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# Modernization from Below: An Alternative Indigenous Development?\*

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**Abstract:** This paper compares conceptions of “indigenous agriculture” and alternative agricultural development as used by academics with approaches to agricultural development taken by Indian federations and the NGOs and churches working with them in highland Ecuador. There are significant differences between these conceptions. Moving away from traditional practices, the Indian federations have promoted the use of Green Revolution technologies as part of a strategy they still conceive as “indigenous” because of its overall objective to sustain a material base that will offset out-migration, a problem perceived as a far more serious threat to indigenous identity than any incorporation of new technology. The federations’ approach points to a more profound conception of indigenous agricultural development as a strategy implemented and controlled by Indian organizations and oriented toward a refashioning of the cultural and political landscape of highland Ecuador. In this way, analysing grassroots concepts challenges our theoretical constructions. Nonetheless, popular concepts should not be taken at face value. There are tensions in, and constraints to, local development strategies stemming both from wider political economic structures and the historical context of these strategies. We should therefore understand farmers and their organizations as “situated” in socioeconomic, political, and cultural structures that both enable and constrain as they construct their resource management strategies. A viable indigenous agricultural development must address the social relationships underlying such structural constraints.

**Key words:** Ecuador, Andes, indigenous agriculture, nongovernmental organizations, popular organization, alternative development.

Academic and political debates lend themselves to dichotomies. Discussions of conventional and “alternative” forms of agricultural and rural development are no exception. Distinctions abound between traditional and modern, agroecological

and external input technologies, indigenous and Green Revolution agriculture, with normative distinctions paralleling the terminological: indigenous is good and Green Revolution bad, traditional technology is desirable and modern technology is to be distrusted.

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Agendas for “alternative development” in rural areas involve arguments for indigenous, traditional, agroecological, self-sustaining, and locally controlled forms of social change (e.g., Adams 1990; Ekins 1992). Many such agendas originate in green, agroecological, and other initially countercultural movements. The tradition of cultural ecology, from Sauer to the present—stressing the virtues of “indigenous” agriculture (Butzer 1990) and the “small is beautiful” (and ecologi-

cally adapted) approach to agricultural development—has also made a contribution to such agendas (see Jennings 1988; Browder 1989; Denevan 1989). These agendas can also be found in social movements, nongovernmental organizations, and even the radical church. Nevertheless, in this paper I argue that alternative development needs neither to be purely “indigenous” nor wholly agroecological, and that in many cases such options may not be viable. In some cases, these “alternative” agendas do not reflect the perspectives of peasants and their local organizations as they compose their own strategies of agricultural and rural development. These local strategies involve both alternative and orthodox goals. Furthermore, some “alternative” goals, such as local control of the development process and cultural revalorization, are pursued through conventional means—such as the promotion of agrochemicals, new crop varieties, and market-oriented production. This apparently strange mix of means and ends reflects local groups’ pragmatic responses to increasingly difficult and modernized environments.

To make this case, my focus here is on the relationships among agricultural technology, ethnic (indigenous) identity, and rural politics in the agricultural development programs of institutions at the forefront of alternative agricultural development strategies: nongovernmental organizations (NGOs) and peoples’ organizations (Clark 1991; Kortzen 1990). The particular case examined involves a selection of NGOs and indigenous (or Indian) peasant federations operating in the province of Chimborazo in the central Andes of Ecuador. While elements of stereotypical discourses on “alternative development” are present in these organizations, over time their vision of rural development has become increasingly eclectic and pragmatic, though still alternative. This is particularly the case for Indian federations, whose agrarian programs incorporate Green Revolution technologies to promote a form of development that nonetheless aims at reinforcing Indian

culture and society. This is essentially an attempt at a grassroots-controlled rural modernization which, to the extent that it strengthens local Indian society and culture, differs from the type of modernization promoted by Green Revolution and integrated rural development programs. It also differs from the conceptions of an indigenous agricultural development in the proposals of those “geographers among the peasants”<sup>1</sup> who suggest that appropriate rural development should build only, or primarily, on farmers’ own techniques and innovations (for an overview, see Butzer 1990). Promoting Indian development on the basis of technologies, ideas, concepts, and models of development arising from non-Indian institutions brings tensions, and indeed raises the spectre of unsustainable development. But it has its rationale: it is the search for an indigenous agrarian development. This argument has implications that extend beyond the Andes, relating to concepts of “indigenous technical knowledge” (ITK) and indeed of alternative development as a whole. It implies that, while those who talk about ITK often have a stereotyped and static vision of this knowledge, the rural poor who possess it pursue strategies in which they rework, update, and change their knowledge within the often prejudicial environments in which they fashion their livelihoods. ITK is a dynamic response to changing contexts constructed through farmers’ practices as *situated agents: agents* because they are actively engaged in the generation, acquisition, and classification of knowledge; and *situated agents* because this engagement occurs in cultural, economic, agroecological, and sociopolitical contexts that are products of local and nonlocal processes, and that influence how and why farmers manage resources in particular ways. The paper opens with a discussion of these wider, theoretical issues before moving on

<sup>1</sup> The subtitle of Michael Watts’s (1987) critique of geographic writings on African agriculture.

to the case study. The conclusion again raises these wider concerns.

## **Conceiving Alternatives: Perspectives on Indigenous Agricultural Development**

### **From the Green Revolution to Indigenous Knowledge**

The claim that rural development has not led to any substantial improvements in rural peoples' welfare (Grindle 1986) has been sufficiently convincing to stimulate a growing body of writing on alternative approaches. In the same vein as Sauer's warnings in the 1940s to the Rockefeller Foundation as it launched an approach to agricultural development that was to augur in the Green Revolution (Jennings 1988), much "alternative" writing is based on the belief that the transfer of northern technologies to the south creates unemployment and landlessness, entrenches the power of professional elites who monopolize knowledge, and encourages unrealistic and unsustainable life-style aspirations (Lehmann 1990). In response, some have called for what Nerfin (1987, 171-72) calls "another development" that would "(i) [be] 'need oriented' . . . (ii) self reliant; (iii) in harmony with nature and ecologically sustainable; and (iv) hand in hand with people empowered to make structural transformations."

This approach stands in stark contrast to those which promote Green Revolution and export agricultural development. A large literature demonstrates the ways in which Green Revolution technologies have aggravated the poverty of the rural poor, undermined food security, damaged the biophysical environment, and eroded local cultures (Altieri 1987; Biggs and Farrington 1991; Blaikie 1978; de Janvry 1981; de Walt 1988; Griffin 1974; Hewitt 1976; Lipton and Longhurst 1989; Yapa 1977). For these reasons, many cultural and political ecological geographers oppose the technological modernization of

indigenous agriculture (Butzer 1990; Denevan 1989).

Because agrarian modernization has had negative impacts in some cases does not, however, mean that this will always be so, nor does it mean that the tactics and technology of modernization cannot contribute to "another" rural development. On the basis of research in the Caribbean, Grossman (1993) has recently argued, for instance, that while export agriculture may have undermined peasant food security in some cases (Grossman 1984), this is not a necessary consequence. In the Windward Islands the relationships between and impacts of commercial and export banana production on food security were far more complex. Similarly, there are cases in which small-farmer adoption of new crops and varieties emerging from the institutions of the Green Revolution has increased food security, offsetting crises that would have occurred without technological changes (Turner, Kates, and Hyden, *in press*; Goldman, *in press*; Rigg 1989). I similarly propose that while agrarian modernization has led to the erosion of some "indigenous" cultures, this need not be so: it depends on how the rural poor are able to incorporate and use this modernization. The implication is that we should treat generalized diagnoses of agrarian crisis with care. We also must be careful before accepting generalized remedies (Richards 1990a). An alternative in one context may not be the appropriate alternative for another. Academic understanding of alternatives may be neither appropriate nor congruent with that of rural people.

Even so, generalized remedies abound in the literature, trying to capture some of the elements of Nerfin's "another development." Persuasive and powerful proposals have argued that agricultural development strategies must be based on ITK if they are to be viable (Denevan 1989). The argument is that ITK is adapted to peasant production conditions, free of dependence on external inputs, environmentally sound and culturally appropriate (e.g., Altieri 1987; Brokensha, Warren,

and Werner 1980; Chambers, Pacey, and Thrupp 1989; Richards 1985, 1986; Warren, Brokensha, and Slikkerveer, forthcoming). This literature has generated an alternative to orthodox agricultural development in the so-called "farmer first" approach (Chambers, Pacey, and Thrupp 1989), which calls for agricultural development built on farmers' knowledge and farmer participation in agricultural technology development and project planning—a development that questions the idea that anybody except the farmer is an expert (Chambers 1993).

The "farmer first" case is motivated by concerns that are both political (to promote participation, support ideas of social equity, and challenge prevailing "taken for granted" power relationships) and theoretical (to relativize modernist rationality, challenge the crushing determinism of political economic approaches to peasant agriculture, and suggest the validity of the "native's point of view"). This is commendable, and it has achieved a great deal. It has helped change attitudes to farmer expertize and indigenous peoples' knowledgeability, and it has undoubtedly helped put rural peoples' agency back into the picture, softening the pessimistic determinisms of political economy. But it is also problematic.

### **The Limits of Indigenous Technical Knowledge**

The farmer first approach has also constructed a conception of indigenous agriculture that is homogenized, static, and easily taken out of socioeconomic, political, and cultural context (Fairhead 1992). Merely by naming something called "ITK," this literature creates the sense that a body of knowledge exists in a coherent form. By discussing ITK with a particular purpose in mind—to promote participatory agricultural development strategies building on farmer agronomic knowledge—this literature emphasizes the agricultural dimensions of rural life and the agricultural expertize of the rural poor. In doing it creates the impres-

sion that rural people are farmers, that agricultural technology is central to solving rural poverty, and that premodernized techniques are keys to a solution. In addition, the emphasis on the "knower" (the farmer), and on the knower's capacity to invent and create, tends to remove agents from structures and to replace determinism with voluntarism (cf. Giddens 1979; Long 1990). Likewise, an emphasis on what knowers know about technology and ecology diverts attention from the myriad things they do not know about markets, politics, and the machinations of a world beyond the farm gate.

This broader context brings us back to the political economic (or political ecological) perspective on agrarian change. Some political economic formulations may have had excessively deterministic overtones, but they at least kept the impact of wider social, political, and economic processes on farm resource management at the forefront of our analysis (Blaikie and Brookfield 1987; Turner and Brush 1987). They also countered the populist and technological fix arguments with claims that the origins of the crisis of peasant agriculture are to be found in land tenure relations, market dependencies, the organization of the economy, the structure of the state, and the social relations of technological production (Bernstein 1982; Redclift 1987; Watts 1983, 1989). The implication is that if underlying causes of rural poverty are not addressed, promoting ITK will not get us very far—and that it may not even be an appropriate response.

Furthermore, while questions of ethnic identity and cultural politics are not absent in the literature on ITK (Richards 1990b), most writing focuses on the technological rationality of adapted peasant production practices (Knapp 1991). Yet agrarian technology is not merely an instrument for environmental manipulation, but a symbol that speaks to rural people of their social history and relationships and a sign by which they read their identity and their relationship with past, present, and future (Bebbington 1991).

Peasant incorporation of new ideas and material technologies can become a sign of the group's distance from its past and its changing relationship to other social groups (cf. Busch 1978, 453–55). Analysis of the role and relevance of technological alternatives must also consider these farmer perceptions on their past, their futures, and the development they desire. While it *may* be the case that farmers desire continuity with the past, we cannot assume this. It might also be the case that Indian farmers want to plant “like a white farmer,” perceiving technological modernization as a symbol of success in claiming rights of equal access to technical resources from which they were previously excluded.

These comments suggest that while a place must be kept for farmer agency, it must be situated in social, political, and cultural structures. It is imperative that socioeconomic and cultural change be at the forefront of how indigenous farmers' practices are understood. Similarly, as we build visions of alternative developments, the realities of the wider context must be paramount. This is even more the case when we consider the ways in which that context is currently changing.

## **A Changing Context: Indigenous Agriculture and the Challenge of Rural Modernization**

### **The “New Technological Agenda”: Technological Challenges to Indigenous Agriculture**

Entering the 1990s in Latin America, a series of “new” challenges to peasant agriculture is becoming apparent: some are genuinely new, while others are not so new for the people who live them but are new because analysts and policymakers have begun to recognize them. Either way, these changes delineate what has been termed a “new technological agenda” for the development of peasant agriculture (Kaimowitz 1991). Among the main changes are a growing crisis in the survival strategies of the popular sectors as a result of debt, inflation,

and adjustment policies in the 1980s (Lehmann 1990); currency devaluations, which have led to rapid price increases in fossil fuel-based agrochemical inputs, making it essential that the use of Green Revolution technologies be efficient and effective; and trade liberalization and the creation of regional trading blocks, leading to the removal of tariff and other barriers and opening agriculture up to competitive pressures. These changes increase pressure on small farmer production to increase productivity, lower costs, increase competitiveness, and use all inputs much more efficiently in both technical and economic terms (Kaimowitz 1991).

Rural peoples' knowledge of their land and crops will make important contributions to technical responses to this challenge, particularly in the identification of lower external input agricultural options. Nonetheless, there remain few experiences in which low-input agriculture has proven economically viable (cf. Ruttan 1991). Furthermore, the economic and technical efficiencies demanded require capacities for numeracy, economic abstraction, market research (e.g., identifying niche markets), and identification of cost-controlling, productivity-enhancing genetic material that the rural poor rarely possess (Byerlee 1987). A research project in Mexico, Brazil, Paraguay, and Peru in the 1980s found that formal and higher education had positive effects on productivity and income in rural areas precisely because it helped develop skills of abstraction and numeracy required to handle markets (Figueroa and Bolliger 1986; Cotlear 1989). Byerlee (1987) similarly argues that formal education and human capital formation are essential if the momentum of the Green Revolution in Asia is to be maintained.

Like it or not, the rural poor are firmly integrated into a capricious and changing market (Barsky 1990). Their well-being and survival depend on how they handle and negotiate this integration. It is doubtful that sufficient resources reside in indigenous knowledge systems alone. It is similarly clear that an adequate response must go beyond the purely agricultural

sphere. Rural livelihoods increasingly depend on nonagricultural, often nonrural, income sources (Barsky 1990; Klein 1992). Martinez (1991) reports on a region in the Ecuadorian highlands where 40 percent of rural families have two jobs within the countryside. In many areas, and for many people, agriculture is neither the only, nor the main, source of income.

For these reasons, alternative agricultural development must be placed in a wider context. De Janvry and Sadoulet (1988) argue that strategies to alleviate rural poverty should aim at promoting rurally based nonagrarian incomes. This would involve finding ways of increasing agriculturally derived incomes in order to create a demand for nonagrarian products and services that could be provided locally (see also Klein 1992). The essence of this strategy would be to find mechanisms facilitating the retention of surplus within a region. Such mechanisms might include new marketing arrangements and the incorporation of a processing stage to develop new forward and backward linkages within the regional food system.

### **A New Cultural Agenda? Cultural Challenges to Indigenous Agricultural Development**

The integration of rural areas into the wider economy brings a series of life-style changes in the countryside of the Andes and other developing countries. Modernity arrives in the form of fertilizers, radios, new textiles, bicycles, vans, school notebooks, school uniforms, and the clothes and cars of nongovernmental and governmental extension agents. With these and other changes come new aspirations, access to which requires an increased income. Farmers look for technologies that serve this end.

Yet with integration and modernization has also come a growing concern among some popular sectors to assert traditionally dominated identities (Slater 1985). In Ecuador, Indian assertiveness is manifest in the rise of the national indigenous movement, under the umbrella of the Confeder-

ation of Indigenous Nationalities of Ecuador (CONAIE). One of CONAIE's leaders identified their sociocultural and political strategy as involving "the search for our own identity, or rather, the forging of an identity that continuously adjusts itself to this society and this proposed democracy which as yet does not exist" (Mario Fares, in *Dinediciones* 1990, 3). Defining the contents of this strategy brings ambiguities, for, as Fares notes, ethnic identity is not static. Such ambiguities were apparent in June 1990 when CONAIE called on Ecuador's Indians to support a national uprising protesting against government apathy toward indigenous peoples' needs and demanding government support for, and recognition of, Indian cultural difference (Macas 1991, 23).<sup>2</sup> Yet, at the same time, CONAIE made demands for a full and fair incorporation of Indians into Ecuador's development process as their right as citizens of Ecuador. These demands seem reasonable on their own, but when combined they are potentially contradictory to the extent that CONAIE wishes to strengthen a conception of Indian identity that is largely grounded in past, more autarkic forms of social organization. Thus, CONAIE speaks of the recovery of indigenous crops, technologies, crop-environment theories, and cosmologies within larger strategies of ethnic self-determination and cultural revalorization (CONAIE 1989). Yet CONAIE also demands that Indians be allowed fairer access to markets, credit, research, and extension (Macas 1991, 26). In short, on the one hand CONAIE supports the perpetuation and recovery of cultural traditions, and on the other hand it demands access to the means of rural modernization and to the technologies and institutions of the cultural other. Not only do the latter demands sit awkwardly with those "traditional" practices and ideas in which Indian identity is being sought, they might also be expected to contribute directly to changing that identity and those traditions.

<sup>2</sup> Luis Macas was president of CONAIE in 1991.

These apparent contradictions point to the difficulty of defining and sustaining an Indian identity in a modernizing economy. A possible resolution of this contradiction can be found in CONAIE's claim that because indigenous peoples are both Ecuadorian and Indian they are entitled to both community self-determination and rights of access to state resources (Macas 1991, 25–26). The implication is that communities themselves should decide the balance between traditional and modern markers of their ethnic identity. I will argue that in some regions such a resolution has taken the form of a “bottom up” self-management of the modernization process based on indigenous forms of organization.

### **An Alternative Development for a New Technological Agenda**

We have, then, a resurgence of concerns for identities with roots in past practices. At the same time, we are faced with a “new technological agenda” that demands rapid modernization of indigenous resource management strategies, more efficient Green Revolution strategies, and the identification of new sources of nonagrarian livelihoods. Without such responses to the contemporary political economic context, indigenous people will not be able to secure the material basis on which to sustain any cohesive cultural identity at all. And yet, is it possible to sustain an ethnically distinct identity on the basis of transformed and modernized livelihood strategies? If so, how?

This dilemma, which confronts federations of indigenous communities in the Central Ecuadorian Andes, has also faced other groups, whose responses shed light on those of the federations considered in the case study. The experience of the indigenous peoples of Cayambe and Otavalo in Ecuador is significant here (Salomon 1981; Ramón 1988). In a context of severe land subdivision and erosion, local populations have followed several strategies to intensify livelihoods. The most renowned is the development of a

commercial textile sector, in which production and distribution is controlled by Otavaleño merchants and production is organized through a network of domestic units and small workshops (Salomon 1981). A less remarkable, but therefore more relevant, experience has occurred around Cayambe, where farmers have developed commercial onion production (Ramón 1988). Another indigenous group, the Chiboleos, have become known as producers, purchasers, and distributors of garlic. In all these cases, the intense commercialization of livelihoods and agricultural production is associated with the maintenance of strong markers of cultural identity in dress, language, kinship networks, and so on (Ramón 1988). The opposition traditional/modern is thus not an either/or proposition for the indigenous rural poor.

It is also significant that these groups' responses have involved more than simple adaptive, technological changes. Rather, indigenous people have also changed the regional political economy in such a way as to increase the accumulation of capital at the family and regional levels. Indigenous groups have gained additional control over relationships of exchange by marketing their own products, enhancing the quality of those goods (e.g., the Chiboleos), and processing more of the processed materials leaving the region (e.g., the weavers of Otavalo).

A further example from Bolivia is also relevant. This involves a federation of cooperatives, formed in 1977 among farmers settling the high jungle of the Alto Beni (Healy 1988; Bebbington and Thiele 1993). The development of the principal cash crop, cocoa, was constrained because (1) export markets were dissatisfied with the uneven quality of beans supplied, and (2) the farmers' local organization lacked operating capital to buy sufficient volumes of beans up-front from farmers, and so could not guarantee quantity (Healy 1988). Responding to this situation, and in order to facilitate access to technical, management, and financial support, the cooperatives created a formal federation (El Ceibo) to link, service, and represent

its member co-ops. Among the federation's early actions was the negotiation of financial support. This removed problems of operating capital, allowing the cooperatives to become more fully involved in marketing activities and processing. El Ceibo subsequently has increased its marketing and processing operations, expanding into export activities. The impact on family income has reduced out-migration. It now unites 36 separate cooperatives (Trujillo 1993), and in 1988 it sold \$1.5 million worth of cocoa and cocoa derivatives (Healy 1988).

The success of El Ceibo owes much to a concerted effort to develop modern business management skills among the administrators of the cooperatives and to introduce the technical innovations of modern cocoa research into farmer resource management practices. It thus presents a further case in which the approach of a peasant organization to farmer-controlled development has not been to reject modernization, but rather to pursue local and grassroots control of modernization. The experience of El Ceibo also suggests that technological modernization per se is not enough in order to launch successful grassroots-controlled rural development alternatives. There also has to be increased local control over the economic and social relationships that traditionally have contributed to the transfer of income and value from the locality to other places and other social groups.

## Searching for an Indigenous Agrarian Development in Central Ecuador

### A Changing Context for Indigenous Agriculture in Chimborazo

Discussions of a viable, indigenous agrarian development are as lively at the local and grassroots level as they are among geographers and other commentators. Indeed, theoretical formulations of development alternatives can learn much from these debates. Local debates on the future of agriculture in the counties

(cantónes) of Colta and Guamote, province of Chimborazo, have presumably occurred as long as indigenous people have been living in the area. But they began in earnest in the 1960s, when discussions, and then programs, of agrarian reform began to raise the issue of the role of indigenous peoples' agriculture in national economic development. Land reform legislation was passed in Ecuador in 1964 and 1973 (Barskey 1984). Peasant struggles for land were so intense in Chimborazo (particularly in Guamote) that internal security concerns led the government to declare the region a priority zone for the implementation of the 1973 legislation (Haney and Haney 1989). This ended most of the rural estates (haciendas) that had previously dominated indigenous people (*runas*) in Guamote and Colta.<sup>3</sup>

Two main broad production systems existed prior to land reform. The hacienda dedicated a relatively small area of land to crops, the remainder staying in pasture. This allowed a rotation with long fallow periods, although by mid-century some agrochemicals and new crops were introduced. Many *runas* first experienced modern technology on the haciendas, or in sharecropping arrangements. The *runa* production system was based upon small plots of land dedicated to a wide range of traditional crops grown primarily for family food. Agrochemicals were rarely used. The sustainability of the *runa* system depended, however, on heavy inputs of manure from animals kept on the hacienda's pasture lands. This textbook agroecologically sound indigenous agriculture ended with land redistribution. Hacienda pastures were divided among *runa* farmers and turned to crops. Organic fertilization strategies therefore became increasingly problematic. Also, as population increased, land was further subdivided and fallow periods reduced. No intensification, such as stall feeding of

<sup>3</sup> The term *runa* means "person" in the local quichua language.

cattle or terracing, has occurred, and soils have degraded.<sup>4</sup> The use of chemical fertilizers and pesticides has increased with their greater availability, guaranteeing production from crops weakened by poorer soils.

Such agroecological changes were accompanied by socioeconomic transformations. Increased market orientation discouraged the cultivation of little-demanded, traditional Andean crops and favored production of marketable Andean crops (such as potato and broad bean) and horticultural crops (such as onions, garlic, carrot, and beetroot). Land subdivision in the context of local joblessness (itself an effect of regional underdevelopment and the failure of former estates to reinvest their surpluses productively) has led to increased seasonal migration to urban and coastal areas. Although a necessary survival strategy, this is certainly not favored. *Runas* associate periodic migration with mounting social problems and weakened cultural practices in their communities. As a consequence of migration, participation in community activities has declined, health problems, petty theft, and violence have increased, and manners have deteriorated.

These postreform changes suggest an increasing reproduction squeeze (Bernstein 1982) on the *runa* economy. This has become increasingly severe since the mid-1980s, with rapid inflation and austerity measures implemented to control inflation. These policies have increased the costs of agrochemicals and have been prejudicial to the terms of trade for most *runa* products, further increasing pressure to migrate, even though urban labor markets are themselves tightening (Bebbington 1990). The effect of the most recent policy change—free trade blocks—is less clear. Ecuador has only re-

cently opened its doors to free trade with Colombia and other countries. It is clear, however, that in order for *runa* farmers to survive in these new policy environments and to take advantage of opportunities as they arise, they will require increasingly efficient production strategies and knowledge of processes in distant markets.

The demise of the hacienda economy has also meant a steady depopulation of whites and *mestizos* from small rural towns, leaving them increasingly dominated by *runas*.<sup>5</sup> Contemporaneously, the state has encouraged the organization of land reform beneficiaries into indigenous communities. This recomunalization of rural space (Ramón 1988; Chiriboga 1988) makes white and *mestizo* state functionaries seem increasingly out of place in rural areas whose culture and systems of everyday control have changed.

#### **Institutional Responses to Change: Perspectives on an Indigenous Agrarian Development in Chimborazo**

Agroecological, technological, and social changes such as these set the context for current perceptions of possible and desirable futures for indigenous agriculture. Debate has been conducted among a range of institutions that began or increased their operations in the region after the period of land reform. Each promotes its own particular conception of what it means to be indigenous, of the relationships between identity, technology, and indigenous social organization, and, indeed, of the nature of a viable indigenous agrarian strategy. These conceptions have changed over time—partly on the basis of experience, partly in response to a continuously changing con-

<sup>4</sup> The reasons for this are uncertain. The lack of terracing apparently reflects farmers' calculations that they can earn more by migrating than by investing time in terrace construction (although recent experiences suggest this may not be true). Stall feeding has not, to my knowledge, been promoted in the region.

<sup>5</sup> *Mestizos* are mixed race Spanish-Indians who identify culturally and politically with whites more than Indians. They form the largest part of the national population, whereas in Colta and Guamote Indians constitute the majority.

text, and partly as institutions incorporate elements of each other's approach.

In this section, I consider the models of agrarian development pursued by the state, the church, NGOs, and Indian federations. In essence, I argue that, over time, the radical church, the NGOs, and the federations have laid aside purist conceptions of indigenous agrarian development. In the process they have increasingly incorporated elements of Green Revolution technology, recognizing that in certain instances traditional technologies are no longer viable alternatives. However, they are far from adopting the same conception of modernization as that of the state. The essential difference between the two is self-management—the notion that local space, and modernization within it, should be administered and negotiated by Indian organizations at the communal and supra-communal levels. The emphasis on the community, a more traditional unit of self-management, also builds on historical identities and is itself an element of cultural revalorization, even if that community is managing modernization.

**The State.** State agencies in Chimborazo have, to different degrees, promoted the use of Green Revolution techniques. This approach initially was based on the idea that *runas* who had just received land in the agrarian reforms required technical assistance to make that land produce (Barsky 1984). Some have argued that this was also a program of cultural assimilation, aiming to turn Indians into Ecuadorians (Frank 1991, 521). *Runa* farming was considered backward and in need of modernization. Discussion of indigenous adaptations and the possibility that agricultural development should be based on them scarcely arose in state initiatives. Similarly, *runa* participation in the design, implementation, and monitoring of projects has been minimal.

This governmental approach to agrarian development has become the model against which NGOs and more radical Indian federations have contrasted their

own work. Yet, the state model certainly had impacts on *runa* perceptions of the future of indigenous agriculture. A generation of young indigenous adults (now in leading positions) grew up knowing a state presence in their communities. Many now believe that the reproduction of indigenous agriculture and society will necessarily be mediated by state resources. A belief also prevails that it is the state's responsibility to give this support, and that it is the *runa's* right to demand it.

**The Church.** The church in Latin America has had a significant impact on development at a local level and on broader debates about alternative forms of development (Lehmann 1990). This is the case for both the Roman Catholic church and the growing Evangelical Protestant church (Stoll 1990).

The Catholic church's previously conservative role in Chimborazo was undermined by land reform and the rise of Liberation Theology (Lehmann 1990). Taking the side of the indigenous poor, the church in Chimborazo became directly involved in promoting social change. Ecclesiastically, the church has fostered greater levels of *runa* involvement in the administration of the rural church. In addition, the church has been politically active, supporting land invasions and a wide array of popular educational activities which encourage *runas* to claim political rights and make demands on the state.

The church also became directly involved in grassroots development, fostering a particular model of rural development for indigenous people. This model involved the revalorization of *runa* culture as a first step to a heightened political awareness and stronger indigenous political organization (Proaño 1989, 40). As part of this revalorization, church programs have claimed that one of their goals is the recovery of traditional crops and land use practices. Yet, at the same time, in its political conscientization work, the church encourages peasants to demand resources for rural modernization from the state.

Indeed, the church in Guamote has itself channeled state resources for credit and agrochemical input distribution projects to Indian communities. There is thus a mismatch between the church's rhetoric on indigenous development and its practice.

This mismatch does not exist in the Evangelical church, which is far more consistently modernizing in its outlook. It fosters the use of good seeds and agrochemicals as means of controlling the environment. Similarly, Evangelicalism is strongly committed to a basically Western model of improved life-styles, health care, and housing. Nevertheless, criticisms that the Evangelical church has, through its modernizing influence, sought the eradication of *runa* culture are misplaced. Alongside a commitment to modernization is a concern that *runas* continue asserting their cultural difference through language, dress, strong local organizations, and indigenous control of rural space and social life. Church administration has deliberately been decentralized, with churches controlled by the community, and church-supported agrarian projects have involved high levels of decision making by indigenous people. The church has also taught that *runas* should be self-confident in taking control of their own lives, asserting their claims to overcome prior subjugation, and seeing themselves as equal to non-Indians.

Both the Catholic and the Evangelical church have therefore been willing to mix modernity with more traditional markers of Indian cultural identity. Access to modern technology is seen partly as a right and partly as a necessity in the face of economic and environmental change. Most importantly, both churches have shown that a traditionally white-*mestizo* institution, the church, can be subjected to greater local control by Indians.

**The NGOs.** In Latin America, a generation of NGOs have contested dictatorial and often repressive regimes. In the process, they experimented with locally controlled, low-tech, and participative approaches to development and social

change. Consequently, some commentators see them as auguring a more democratic form of development (Lehmann 1990).

In the agricultural sphere, many argue that NGOs promote strategies that build on farmer knowledge, agroecological techniques, and local cultures (Altieri 1990). However, a recent overview of NGO operations suggests that while this claim is fair up to a point, the number of NGOs pursuing purely agroecological strategies is relatively limited, with even fewer promoting the use of purely traditional technologies (Bebbington and Thiele 1993). There is, of course, much diversity among NGOs, but many are less "alternative" in practice than in rhetoric (Farrington and Bebbington 1993). On the basis of experience, many have moved away from generalized and dogmatic commitments to a particular approach to agricultural technology, toward approaches that find a middle ground between modern, agroecological, and traditional technologies.

Yet it is also the case that the approach of most NGOs differs from that of the state in agricultural development. NGOs work more cautiously with Green Revolution technologies, offer more scope for the participation of rural people, and would deem themselves committed to "bottom up" as opposed to "top down" development. At the same time, NGOs emerging from radical roots link this work with social organizing activities (Carroll 1992). The development alternative coming from progressive NGOs in Latin America today is one primarily aimed at increasing the capacity and organizational strength of the rural poor to influence and take advantage of modernization (Bebbington and Thiele 1993).

Such broad Latin American patterns are also apparent in Chimborazo, where NGO activity in Chimborazo dates from the early 1970s. Among the most active and strongest organizations are World Vision, the Ecuadorian Center for Agricultural Services (CESA), and the Ecuadorian Fund for the Progress of the

People (FEPP).<sup>6</sup> World Vision is closely associated with the Evangelical church, FEPP with the radical Catholic church, and CESA with Catholicism and Christian Democracy. World Vision is a northern NGO, whereas the other two are Ecuadorian.

All aim at increasing *runa* participation in, and control of, NGO agricultural projects. They share an insistence that indigenous farmers claim their right to benefit from state services and resources. There is variation, however, in the technologies they promote for indigenous agriculture, in the extent to which they consciously try to increase peasants' propensity and capacity in claiming rights, and in their approach to cultural tradition.

Strongly influenced by liberation theology, FEPP seeks to strengthen Indian organization, self-management, and culture. Rather than "doing extension on communities," FEPP concentrates on training Indian promoters to work as agricultural advisors in their own sectors. Similarly, the organization's respect for, and attempts to recover and revalidate, "traditional" technologies are part of a concern to affirm *runa* cultural practices and promote agroecological alternatives. FEPP thus attempts to discourage agrochemical pest control and fertilization, instead experimenting with organic and low external input fertilization and pest control techniques through compost management, green manuring, application of ash to soils, intercropping, terracing, and so on. It similarly favors Andean tubers and grains and the use of native crop varieties. The farmers FEPP works with, however, prefer modern technologies and varieties. FEPP has therefore provided credits to purchase such inputs, while still encouraging farmers to think about the causes and implications of agrochemical use and of the loss of traditional crops. In

turn, the peasants' ideas have also influenced FEPP's thinking, fostering a slow acceptance of the notion that modern technologies have a role to play in any future indigenous agricultural development.

CESA is specifically concerned with creating local organizations that increase *runa* ability to pressure the state for resources (CESA 1980). A longer-term aim is for these peasant organizations, once strengthened, to continue to administer their own agricultural projects, with declining assistance from CESA. Stronger organizations are seen as vehicles for increased peasant influence over the state to orient its work to the needs of the rural poor, and away from those of large farmer organizations. Underlying this vision is a model of an indigenous agricultural future integrated to national development, using, in a scaled-down form, modern technologies generated by the public sector. Many CESA staff members accept that much traditional indigenous technology is not viable for contemporary conditions. This is a vision of an indigenous alternative combining indigenous forms of social organization with Western technologies.

World Vision's approach is considerably different, promoting the rapid modernization of *runa* agriculture with dissemination of agrochemical technologies and new seed. While aspects of these actions are justifiably criticized (CEPLAES 1984), the NGOs' field workers argue that they give *runas* access to technological and income possibilities from which they were previously excluded. They also encourage community control and implementation of these modernization projects. Almost all project field staff and promoters are Indian. Again, the model is a combination of Western technology and indigenous administration.

While there are technological differences among the NGOs, the common threads are more significant. Each speaks of indigenous farmers having rights equal to whites and *mestizos*. Each also tries to pass on project administration to *runas*. The details may differ, but the principle of promoting self-management has been common throughout. In all (and exces-

<sup>6</sup> In Spanish these are, respectively: Visión Mundial; Central Ecuatoriana de Servicios Agrícolas (CESA); Fondo Ecuatoriano Populorum Progressio (FEPP).

sively so in World Vision), we see recognition of the limits of ITK. And, despite differences in strategies, the NGOs have had somewhat similar impacts on the indigenous farmers' attitudes to agriculture, the state, and self-managed rural development.

**Indian Federations.** Following the struggle for land, the emergence of stronger and more numerous communities as units of territorial administration has been one of the most significant sociopolitical changes in rural Chimborazo. At the same time, a novel form of indigenous organization—the federation of indigenous communities—has emerged. The federations engage in both political and developmental functions, negotiating with public agencies on the one hand and implementing development projects on the other. There are a number of federations in Chimborazo. The more radical trace their origins to disputes over land and other matters, and have often been linked to the national indigenous and peasant movements and to the Catholic church. The more developmentalist have origins in negotiations over access to resources from the state and donors.

NGOs, the Catholic church, and government rural development programs have promoted the federations, working with them in political conscientization work, in negotiations with the state, and in agricultural development programs. Indeed, the growth and increasingly strong self-management capacity of the federations results in part from support from other organizations and donors. Neither the federations nor their programs are entirely “endogenous” innovations. For instance, the federations' agricultural programs, which typically involve seed and input supply, farmer-to-farmer extension, and some on-farm research, are modeled closely on NGO and state programs.<sup>7</sup>

However, if grassroots control, rather than technological content, gives strategy

its “alternative” character, what matters is not whether agricultural development strategies are endogenous, but whether they are locally controlled. While in the federations this local control is not perfectly democratic, with certain groups exercising more influence over the federations than others, the federations are nonetheless more accessible and accountable to local people than any other development institution.

The emergence of these federations reflects a further stage in the recovery of Andean space by Indians. Going beyond the recovery of land as means of production, the federations are slowly recovering the administrative control of rural space, taking back terrain once administered by the hacienda and questioning the very control of space by the state and white-*mestizo* society. As white and *mestizo* presence declines, rural areas are thus being returned to indigenous people as space in which to practice their culture and agriculture.

The federations' perspectives on the relationships between technology and ethnic identity in an indigenous agricultural development can be understood within this conception of increasing Indian control of rural areas. This is not to say that the rationales stemming from this conception determine the federations' strategies—socioeconomic and ecological processes are equally important factors—but it is to say that this rationale gives meaning to these strategies. The result is the constitution of a vision of Indian agricultural development that embraces concerns for agrarian technology, a stronger *runa* cultural identity, and control of rural space. The form in which these concerns have been combined has varied over time and among federations. I suggest, nevertheless, that the overall objectives have been far more consistent.

In Chimborazo, the main point of debate among and within Indian federations is the extent to which they should work with and disseminate modern agrochemical and crop technologies, as opposed to traditional, low input technologies. The more radical fed-

<sup>7</sup> Except that the state has not used farmer-to-farmer extension strategies.

erations emphasized the recovery of traditional culture and technology in their earlier work. Their programs of agricultural development promoted the recovery of Andean crops, use of organic fertilizers, and replacement of pesticides with supposedly traditional methods of pest control. The rationale underlying this strategy was that it constituted a rejection of the agricultural technology associated with white and capitalist culture, while at the same time affirming and validating indigenous identity (MICH 1989, 199). It also reduced market dependence, costs of production, and environmental pollution. Social and cultural empowerment, in these strategies, was to be based on an agrarian development built on traditional practices. However, promoting this alternative among *runa* farmers already producing for the market, and who had little land from which to produce organic manures, proved difficult. Pressures from their members have led the federations to work with agrochemicals, new varieties, and cash crops. Their focus now is on improving efficiency and farmer knowledge of the risks of such products.

In making this shift, these radical federations have approached the model of more "developmentalist" federations which endorse and promote the use of modern technology through their own research, extension, and input supply programs. They argue that this technology can improve *runa* income. They also deem it a necessary technological response to the grazing crisis and soil degradation in Colta and Guamote. The cultural justification for such strategies is that *modernization, far from being a cause of cultural erosion, is explicitly seen as a means of cultural survival*. Periodic migration, and the problems associated with it, is seen as more of a threat to *runa* cultural coherence than the use of agrochemicals and new crop varieties. Technological modernization, along with the promotion of non-traditional cash crops, is therefore justified as a strategy for increasing local income opportunities and reducing pressures on migration. The principle is that indigenous cultural identity hinges on sustained and corporate rural residence, and not so much

on retaining traditional technologies. The implication is that indigenous economy and culture must constantly adapt in order to survive and sustain group cohesion and forms of self-management. In this regard, the federations are following strategies similar to those of the Indians of Otavalo, Chiboleo, and Cayambe, discussed earlier (Salomon 1981; Ramón 1988).

At the same time, there is a politically radical dimension to this bottom up modernization. Many *runas* associate "traditional" technologies with the subjugation of the hacienda and wish to distance themselves from the associated agrarian practices. Rejecting traditional technology is, in this sense, a metaphor for the rejection of social relations. To embrace modern technologies is to make a statement about Indian social equality and the rights of indigenous people in demanding access to benefits (including technological resources) that historically were the preserve of whites and *mestizos*. This use of modern technology is thus part of the wider discourse on citizenship rights.

In addition, the hoped-for benefits of modernization—reduced migration, increased community cohesion—are also intended to strengthen indigenous organizations as sociopolitical vehicles for demanding social and political change, access to resources, and a more prominent role for Indians in rural development and rural government. Such demands are given cogency by the fact that Indian federations' management of rural modernization reflects an attempt to demonstrate Indian ability to use and manage modern administrative methods in a style similar to state programs. If Indians are able to administer rural modernization through their own organizations, the ethnic exclusivity of state rural development administration is no longer justifiable.

The rationales for fostering technological modernization are thus clear. It seems a necessary response to the realities of market production, soil degradation, and land subdivision, and is more in tune with farm family concerns than are strategies aimed at recovering traditional practices.

It also has politically progressive resonances, in that it need not be interpreted as cultural assimilation. At the same time, it is part of a strategy aimed at offsetting the underlying causes of sociocultural dislocation in communities and strengthening *runa* political organization.

Whether technological modernization alone will be able to achieve these goals is a moot point, given the many challenges to peasant agriculture. If, as de Janvry and Sadoulet (1988) argue, an increase in farm-level accumulation is a necessary precursor to rural development, additional changes in the marketing sphere are also required, so that the benefits of technological innovation are captured at a farm level.

Recently, in part recognizing this limitation, several federations have begun to consider marketing and processing activities. With donor support, one federation—the Union of Indigenous Communities of Guamote (UCIG)—has begun to challenge the position of intermediaries in the marketing chain by establishing its own marketing program, bulking member community produce for sale in other parts of the country. It has also opened a plant to process cereals and the Andean grain, *quinoa*, into flour in order to capture a higher price. The ownership of the plant is to be shared between UCIG and the communities that provide it with cereals. The program also serves to improve nutritional status in communities by requiring that farmers receive a percentage of their payment in the form of the protein rich *quinoa* flour.

These are but small steps, and this paper is not the place to discuss the mechanics of these programs (see Bebbington 1993). The point is that, once again in conjunction with an NGO, the federation is extending the frontiers of modernization. These new programs mark a recognition by the federation that agriculture alone cannot be the basis of *runa* development, and that other income sources are required. The programs therefore try to create, in the federation and in communities, administrative capac-

ity, accounting skills, and market acumen. Of course, this idea that small industries are important in rural development is not new. What is relevant to our argument, however, is that again an orthodox idea has been brought under the control of the federation for quite radical objectives: in the process, an orthodox approach is turned into an “alternative,” locally controlled, and indigenous strategy of rural development.

## Conclusion

I have explored the reasoning underlying the strategies of agrarian modernization pursued within Indian federations and NGOs in highland Ecuador, and the implications these hold for approaches to understanding change in indigenous agriculture. I have also, secondarily, considered the adequacy of these strategies.

**Rationales for Federations’ Approaches to Agrarian Development.** Indian people in Chimborazo perceive a close relationship between residing in rural areas and sustaining their identity as indigenous farmers. An “indigenous” agrarian development must therefore allow occupation of traditional Indian spaces. In the current political economic and agroecological context, productive strategies based on nonmodernized technologies do not appear to be viable means of ensuring this objective. Ethnic identity will be grounded in other social, cultural, and linguistic practices and not in traditional technology.

Indian federations and NGOs seem to be reaching this conclusion. In their programs they have encouraged the incorporation of modern technology into local farming practice, in an effort to offset migration and improve rural welfare. Contrary to the implications of some critical writings on the Green Revolution, this suggests that technological modernization can be a rational response to circumstances, and that it can at the same time have politically and culturally progressive overtones. This challenges how we think about indigenous agricultural

revolutions (Richards 1985) and the relationships among culture, technology, and politics.

For an agrarian development strategy to be indigenous depends less on the technological content of that strategy than on its social control and objectives. The objective in Chimborazo is to sustain livelihoods to allow the survival of other social practices that continue to mark these people as indigenous.

**The Adequacy of Technological Modernization.** To have a rationale is not, however, enough. Strategies have to be effective. It is perhaps too early to tell how effective these strategies will be in Chimborazo, but recent tendencies suggest that some federations feel that technological modernization per se may not be sufficient to achieve the objectives expected of it. Recognizing this limitation, however, does not take us back to reaffirming the indigenistic and farmer-first proposals for agrarian development. Instead it requires us to take the case further. A viable indigenous development will require a restructuring of marketing and other social relationships to allow the production of higher-value and processed products under the control of rural people, allowing higher farm incomes. Only then will the underlying forces leading to out-migration begin to be genuinely addressed.

The challenge is therefore not to resist modernization, but to control it and take it further, increasing indigenous peoples' abilities to negotiate market relationships, administer rural enterprises and agroindustry, and compete in a hostile market. In Chimborazo, the case of UCIG suggests that this is a path federations are beginning to tread. Other Ecuadorian experiences suggest that a viable indigenous development, which at the same time respects and strengthens ethnic identity, *can* be based on such a strategy.

**Implications for Theory.** At the beginning of the paper I suggested that we need to understand ITK as a dynamic

response to changing contexts—a response constructed through farmers' practices as active "agents" who are "situated" within cultural, economic, agroecological, and sociopolitical contexts that are products of local and nonlocal processes. The case study has endorsed this. Indian identity and agriculture in Chimborazo has changed and responded to wider socioeconomic processes. On the one hand, these processes have challenged the viability of indigenous agriculture, most evidently in the declining relevance of traditional practices and in the current pressures deriving from the macroeconomic changes driving the so-called new technological agenda.

Yet at the same time these wider processes provide resources and ideas that are taken in and reworked by indigenous peoples. I have suggested that the federations' strategies, and indeed the very existence of federations, have been influenced by the churches, NGOs, and state organizations. Similarly, the ways in which federations and farmers have interpreted technologies have been influenced by local history. Perhaps the most acute illustration of how the wider context can both constrain and enable the strategies of the rural poor is their insertion into the market. While certain forms of insertion can prejudice the sustainability of indigenous farmers' agriculture, if that insertion is renegotiated, as with the current processing and marketing programs of UCIG, the market may be used to strengthen indigenous farmers' strategies, and, ultimately, their organizations.

The experience in Chimborazo illustrates how analyses of indigenous agrarian strategies can benefit if we take a more critical look at the rationales and factors which underlie them. These strategies are not mere adaptations to environment. They are influenced also by cultural and political logics and socioeconomic exigencies. Furthermore, they may take a form that on the surface seems counterintuitive—for instance, the incorporation of modern technology and administration as part of a strategy aimed at cultural

survival. Whether or not these responses are adequate is a secondary question. If we do not understand the reasoning that underlies them, we will never be able to make a useful contribution to an "alternative" rural development, but instead we will run the risk of imposing our conceptions of what is "alternative" and of what it is to be "indigenous."

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