, both by the expansion of agroindustry and by the flood of cheap basic grains from the North, prompted the Mexican government to institute PROCAMPO (Rural Modernization Program), a long term compensatory program designed to cushion the expected devastating impact of NAFTA and the Article 27 reforms on small farmers (Bartra 1993b; Hernández 1993b; Moguel 1993).

But in Chiapas, the Zapatista uprising of January 1, 1994 sent the unmistakable message to the world that PROCAMPO and other alleviatory programs would not be sufficient to offset the painful costs of neoliberal adjustment being born by the rural and indigenous poor. The uprising itself was timed to begin on the very day that NAFTA took effect. And in the eyes of the Zapatistas, reflecting a sentiment widely felt in rural Mexico, the reforms to Article 27 demonstrated a betrayal of the Mexican Revolution that could not be forgiven. The changes to Article 27 eliminated the promise of the agrarian reform, the last hope of the landless and land poor of Chiapas, many of whom were settlers who had themselves been pushed deep into the forest by the expansion of the cattle industry. Perhaps more than any other single factor, the Article 27 changes triggered the uprising (Harvey 1994a, 1994b; Hernández 1994).

It is hard to imagine a more hostile setting for the emergence of agroecology. Mexico was the birthplace of both the Green Revolution and the Latin American debt crisis. It was held up as the model for structural adjustment and neoliberal reform. Its agrarian sector is deeply intertwined with the agroindustrial might of its Northern neighbours, now institutionalized in NAFTA. There are few places on earth where the forces against sustainable agriculture are so formidably arrayed. Mexico is thus a worst case, an extreme case, and hence a critical test for agroecology. If it can survive in rural Mexico, if even in the slightest degree, then it presumably holds out much greater hope in more hospitable environs.

## **Mexico's Indigenous Movement**

But the Zapatistas have reminded us of another force in Mexico. It is a land of an enduring, profound and fiercely proud rural and indigenous tradition. There is an extraordinary resilience to agrarian Mexico, a preference for life close to the land that survives against the greatest odds and in the face of all expectations (Barkin 1987; Esteva 1987). This rural resilience has preserved understandings about land, nature, and agricultural production, a knowledge deeply embedded in the richness of indigenous and peasant culture.

Mexico, especially rural Mexico, is a brilliant ethnic tapestry composed of scores of distinctive cultures, languages, and traditions. In spite of the pervasive notion of the *mestizo* nation--a fusion of the Hispanic-European and indigenous worlds--at least 56 major indigenous language groups survive today (*Anuario Indigenista* 1991, 147). The actual number is probably much higher, because many dialects recorded in the census data may be sufficiently distinct to be counted as independent languages (Bonfil 1990, 49). Even using the very imperfect measure of language to identify ethnic groups, somewhere between 10 and 14 percent of Mexico's population is indigenous (Bonfil 1990, 49; *Anuario Indigenista* 1991, 252), though the percentages are much higher in the Southern and Central states where Indian populations are concentrated. One fourth of Mexico's municipalities have indigenous populations over 30 percent (*Anuario Indigenista* 1991, 147).

Mexico's indigenous populations and cultures have survived across centuries, and in the face of seemingly impossible odds. The long history of indigenous resistance is as enormously complex and diverse as is the ethnic tapestry of Mexico itself. It is well beyond the purview of this analysis to attempt a description of the myriad faces of that resistance, especially given that Mexico's indigenous struggle has been so thoroughly chronicled elsewhere.<sup>4</sup>

Mexico's Indian groups have persevered across at least four centuries of systematic oppression, including slavery and near genocide. The *conquistadores* benefitted from manipulative alliances with Indian groups subordinated under Aztec rule at the time of the conquest. The brutality of the Spanish conquerors is legendary throughout

the Americas, but the end of the colonial era did not signal an end to the oppression. Mexico's indigenous peasants were trapped in serfdom across the nineteenth century, and were pawns in the wars of independence and revolution. In modern times they have suffered the indignities of racism, poverty, and marginalization, and of decades of social theory and policy centered on the notion of acculturation, denial of their "indianness," or "de-indianization" (*desindianización*, Bonfil 1990). Common expressions, such as "don't be indian" (*no seas indio*; which means "don't be stupid") demonstrate how Mexican popular culture has absorbed a loathing of Indians that is often taken for granted.

### Indigenous Resistance in the 1990s

The 1990s is a time of renewal for indigenous movements across the Americas, and indeed for aboriginal movements across the world (Maybury-Lewis 1992). In Mexico, the story of that renewal (arguably) begins with the 1987 (first edition) publication of the enormously influential book *México Profundo (Deep Mexico: A Civilization Denied)*, by one of Mexico's most highly regarded anthropologists, Guillermo Bonfil Batalla (1990). Bonfil's critique of the failed social policies associated with the assimilation approach struck a chord, not only with indigenous leaders, but throughout Mexican society. Bonfil's book celebrated the enduring indigenous civilization of "deep" Mexico, so long suppressed and denied, and called for a revindication of the pluri-ethnic, multi-cultural character of Mexican society.

His call did not fall on deaf ears. The late 1980s was a time of great ferment in Mexican social movements. Indeed, the foundation for indigenous social mobilization had been laid in hundreds of local and regional peasant struggles across the 1970s and 1980s, but by the late 1980s, distinctively indigenous aspects of that struggle were surfacing. By the early 1990s, as the 500th Anniversary of the Conquest drew nearer, indigenous mobilization in Mexico, as across the Americas, rose to a fever pitch.

In addition, initiatives from above indicated growing sensitivity to, and at least symbolic support for indigenous concerns. Under President Carlos

Salinas de Gortari (1988-1994), Arturo Warman, a noted anthropologist and Indian rights advocate, was appointed head of the INI (National Indigenous Institute), the state agency charged with Indian affairs. Under his tutelage, the INI promoted and provided critical support for the president's proposed amendment to Article 4 of the Constitution, which officially recognized the pluri-ethnic and multi-cultural character of Mexican society for the first time.<sup>5</sup>

For indigenous movements across the Americas, however, the stars really came into their sharpest alignment in 1992. First, as noted above, the celebrations surrounding the 500th Anniversary of Columbus's "discovery" of the Americas imparted a new legitimacy to indigenous perspectives on the conquest. It gave an unprecedented boost to indigenous social mobilization, spawning new grassroots organizations, reinvigorating existing organizations and pan-Indian movement ties, and heightening international awareness of the indigenous perspective on that history. Second, a young Guatemalan Mayan woman, Rigoberta Menchú, was awarded the 1992 Nobel Peace Prize, in recognition of her personal struggle against one of the hemisphere's most brutal military dictatorships, and also for her role as a symbol of the rising consciousness of the new indigenous movement. Finally, the 1992 UNCED conference in Rio de Janeiro included indigenous delegations, and various fora for exploring the role of indigenous peoples' traditional ecological knowledge in the quest for sustainable management of complex ecosystems.

As we will see below, the interaction of the events of 1992 created fertile ground for the formation of new alliances, between indigenous groups, pan-Indian movements, NGOs, environmental groups and others. And the momentum of that mobilization continued to manifest itself globally after the year's end. In 1993, for example, the United Nations issued its "Declaration of Indigenous Rights," declaring that year "The Year of the World's Indigenous Peoples" (*Abya Yala News* 1993).

And in January of 1994, the Zapatista uprising in Chiapas thrust the plight of Mexico's

indigenous population into the international spotlight. Indian groups from every corner of Mexico (and from around the world) broadcast their solidarity with the Mayan rebels. It was a year of great social mobilization throughout Mexico, especially in rural areas, re-energizing indigenous and peasant organizations and myriad networks, alliances, and coalitions, and generating dozens of new indigenous movement organizations. The uprising ruptured Mexico's much vaunted political stability and tarnished the legacy of Salinas's Neoliberalism. Above all, it lifted the veil from "deep Mexico"; the pluri-ethnic reality was now visible to the entire world.

### **Traditional Ecological Knowledge**

A particularly alliance-rich aspect of that multi-ethnicity is the body of knowledge embedded in traditional societies that governs their long term relationships with nature. As noted above, traditional ecological knowledge (TEK) was a central organizing theme at the 1992 Earth Summit. TEK is itself, of course, as old as human civilization, but its rise to prominence as a focal point for social organization roughly parallels the recent renewal of the indigenous struggle more generally. TEK made (arguably) its first high profile international appearance in the Brundtland Report (issued by the World Commission on Environment and Development; WCED 1987), which suggested that Western industrial nations could learn a great deal about sustainable development by drawing on the vast ancient knowledge accumulated in indigenous communities and societies regarding the long term management of complex ecological systems.

In July of 1988, ethnobiologists, anthropologists, and indigenous leaders from across the Americas (and the world) gathered in Belem, Brazil, to convene the First International Congress of Ethnobiology. The "Declaration of Belem" (*Anuario Indigenista* 1988, 51-55) that was issued at the meeting defined ethnobiological knowledge as "the sum of cultural interactions with the biosphere, consisting of the particular strategies of perceiving,

conserving, and reproducing life, developed uniquely by each ethnolinguistic group." Echoing the Brundtland position, the authors argued that "the application of these proven alternative models is vital to the long-term sustainable development of our planet" (*Anuario Indigenista* 1988, 53).

By the 1990s, the study of TEK has become a successful and important interdisciplinary endeavour. As global concern for the environment has risen, so has the hope that some of the seeds to a more sustainable future might be found in the traditional knowledge held in the practices of the world's indigenous communities. Indeed, agroecology, both as a science and a social movement, rests heavily on the rescue of traditional practices. It is not my intention to delve into the immense literature on traditional ecological knowledge and ethnobiology.<sup>6</sup>

For my purposes here, the study of TEK is important *politically*, because it is linked fundamentally to the larger indigenous struggle. The effort to conserve, defend, and revalidate the reservoir of indigenous knowledge is inseparable from the effort to conserve, defend, and revalidate indigenous societies themselves, including the "cosmological" and religious aspects that inform their relationships to nature.

We have seen that in the Mexican case, the "modernization" priority, in both its ISI and neoliberal variations, has sought instead to disintegrate, atomize, erase, and absorb. The defense of TEK stands against that drive toward homogenization, embracing cultural diversity and the rich and varied knowledge and practice contained therein.

The struggle to defend traditional ecological knowledge is thus an intrinsically political process. Sustainable development and the defense of TEK rest fundamentally on grassroots participation in decision making and design, and hence on the empowerment of those groups in whose cultural practices that knowledge is embedded. In some cases, there is reason to hope that components of participatory, grassroots democracy might be drawn from indigenous cultural traditions. But whether new or ancient, grassroots empowerment and democratization "from the bottom up" are threatening to an established order that relies upon

the subordination of those and other marginal groups. Particularly thorny in the Mexican case are the corrupt and violent rural power structures of *caciques*, or local political bosses. Breaking these barriers has been one of the great challenges--and achievements--of indigenous political ecology in practice. Alliances between ecological and indigenous activists and the agroecological experimentation they have spawned have helped to lever open political space in some cases, weakening the stranglehold of regional *caciques*.<sup>7</sup>

The struggle to defend and conserve traditional ecological knowledge is universally important for its contribution to the global quest for sustainability, but Mexico has a special role. First, it has a huge peasantry, and an extremely diverse ethnic mix. Because diversity in culture contains diverse, locally micro-adapted knowledge and practice, a country of Mexico's ethnic complexity offers an especially rich bank of traditional knowledge. And Mexico's indigenous and peasant cultures have proven remarkably resilient, embracing a deep agrarian tradition and enduring ties to the land that neither socio-political subordination nor the powerful monocultural drive of industrial agriculture have been able to extinguish.

Second, Mexico is a mix of Western and non-Western civilizations. The ancient and the modern coexist side by side in Mexico, with a rural Third World surrounding urban, First World enclaves. Therein lies the potential to bring together First World and Third World forms of environmentalism, both as science and as social movement. We will explore this proposition in the following section.

Third, Meso-America is a land of extremely rich biological diversity. A land bridge between two continents, characterized by a formidable topography, Meso-America is blessed with hundreds of unique and widely varied local ecosystems. This wealth of flora and fauna has captured a great deal of attention from the international environmental movement, particularly in the Mexican and Central American tropics. The preservation of species diversity is intrinsic to the quest for sustainable development, and has thus been a focal point for international organization.

Most prominently, the "International

Convention on Biological Diversity" (ICBD) was signed by over 150 governments at the 1992 Earth Summit in Rio de Janeiro. The first global agreement committing signatory nations to the protection of biological diversity, the ICBD went into force after the required ratification by national legislatures in December 1993.

Indigenous organizations from across the Americas have struggled to enhance the weight of indigenous people's participation and representation within the institutional and legal structures of the ICBD, particularly in the Caucus of the Indigenous People's Preparatory Committee. In particular, groups like Cultural Survival, the IPBD (Indigenous People's Biodiversity Network), the SAIIC and many others have articulated a need for greater institutional recognition of indigenous peoples' traditional knowledge regarding the sustainable use of native flora and fauna, especially in agricultural, medicinal and other areas (Argumedo 1994). In the regularized meetings of the ICBD, the struggle has focused with special intensity on the issue of intellectual property rights, as indigenous groups struggle against patent infringement, especially by agricultural and pharmaceutical TNCs who seek to profit by the international marketing of usurped traditional knowledge and practice (*Abya Yala News* 1994).

Legal and trade struggles over intellectual property rights and TEK are an intrinsically important component of the international indigenous rights movement, but for our purposes the point to be highlighted is that the defense of biological diversity is inextricably interwoven with the defense of cultural diversity (Toledo 1990). Intellectual property rights issues centre around the notion that "cultural information" is itself the basis of cultural identity. For example, the preservation of plant species used in traditional medicine or in traditional agricultural "poly-cropping" (for pest control or soil enrichment) cannot stand independently from the culturally embedded knowledge of those techniques.

Because Mexico is extraordinarily rich in both biological and cultural diversity, the interweaving of the two is especially promising. The preservation of biological diversity means much more than the search by transnational pharmaceutical

and agricultural companies for plant medicines or natural pest control; if those plants hold the key to a more sustainable future, so too do the people in whose cultures the knowledge of their use and sustainable management is embedded.

## **Indigenous Political Ecology: Forging Links**

Traditional ecological knowledge lies at the intersection of interests between environmental and indigenous struggles. Its defense is thus intrinsically an alliance-rich endeavour, demonstrated in the nexus between the agroecology movement and the effort to protect cultural (and biological) diversity. The fusion of environmental and indigenous social movements fosters and strengthens many linkages: between grassroots organizations (GROs) and grassroots support organizations (GRSOs), between social and natural scientists, and across international borders. In this concluding section I will discuss each of these in turn.

### **GRO-GRSO Links**

Horizontal linkages between GRSOs and GROs are a defining feature of indigenous political ecology in Mexico, just as they define growing linkages between environmentalism and human and indigenous rights struggles throughout the Third World (Keck and Sikkink 1992; Fisher 1994). In the dozens of projects throughout rural Mexico where indigenous political ecology is put into practice, the GRSOs represent the applied face of the Mexican environmental and agroecology movements, while the GROs represent existing indigenous, peasant, and smallholders' organizations.

GRSOs are private, non-profit organizations, and are a subset of NGOs. A GRSO "is a developmental civic entity that provides services for and channels resources to local groups of disadvantaged rural or urban households and individuals" (Bendahmane 1991, 31). The GRSOs' provision of advisors and supporters to GROs is

often overlooked by social movement analysts, for fear of detracting from the grassroots, autonomous, and democratic character of the GROs (Carrillo 1990, 231). But Julie Fisher (1994) has argued that to the contrary, GRSO-GRO linkages actually enhance autonomy and democratic prospects, increasing the diversity of participants and mitigating against internal oligarchical tendencies.

There is also a strong tradition in Mexico, and throughout Latin America, of GRSO activists to engage in academic research and writing. Latin Americans refer to these scholar-activists as "organic intellectuals" (Fox and Hernández 1992; Castañeda 1993). Fisher argues that this tradition enhances their autonomy, with positive effects on the GRO-GRSO linkages (1994, 133).

Organic intellectuals are key participants in indigenous political ecology. They provide, in effect, the living bridges between environmental GRSOs and indigenous peasant GROs. The many scholar-activists cited in the earlier discussion of Mexican environmentalism and agroecology (Gustavo Esteva, Víctor Toledo, Iván Restrepo, David Barkin, Julio Moguel, Patricia Gerez, Luis Hernández, Sergio Sarmiento, Enrique Leff, and Julia Carabias), along with Luisa Paré (1975, 1992a, 1992b, 1993; Flores Lua, Paré, and Sarmiento 1988), Gerardo Alatorre (1991, 1993a, 1993b), Gonzalo Chapela (1991, 1992, 1993), Leticia Merino (1991, 1992), Jasmine Aguilar (1992, 1993), and dozens of others serve in this "organic" capacity in the GRSOs that support indigenous political ecology throughout rural Mexico. All of these individuals are affiliated with GRSOs noted above, such as the Centro de Ecodesarrollo, Programa PASOS, GEA, ERA, and PAIR, as well as with organizations like CNOC, PSSM (Sierra de Santa Marta Project), and CECCAM (Centre for the Study of Change in the Mexican Countryside) which provide critical supports for indigenous ecology in Mexico.

And because representatives of indigenous and peasant organizations have access to these scientific and research centres, and are active participants in their field projects, their relationships with organic intellectuals facilitate two way linkages between GRSOs and GROs (Buckles 1993). Furthermore, because most GRSOs are located in cities, while peasant and indigenous groups are

located in the countryside, these researcher-farmer linkages intrinsically cut across urban-rural divisions. Similarly, because indigenous political ecology brings together urban professionals and *campesinos*, it cuts across social class, fostering issue-based, rather than class-based linkages.

## Two Worlds of Knowledge

Secondly, as noted earlier, the defense of traditional ecological knowledge and its contribution to agroecology are endeavours that intrinsically encourage linkages between the natural and the social sciences. This is a noteworthy departure. Rural development projects over many years, from the Green Revolution to myriad other top-down, state-sponsored programs, and even hundreds of grassroots projects, many including NGO participation, have had in common a tendency to treat development (even sustainable development), as a "technical" problem; i.e., one to be solved by the application of modern science, bestowed upon rural Mexico by scientifically trained technocrats.

Agroecology is among a new generation of highly participatory approaches to rural development that seek to overcome this "scientific paternalism" and to encourage the full and equal participation of grassroots populations, not least because agroecology itself rests in an important part on the incorporation and revalidation of traditional knowledge (*Agriculture and Human Values* 1994). Many practitioners of agroecology (like social forestry) seek to comprehend the cultural dimensions of sustainable agriculture, both scientifically and in application. As it is practiced in Mexico, it draws not only upon the modern scientific expertise of GRSO personnel trained in biology, agronomy, hydrology, soil science, animal husbandry, silviculture and other natural sciences, but also upon anthropologists, sociologists, ethnologists, ethnobiologists, geographers, historians, economists and other social scientists.

Shared participation by social and natural scientists is important because it implies an unprecedented effort to strive toward placing indigenous knowledge on an equal footing with Western science. That is, to the extent that social



scientists and organic intellectuals succeed at comprehending the unique cultural aspects of local knowledge, at encouraging grassroots participation, and at keeping GRSO-GRO linkages open in both directions, they take important steps toward building genuine, co-participatory linkages with peasant and indigenous communities. Indigenous participation in agroecology thus flourishes at the point of intersection between two worlds of knowledge, one scientific, modern, and Western, the other folkloric, ancient, and non-Western.

But Mexico, itself an un-blended mix of Western and non-Western civilizations, also reminds us that there is of course nothing intrinsically or automatically sustainable about indigenous practices. The country is littered with the ruins of ancient civilizations that demonstrate a graphic failure to live within the carrying capacities of local ecosystems. Today, the destruction of rainforests (or fisheries, or mangroves, or soils) is all too often at the hands of desperately poor indigenous populations, driven by displacement, desperation, structural necessity, or misguided policies (Clay 1988; Szekely and Restrepo 1988). Conversely, the ecological nightmares of Mexico City, the Northern Border, and the Green Revolution notwithstanding, there is nothing intrinsically *unsustainable* about the application of modern science to development. These observations summarize both the challenge and the promise of indigenous political ecology: to identify, preserve, defend, and fuse the relevant knowledge from *each* of those worlds that best promotes sustainability.

Furthermore, ecological knowledge is a holistic form of knowledge, one that recognizes the myriad physical, biological, and cultural connections within ecological systems. In that light, it is not surprising that ecological social movements would be intrinsically multi-sectoral, fostering linkages not only with indigenous and peasant organizations, but also with public health, labor, student, and urban popular movements. That is, ecological movements reside at a nexus where many of the concerns articulated by other social movements obtain, from pesticide poisoning of rural labourers, to workplace safety in a border maquiladora, to water quality in a

Mexico city slum.

Indeed, many of the world's most intransigent ecological problems stem from "disconnectedness." For example, the international political economy of industrial agriculture is one not only of a global division of labor, with most of the social costs being born in the South (or by Southern migrants in the North), but also one which often parcels out the most ecologically destructive portions of production processes to the Third World. Northern populations have so far managed to escape most of the costs of the downward spiral of ecological and socio-economic deterioration of the South (with the important exception of Northward migration). But the ecological perspective is uniquely poised to force those connections to the surface, from the "circle of poison," to the "pesticide treadmill," to the loss of the planetary "lungs" of the tropical rainforests, cut down in exchange for Northern hamburgers.

### **International Civil Society**

With our lenses now trained on the international dimension of the environmental movement, I turn to the third and final area of linkages: across international borders. Observers working in a variety of issue areas have pointed with increasing interest to the emergence of "global civil society," manifested in the transnational organizational structure of linkages between NGOs, GRSOs and GROs (Alger 1988; Chekki 1988; Fox 1992; Hernández and Sánchez 1992; Keck and Sikkink 1992; Lipschutz 1992; Macdonald 1992; Castañeda 1993; Dresser 1994).

The "internationalization of civil society" refers to the increasingly thick web of cross-border linkages established by social movement organizations. It is a phenomenon which increasingly characterizes and brings together many areas of social mobilization, representing the shared interests of organizations in the peace, human rights, environmental, women's rights, labor, indigenous rights and other social movements. If civil society is

conceived as the space that lies between the individual and the state, then its internationalization is a product of a strategic effort with two possible ends. The first is to enhance the capacity of social movement organizations vis-a-vis the state. The second is to carve out autonomous space for experimentation, beyond and independent of the state.

In Mexico, as throughout the developing world, international civil society is best understood as a spontaneous response by social movement organizations to protect and defend vulnerable populations from powerful international economic forces (Fuentes and Gunder Frank 1989). Karl Polanyi's (1944) brilliant account of the long historical process by which communities organized spontaneously to protect themselves from the destructive local effects of the expansion of the capitalist economy provides the best historical and analytical analogue.

Today's rapidly changing globalization of capitalist production, particularly as manifest in the shift toward Neoliberalism, international economic integration, and deepening penetration by TNCs throughout the Americas, can have severely deleterious social and ecological effects at the level of the individual and the community. Cross-border solidarity and organizational linkages are an important means by which social movement organizations and communities seek to better negotiate the terms by which international changes are manifest locally.

[T]he time has come for greater communication and coalition building transnationally and transculturally, as a necessary strategy to oppose the consolidation of a "new world order" according to the dictates of capital and of the global cultural, economic, and military powers. Only peoples' *collective* resistance and creativity can fill this role (Escobar and Álvarez 1992, 13-14; emphasis in original).

Almost from the very beginning of the call for SAPs [structural adjustment programs] in the 1970s, NGO international secretariats have been playing an active role in

mobilizing national and local groups throughout the world to oppose the official programs on the grounds that they were imposing a disproportionately heavy burden on the most vulnerable groups throughout the developing world. These organizing efforts continue to be especially effective because they are not limited to the sectoral interests of environmental groups, or others interested in human rights, women's problems, labor or peasants. Rather, they share a common analysis which identifies inequality as one of the major problems and therefore broad-based democratic participation as the over-arching strategy and principle for political action (Barkin 1994, 11).

Social movement analysts have long held that negotiation with the state to secure benefits for sectoral interests is an important component of social movement activity. International civil society maintains this focus, visualizing the state as the critical intermediary between international political and economic forces (such as Neoliberalism) and the communities where the destructive effects are felt. Perhaps the most salient recent demonstration was in the enormous proliferation of cross-border and cross-sectoral linkages (especially among labor, health, human rights, and environmental groups) to influence the terms by which NAFTA would be imposed by the signatory national governments (Hernández and Sánchez 1992; Grinspun and Cameron 1993; Robinson 1993; Dresser 1994).

Cross-border linkages between indigenous organizations have also formed with pragmatic, political ends. One illustration for our purposes is the participation of indigenous groups (such as the Indigenous People's Biodiversity Network) in the International Convention on Biological Diversity. Recall from above that the ICBD established institutional and legal linkages between environmental and indigenous concerns binding on signatory states. A second, more recent, illustration comes from Chiapas, where the CEOIC (State Council of Indigenous and Peasant Organizations) has helped to organize international "peace caravans" with the participation of North American Indian

groups, to demonstrate solidarity with the Zapatistas, and to pressure the Mexican government to dialogue. In the wake of the uprising, the member organizations of the CEOIC have also promoted political change at the municipal level to enhance both communitarian democracy and organic agriculture (Nigh and Ozuña Salazar 1994).

But students of social movements have also explored an alternative conception of social movement action, rooted in the hope that social movements themselves create new and meaningful political spaces that stand independently of the state.

In this conception, international civil society reaches beyond the state, again in response to a sense of injustice at larger political and economic forces.

[P]eople increasingly regard the state, and its institutions, particularly political parties, as ineffective in the face of these powerful forces. The state and its political process cannot, or will not, face up to, let alone control, these economic forces. In either case, the state and its institutions...leave people at the mercy of forces to which they have to respond by other means--through their own social movements (Fuentes and Gunder Frank 1989, 186).

In the area of sustainable development and indigenous ecology in Mexico, many NGOs and GRSOs see their roles in similar terms, emphasizing autonomy from the state (Esteva 1987). International civil society incorporates these efforts, independent of states, to channel financial and other direct support to GROs, and to assist in the development of alternative trade and marketing links internationally.

One salient illustration is the solidarity link between the Lummi Indians, from the state of Washington, and the Lacandón Maya, in the jungle of Eastern Chiapas. The Lummi-Lacandón Maya relationship grew out of a shared belief in a mystical-religious connection between all indigenous groups, and between indigenous peoples and their surrounding environments (Russo 1993). The autonomous linkages between the Lummi and the Lacandón Maya are supported by two Mexican

GRSOs, the anthropological Florence R. Kluckhohn Centre, and the environmental ECOSFERA (Centre for the Study and Conservation of Natural Resources), both in San Cristóbal de Las Casas, Chiapas (Kluckhohn Centre 1990). The Lummi-Lacandón project is concerned with both cultural and ecological aspects of sustainable development in the Lacandón Jungle. They conduct research, operate exchange programs, promote appropriate technology and ecotourism, and carry out public education campaigns, including bringing Lacandón leaders on public speaking and solidarity tours of North American Indian nations.<sup>8</sup>

Another illustration of indigenous social movement internationalization is provided by the FM-ZB (Binational Mixtec-Zapotec Front). The FM-ZB is based in California, and began with the effort to organize Mixtec and Zapotec migrant farmworkers in the United States, most of Oaxacan origin. Their initial focus was on labor conditions and human rights issues, but like many indigenous organizations, the 500th Anniversary of the Conquest was a mobilizing force that helped to broaden their reach (Lopez Ortiz 1992).

The FM-ZB is comprised of a number of Mexican and U.S. based indigenous and migrant workers' organizations, including the CCPM (Popular Mixtec Civic Committee), the ORO (Oaxacan Regional Organization), the COTLA (Tlacolulense Community in Los Angeles), the OPEO (Organization of Exploited and Oppressed Peoples) and others. They also maintain affiliations with the César Chávez's United Farmworkers of America, and the San Francisco based NGO AT-Work (The Appropriate Technology Working Group, of the Earth Island Institute). The FM-ZB promotes not only indigenous resistance and worker and human rights, but is also involved in a number of agricultural and sustainable development projects in Oaxaca (AT-Work 1994).

At a much broader and more institutionalized level, another illustration of an autonomous conception of international civil society is provided by SALDEBAS (Services of Local Support for Grassroots Development), a GRSO located in Mexico City. SALDEBAS is the in-country support

office of the IAF (Inter-American Foundation) and its conduit for funding hundreds of grassroots development projects throughout the country. It is a key player in Mexico's grassroots and sustainable development efforts, including many of the projects that seek to incorporate and revalidate indigenous ecological knowledge.

SALDEBAS is closely related to, and provides financial, technical, and other support for, most of the GRSOs and GROs cited above as participants in indigenous political ecology, including GEA, PAIR, CECCAM, ISMAM, ERA, CNOC, NOCAF, UCIZONI, PSSM and, in the past, the CARTT. Many of these organizations in turn maintain other international affiliations, such as the CNOC's participation in UPROCAFE (Union of Small and Medium Coffee Producers of Central America, Mexico, and the Caribbean); see Ejea (1991), and the PSSM's affiliation with the CIMMYT (International Center for the Improvement of Corn and Wheat); see Buckles (1993), and Canada's IDRC (International Development and Research Center); see PSSM (1993).

SALDEBAS further demonstrates the richness of international civil linkages in its support for Asociación de Dana (Dana Association). Dana is a Chiapas based GRSO with a multidisciplinary support staff that provides training, funding, and technical assistance for organic agriculture, social forestry, and sustainable development in several Southern states. Dana is in turn an advisor and supporter of AMAE. Together, and through their international affiliation with the IFOAM (International Federation of Organic Agriculture Movements), they provide the critical service of organic certification of agricultural products by the international standards of the European Union.

SALDEBAS illustrates the thickness of international civil society as it relates to indigenous political ecology, bringing us back to the questions about the relationship between international civil society and the state. In the view of its director, Sergio Martínez, grassroots development projects are best served by avoiding political and partisan affiliations, and exercising great caution in negotiation with the state; their promise rests upon the maintenance of autonomy and independence (Martínez 1993).

Still, a great many of the organizations with which SALDEBAS is affiliated do in fact make regular policy recommendations, provide reports to state agencies, and participate in activist networks with explicitly political goals. In fact, many of the groups discussed above pursue both strategies simultaneously. The FM-ZB, for example, provides solidarity and assistance to autonomous groups in Oaxaca, but also attempts to represent the interests of migrant farmworkers in U.S. and Californian politics.

The case of indigenous ecology, then, demonstrates important lessons about the internationalization of civil society. It reveals an ongoing tension between two simultaneous, but contending social movement visions. The first builds cross-border links explicitly to enhance the capacity to impact state policies--for example, to influence domestic or international trade, environmental, or agricultural policies in a direction more supportive of sustainability. The second builds cross-border links to create autonomous spaces within which sustainable development projects can be carried out directly, independent of the state (or states). It is in those autonomous spaces that some of the most innovative efforts toward the emergence of sustainable agriculture have been cultivated.

## Conclusion

At the time of this writing, Mexico is living through an acute crisis of historic proportions, or better put, a convergence of multiple crises: economic, political, social, financial, and multi-sectoral (agriculture, banking, industry, education, currency, trade, debt, credit, and employment). The past year and a half has been a tumultuous time of armed rebellion, political assassination, increased repression, egregious human rights violations, the deepening contamination of narcopolitics, the fratricidal near-implosion of the corporatist party-state, massive and confrontational social mobilization across all sectors and classes, and a wrenching financial collapse that continues to throw millions of Mexicans out of work and to destroy the hope of economic security for the great majority of the population.

In such a climate, it is appropriate to ask what are the prospects for the openings to sustainable agriculture like those we have discussed? In the near run, since Mexico's historic record is one of not attending to environmental concerns in even the best of times, we can presume that the gravity of the current crisis will push sustainability well downward on the list of official priorities. In more concrete terms, environmentally-oriented NGOs and GRSOs will face a steep uphill struggle in their efforts to pressure the Mexican government in a direction more sensitive toward sustainability.

Indeed, the response on the part of the Mexican leadership to the collapse of its economic strategy appears to be yet stronger dosages of more neoliberal medicine, which is intrinsically inimicable to sustainability. So long as those priorities (and the financial elites in whose interests they operate) remain firmly entrenched, we are unlikely to see a reorientation of policy toward the restoration of the viability of the rural sector along agroecological lines.

That places a very heavy burden on the shoulders of our second conception of social movement activity, i.e., the creation of autonomous pockets of creativity and experimentation, levered open at the grassroots. The GROs and NGOs promoting indigenous ecology have not escaped the crises rocking the country at large, which naturally poses extreme limits on budgets, energy, and organizational capacity. The mere struggle to survive in the face of such austerity can easily displace longer-term visions and derail even modest projects.

But in crisis there may be opportunity. We have seen also that dire necessity has played a role in the past in promoting the shift to low-input agriculture. Along with the banking and credit crises, recent rounds of adjustment policy and fiscal austerity have ground the Mexican government's anti-poverty program (PRONASOL--National Solidarity Program) to a halt, sharply reducing resources in the countryside. In a pattern that parallels the earlier shifts toward organic farming prompted by the withdrawal of state marketing and production agencies, there is preliminary evidence

that the rural poor, today faced with the desperate choice of land abandonment or starvation, are embracing traditional methods of cultivation simply to find a way out.

Such necessity-driven efforts are important, inasmuch as they keep alive both that reservoir of traditional knowledge and practice and the possibility of alternatives. Still, the employment of low-input agricultural techniques out of sheer desperation, as the last alternative to starvation, is most assuredly *not* to be mistaken for a genuine sustainable agriculture. Sustainable agriculture cannot be divorced from the larger question of sustainable development. In other words, sustainability goes well beyond technique and technology; it comprises a social and political context. It cannot be realized in the absence of an overarching commitment to rural life, including basic economic security, social well-being, and meaningful and free political participation.

## Appendix A

### Indigenous Political Ecology in Mexico

Sites or cases for further research on indigenous political ecology in Mexico (grassroots projects in agroecology, organic agriculture, agroforestry, social forestry, and integrated rural development). Compiled from Alcorn (1984), Bray (1991), Blauert and Guidi (1992), Toledo (1992), *Cultural Survival Quarterly* (1993), and from my own field research. Listed alphabetically by ethnic group, followed by location.

1. Chinantecos-Mazatecos, la Chinantla, Oaxaca.
2. Chontales, Oxiacique and Tucta, Tabasco.
3. Huastecos, la Huasteca, San Luis Potosí and Northern Veracruz.
4. Huicholes, Santa Catarina, Jalisco.
5. Lacandón Mayas, Selva Lacandona, Chiapas.
6. Mayas, Comitán, Chiapas.
7. Mayas, Sian-Kaan, Quintana Roo.
8. Mayas, Sotuta, Yucatán.
9. Mayas, Sur de Quintana Roo.

10. Mayas, Xpujil, Campeche.
11. Mazatecos, la Mazateca, Oaxaca.
12. Mixtecos, Cuatro Rayas, Puebla.
13. Mixtecos-Nahuas-Tlapanecos, Montaña de Guerrero.
14. Mixtecos-Zapotecos, Oaxaca (supported by FM-BZ).
15. Mixtecos-Zapotecos-Chinantecos, Sierra del Istmo de Tehuantepec, Oaxaca.
16. Mixtepec, San Juan Mixtepec, Oaxaca.
17. Mochos, Sierra Madre de Motozintla, Chiapas.
18. Nahuas, Alto Balsas River basin, Guerrero.
19. Nahuas, Sierra de Manantlán, Jalisco.
20. Nahuas, Sierra de Zongolica, Veracruz.
21. Nahuas-Mixtecos, Alcozauca, Guerrero.
22. Nahuas-Otomíes-Tepehuas, Tlachichilco, Veracruz.
23. Nahuas-Totonacos, Sierra Norte de Puebla.
24. Nahuas-Zoques-Popolucas, Sierra de Santa Marta, Veracruz.
25. Otomíes, Ixmiquilpán and Valle de Mezquitál, Hidalgo.
26. Purépechas, Lake Pátzcuaro, Michoacán.
27. Purépechas, Meseta Purépecha, Michoacán (projects supported by CESE in Pátzcuaro).
28. Purépechas, Meseta Purépecha, Michoacán (projects supported by PAIR).
29. Purépechas, Nuevo San Juan Parangaricútiro, Michoacán.
30. Purépechas, Pichataro, Michoacán.
31. Seris, Litoral de Sonora.
32. Tarahumaras-Tepehuanos, Sierra de Chihuahua.
33. Tzeltal-Tzotzil-Chol-Tojolabal Mayas, Las Cañadas, Chiapas.
34. Tzotzil-Chol Mayas, La Montaña de Chiapas (Cooperativa Tzotzilotic Tzobolotic)
35. Zapotecos, Ixtlan de Juárez, Oaxaca.
36. Zapotecos, Sierra Norte and Sierra Sur, Oaxaca.
37. Zapotecos-Chinantecos, Santiago Comaltepec, Sierra Juárez, Oaxaca.
38. Zoques, las Chimalapas, Oaxaca.

An analysis of several illustrative cases, representing the current practice of indigenous political ecology in rural Mexico, can be found in Carruthers (1995). That study focuses on the CARTT (Cooperativa Agropecuaria Regional "Tosepan Titataniske," numbered 23 above), the

CPNAB (Consejo de Pueblos Nahuas del Alto Balsas, numbered 18), the PSSM (Proyecto Sierra de Santa Marta, numbered 24), and two projects supported by the PAIR (Programa de Aprovechamiento Integral de Recursos Naturales, numbered 1 and 28).

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## End Notes

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1. The Mexican case is illustrative of the General Third World pattern. The most dramatic example of necessity forcing a shift to sustainable agriculture is in Cuba, where the loss of support from the former Soviet Union forced the entire national food system to adopt low input methods, making Cuba the first country to embark on a nationwide experiment in sustainable agriculture. See Carney 1993; Rosset and Cunningham 1994).

2. The centerpiece autonomous organization defending the interests of the coffee sector as a whole is the CNOC (National Coordinator of Coffee Producer Organizations), comprised of 65,000 producers from 85 regional organizations in 8 states (CNOC 1993b). See Ejea and Hernández (1991), Hernández (1991), and Hernández and Célis (1994). CNOC is a contemporary outgrowth of the Coordinator Movement of the late 1970s and early 1980s. There are similar national organizations for many sectors, such as the RED-NOCAF (National Network of Peasant Forestry Organizations, a sister organization of the ERA working in support of sustainable "social forestry" initiatives.

3. Article 27, celebrating the agrarian character of the Mexican Revolution, is the centerpiece of the agrarian reform. In 1992 it was altered to permit and promote the privatization of *ejidos*, consistent with the larger neoliberal project and ideology (Bartra 1993a; Hernández 1993a).

4. Without even venturing into the enormous anthropological and historical literature on pre-Hispanic civilizations and on resistance to the conquest, the literature on Mexico's indigenous struggle is immense. Some of the most important classic and recent works include Beltrán (1953), Warman (1970), Nahmad (1977), Varese (1977,

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1989), Bonfil (1981, 1990), Barre (1983), and Mejía and Sarmiento (1987). Stavenhagen (1982, 1989) is a useful source for the problems of Latin America's multiethnic societies vis-a-vis the state. In addition, many journals specialize in Mexico's indigenous struggle, including especially the Instituto Indigenista Interamericano's *América Indígena*, later changed to *Anuario Indigenista*, and the Instituto Nacional Indígena's *México Indígena*, now titled *Ojarasca*. More general indigenous issues journals, such as *Cultural Survival Quarterly*, the South and Meso-American Indian Rights Center's (SAIIC) *Abya Yala News*, and *Akwekon: A Journal of Indigenous Issues* (formerly *Northeast Indian Quarterly*) also frequently print articles covering Mexico and Latin America.

5. The initiative to reform Article 4 is published in its entirety in *Anuario Indigenista* (1991, 144-154). Salinas submitted the reform to the Congress in December 1990, though it was not approved until late 1991.

6. In addition to the agroecology literature cited above, see Moseley (1991), Lewinger Moock and Rhoades (1992), Brush (1993). On traditional ecological knowledge in Mexico, see Wilkin (1987), Toledo (1989, 1990a, 1990b, 1992, 1993), Moguel and Toledo (1992), Leff and Carabias (1993), Leff (1993a, 1993b), Nigh and Ozuña Salazar (1994), and the Mexican journal *Etnoecología*. Many of the indigenous issues journals cited above deal regularly with indigenous TEK; see especially *Akwekon: A Journal of Indigenous Issues*, Summer 1992 Special Issue, prepared for the UNCED Summit, and *Abya Yala News*, Winter 1994 Special Issue, "Confronting Biocolonialism." Other good resources include the newsletters *Indigenous Knowledge and Development Monitor* from the CIESIN (Consortium of International Earth Sciences Networks) and *Honey Bee* from the SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions), and the indigenous knowledge discussion list on the internet (indknow@u.washington.edu).

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7. Agroecological experimentation has sometimes been fostered with the support of reformists within state agencies (such as INI), many of whom maintain linkages to activists in the peasant or environmental movements. For an analysis of linkages that have helped to break *cacical* power in remote regions of Puebla, Veracruz, and to a lesser extent in sites in Guerrero and Oaxaca, see Carruthers (1995).

8. At the time of this writing, ongoing political conflict in Chiapas has interfered substantially with these efforts.