Ecuadorian Studies / Estudios ecuatorianos No. 1 (Sept. 2001)

INTERNATIONAL NGOS AND SUSTAINABLE AGRICULTURAL DEVELOPMENT: A METHODOLOGICAL ANALYSIS WITH EXAMPLES FROM HIGHLAND ECUADOR

by

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Abstract: A recent focus of the literature on non-governmental organizations (NGOs) has been their organizational and institutional capacities in relation to states, donors, and other NGOs. However, there is a continuing need to know what NGOs do in the field, the methods they use, and the results obtained at the community level. A field study of the projects of two international NGOs working in highland Ecuador offers conclusions about what NGOs need to do in order to promote sustainable agricultural development. The results suggest that NGOs must focus their efforts on community organization, income improvement, natural resource management, and actions that help local people deal effectively with larger society. Project methods were grounded in the principles of participatory development and agroecology. Both NGOs demonstrated the ability to learn from experience and to change and improve the methods used. Project activities that emphasized education and technical assistance over give-aways and expensive inputs, offered a greater possibility of achieving lasting results and reducing problems associated with paternalism.

INTRODUCTION

Since the early 1980s, non-governmental organizations (NGOs) have received a great deal of attention. There is little doubt that NGOs have become important actors in the international development arena. Over the last decade, the number, size, and types of NGOs have proliferated. NGOs are playing an ever increasing role in grassroots organizing, service delivery, consulting, and policy making. In Latin America, NGOs have captured considerable institutional space as governments restructure, scale back services, decentralize, or simply fail to

meet the needs of marginal groups within society. NGOs are praised for being small-scale, flexible, low cost, innovative, and participatory. International donors are increasingly channeling development funds through NGOs and engaging them to direct and advise on development activities.

In the 1980s, much of the literature focused on defining NGOs, contrasting them with top-down governmental programs, describing methods of participatory development, and documenting specific NGO projects (e.g., Annis and Hakim 1988; Breslin 1987; Hirschman 1984). In the early 1990s, a great deal of attention was focused on the larger impact of NGO activities. "Scaling up" was an important focus as NGOs looked to expand the scale of achievements and influence the larger policy environment (Bebbington and Farrington 1993; Carrol 1992; Korten 1990). There was a shift away from examining NGO activities at the grassroots level toward a focus on their organizational capacities and institutional characteristics. Many NGOs were formed, not to carry out development projects in communities, but to act as intermediaries, advisors, and advocates (Clark 1991). The issue of sustainable development also moved to the forefront of the NGO debate in the 1990's (Farrington and Bebbington 1993; Fisher 1993; Meyer 1993; Price 1994). Increasing concern over the impacts of economic change led many NGOs to seek ways to halt environmental and social degradation, create lasting improvements in standards of living, and to maintain project accomplishments over the long term.

A body of recent NGO literature also addresses NGO relationships with states and donors (e.g., Bebbington and Theile 1993; Hulme and Edwards 1997). The issues of accountability and legitimacy have become important too as NGOs try to satisfy needs at the grassroots, and among donors and policymakers (Bebbington *et al*. 1993; Bebbington 1997). This focus on the organizational characteristics of NGOs is important, especially if they expect to have a larger impact. However, there continues to be an urgent need to know what NGOs actually do in the field, the methods they use, and what actually works (and what does not) when engaged in the everyday process of doing development work at the grassroots. If the project implementation strategies that affect the people at the grassroots level are not working, then impacts on the wider scale becomes irrelevant.

Bebbington (1993), Clark (1991), and others warn that the effectiveness of NGO actions should not be assumed. NGO interests can vary greatly, often putting them in conflict with each other or with governments, and the lack of coordination within the NGO sector often results in the duplication of services and a waste of resources. Furthermore, NGO project methodologies used in the field can cause conflict within project communities. Too often international donors and NGO directors believe that the project is successful if the funds get to the grassroots and the project activities are implemented.

The purpose of this paper is to examine the project implementation methodologies used, the results obtained, and how the methods changed over time by PLAN International and CARE, two well funded international NGOs, that do development work in Latin America (and elsewhere). Case studies of the work of these NGOs in agriculture in a region of highland Ecuador are used to draw specific conclusions.[1] Much is already known about what NGOs want to do, what they say they do, and what others say they ought to do. This paper provides an empirically-based community-level analysis of what international NGOs actually do, and

provides insight into what they need to do in order to promote sustainable agricultural development in marginal communities in less developed countries (LDCs).

METHODOLOGICAL PRINCIPLES UNDERLYING NGO WORK

Over the last decade, field experience and academic research have provided much information about NGO project activities. The methods used by NGOs to promote sustainable agricultural development among smallholders in LDCs have converged around a few key principles. They are: (1) participatory development; (2) wider impact (expanding the scale of NGO involvement), (3) sustainable development; and (4) agroecology. Participatory development is an approach that has been developed and tried extensively by NGOs. The goal of participatory development is to teach people a process by which they can take charge of their lives and develop their own agricultural and community programs (Bunch 1982). In contrast to large, heavy-handed, top-down development programs usually financed by governments and multilateral aid agencies, participatory development projects are small-scale, self-help, and bottom-up. They attempt to use available technology and resources. The poor themselves participate in the planning, implementation, and management of their own projects, which leads to more appropriate project activities, more interest, and better maintenance of projects (Fisher 1993). Nonetheless, the data presented in this paper reveal that the type and degree of participation vary among NGOs.

Participatory development is grounded in the belief that, "despite their poverty, poor people possess substantial resources, knowledge and understanding of their circumstances, the will and persistence to make things better, and the capacity to organize and mount collective action" (Annis and Hakim 1988, 1). Given that poor farmers today are faced with serious challenges and resource limitations, sometimes a small financial, technical, or organizational input may be needed to jump-start the development process. However, in order to avoid problems with paternalism and dependence, the role of "outsiders," and the use of complicated technology and give-aways must be limited. Projects pay strict attention to local customs, especially in areas inhabited by native peoples, and project personnel who are farmers and community members are preferred. The participation of women is also an important issue (Fisher 1993; Mehra 1997). NGOs must focus on empowering and enhancing the productive capacities of women, not just on their domestic and reproductive roles.

The second key principle is that of wider impact. As stated above, in order to extend results and change the way development is done, NGOs are increasingly involved in policy issues and cooperative arrangements. At the community level, however, the organizational methods of NGOs can enhance peoples's abilities to deal with the larger society, and ultimately to address the institutional problems that must be faced if long term improvement is to be achieved. Bebbington (1996) argues that in a rapidly changing world, indigenous communities are increasingly required to forge new market relationships, manage the development of on- and off-farm technologies, and negotiate new relationships with other organizations and institutions. This will require "modernized" forms of indigenous management techniques. International NGOs, as outsiders, can and do play a role in this process.

The third methodological principle for NGO work is sustainable development. Most NGOs claim to be proponents of sustainable development, but there is no consensus about its meaning.

As used in this study, sustainable development refers to the maintenance or expansion of production without degrading the natural resource base or social structures upon which a production system depends. Issues of ecology, economy, social organization, time, scale, and technology are all relevant. It is clear, however, that economic development in Latin America has come at a huge price to the physical environment and to local production systems and culture (Lélé 1991; Norgaard 1988; Redclift 1987; Wilbanks 1994). NGOs are key actors in determining what must done in order to promote sustainable development, but participatory development and local control constitute part of the sustainable development process.

The last key principle is agroecology, which provides the farming techniques for promoting sustainable agricultural development among small holders. Altieri (1992), Altieri and Hecht (1990), and Kaimowitz (1993) outline an agroecological approach to small farm development that focuses on recovering and building upon traditional resource management techniques. The starting point is "the improvement of traditional mixed farming systems in small autonomous units of production by encouraging and building on indigenous knowledge, experimentation and adaptation" (Conway and Barbier 1988, p. 668). However, in order to survive in today's commercial economy, farmers must be competitive and diversify into more profitable crops. Modern inputs and methods are used to assist, complement, and improve upon what farmers already do well (Kaimowitz 1993).

Agroecological methods focus heavily on soil and slope management practices, such as cover cropping, composting, no-till and conservation tillage, contour plowing, crop rotation, and physical and biological barriers to erosion. Pests, diseases, and weeds are managed using biological, mechanical, and sometimes chemical methods. Annual crops, livestock, and trees are brought together to gain maximum use of space, and there is greater emphasis on multiple cropping systems that are adapted to the constraints faced by small farmers. Agroecological methods are generally labor and management intensive, not capital and technology intensive; and by definition, they are sensitive to ecological and cultural constraints. Ruddell (1995) and Wilvert (1995) reported two-fold increases in yields in Bolivia and Honduras respectively using these methods. The data in this paper show a convergence of NGO methods used in the field based upon combining the organizational methods of participatory development with the natural resource management methods of agroecology.

CHANGING RURAL CONDITIONS IN HIGHLAND ECUADOR

Ecuador, an Andean country with a population of 12.5 million people (PRB 2000), is commonly divided into three geographic regions, with noticeable patterns of uneven development in the rural areas (Figure 1).[2] The Andean highland region, known as the *Sierra*, has the longest known history of settlement and the highest population density. The Sierra is a region of extensive estates (*haciendas*) and traditional agriculturalists, where landlords historically have exhibited high levels of social and political control. Most of the approximately 1.5 million indigenous Quichua speakers in Ecuador live in the Sierra. The coastal lowlands, or *Costa*, are dominated by commercial banana, rice, sugar cane, and shrimp farms using modern market-oriented production techniques and employing wage labor. The sparsely populated lowland area in the Amazon basin, referred to as the *Oriente*, has gained attention from recent colonization and oil

development. Within this regional structure, there are thousands of small, marginalized, highly fragmented holdings, or *minifundios* (Brown *et al.* 1988; Redclift and Preston 1980). Minifundios are holdings of less than ten hectares and are worked by poor peasant farmers.

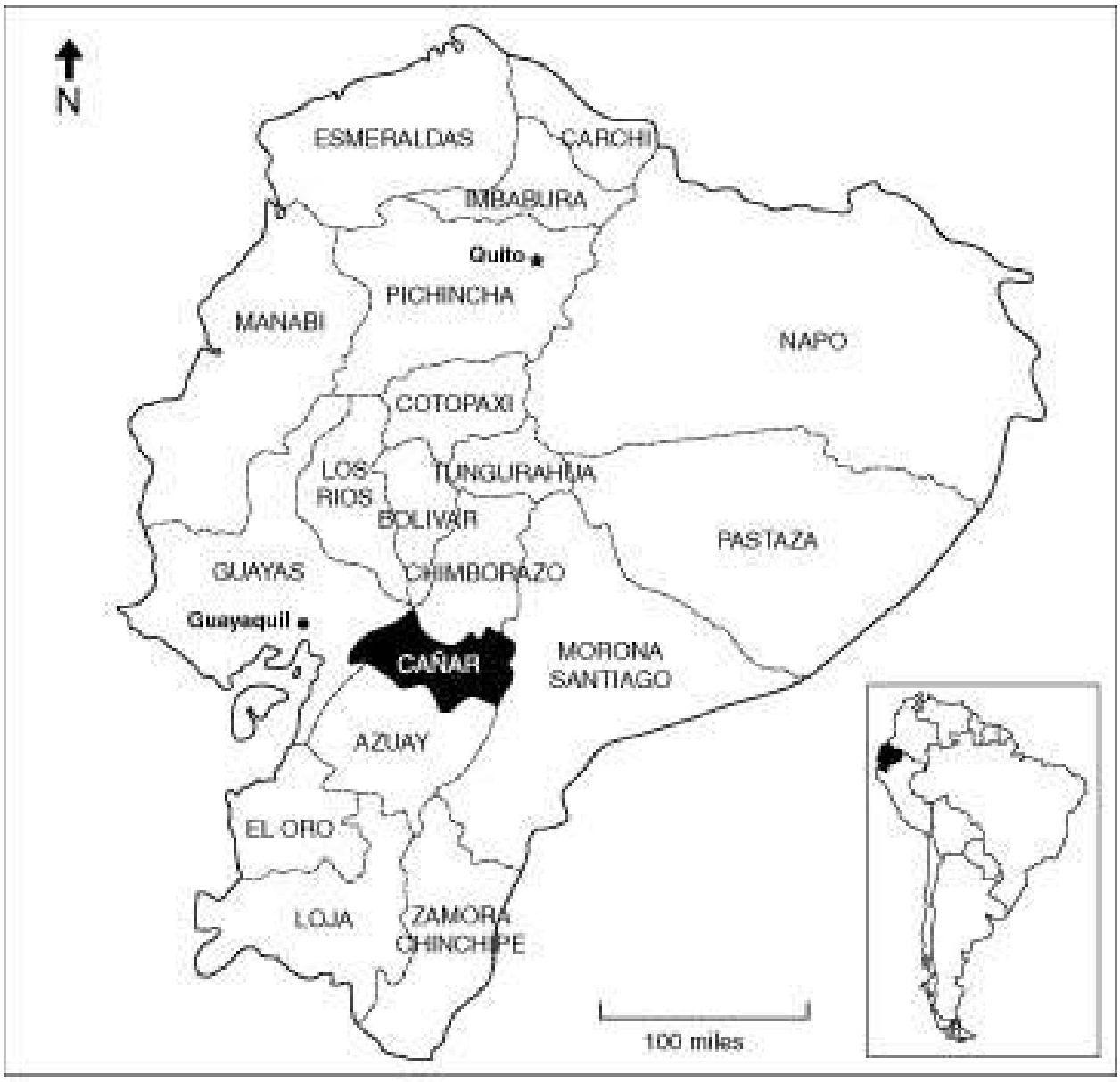


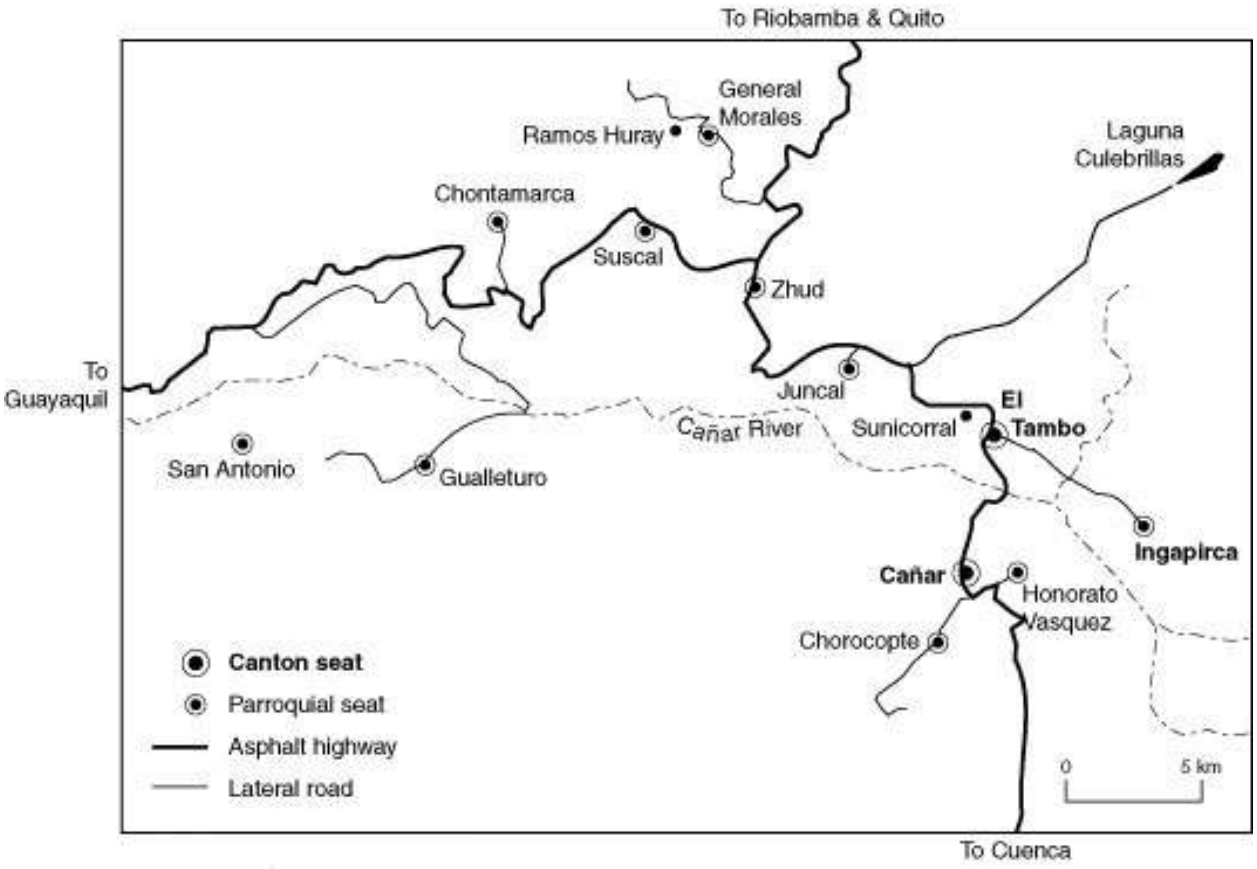
Figure 1: Ecuador and Cañar Province

Over the last four decades or so, Ecuador's rural areas have been dramatically transformed. Beginning in the 1960s, land reform and agricultural modernization programs were carried out in order to free-up dependent hacienda labor and to commercialize production, primarily for the purpose of meeting growing demand for food in the cities and in foreign markets (Commander and Peek 1986). However, government agricultural policies have had uneven spatial and sectoral impacts (Lawson 1988). Large producers, the export sector on the coast, and urban

consumers have been the primary beneficiaries of price, credit, subsidy, irrigation, and extension programs. Meanwhile, the small farm sector and highland indigenous communities have generally been neglected, resulting in marginalization and out-migration. Today, small holders increasingly rely on seasonal migration to urban areas and the commercial farms on the coast, and on local off-farm labor for cash incomes (a trend in many regions of the Andes).

Substantial oil revenues from production in the Oriente facilitated the rural transformation process in Ecuador. However, a drop in oil prices during the 1980s led to a period of structural adjustment and austerity that continues to the present. During this period, the state proved to be incapable of addressing (or unwilling to address) the needs of all of Ecuador's citizens, especially the poor and the indigenous (Alternativa and PNUD 1992). NGOs are filling an institutional void among highland indigenous farmers whose needs are not being met by government programs or market forces (Keese 1998). They also facilitate contact and flows of information and ideas between the global and the local, what Brysk (2000) describes as the global village and the tribal village. NGOs have become important actors working in marginal rural communities, helping communities to maintain themselves and adapt to the challenges presented in a rapidly changing national and international context.

Figure 2: Upper Cañar



The study area is the upper drainage of the Cañar River (known locally as upper Cañar), which is located in the south-central highland province of Cañar (Figure 2). Upper Cañar is a

topographically and agroecologically diverse region ranging from 800 to 4,500 meters above sea level with a population of approximately 70,000 (1995 estimate[2]). The majority of the minifundio population in the region is indigenous, and land use is characterized by a rotation of potatoes, corn, beans, peas, and barley along with the raising of cattle, sheep, pigs and other small animals. Approximately 50 percent of the crops are now being sold in local markets. For most families, however, the land holdings are not sufficient to utilize all of the available labor or to generate the cash income needed to meet household needs. Field data show an annual per capita income from on-farm production of $96 per hectare of land owned (which equates to approximately 18 percent of 1995 national per capita income). Land pressure in the more densely populated zones has created a situation where *minifundistas* are looking to less populated, but more fragile, zones as a means of accessing more land and resources. Meanwhile, the elite-controlled and often corrupt Ecuadorian government has done little to limit destructive land use practices. The deterioration of production in upper Cañar has resulted in lower yields and incomes, and increased reliance on wage labor and migration (seasonal and international).

Five international NGOs were funding agricultural programs in upper Cañar at the time of the field study. This paper focuses on two organizations, PLAN International and CARE-PROMUSTA.[3] These two NGOs were chosen because they had the largest budgets, worked in the most communities in the region, and had the most comprehensive programs. They are typical of the well-funded international NGOs that engage in integrated community development. In general, the NGOs work with the poorest people in the poorest communities, noting that families owning five or more hectares of land usually do not need or want NGO assistance. Although the organizations were working in indigenous communities, they were not directly affiliated with the indigenous rights movement in Ecuador, though that movement has certainly called attention to the plight and poverty of Indians.

Fieldwork was conducted over a nine-month period during 1994 and 1995. The researcher collected data using a combination of participant observation and semi-structured, unstructured, and informal interviews with community members, NGO workers, government officials, and other affected interests. Data were gathered from nine communities.

CASE STUDY OF PLAN INTERNATIONAL

PLAN International is an international humanitarian, child-sponsorship development organization without religious, political, or governmental affiliation (PLAN 1999). PLAN works in 43 countries with an annual budget of $295 million (1999), and has operated since 1982 in the rural areas of Cañar Province. PLAN is the largest NGO working in the province, both in number of projects and budget. In 1995, PLAN had projects in 45 communities in upper Cañar. PLAN Cañar's annual budget was $1,404,755 (PLAN 1994),[4] making PLAN's impact in the upper Cañar region among the most important of all organizations (state or non-governmental) working in the region. PLAN enrolls children and then provides project assistance to their families and communities in the areas of agriculture, infrastructure, education, sanitation, health, forestry, small business, and community organization. PLAN's general development objective is to enable children, their families, and their communities to meet their basic needs and to increase their ability to participate in their societies (PLAN 1999).

At the field level, PLAN has emphasized strengthening community organization and enhancing productive capabilities. PLAN works in a community until the people are capable of sustaining the development process on their own, usually for not more than six years, giving a community a one-time impulse (Carpio 1994; PLAN 1999). PLAN has a history of relying on give-aways and capital inputs. This approach allows project beneficiaries to overcome capital constraints, demonstrate new productive methods, and achieve immediate income benefits without significant risk. PLAN does not expect participants to pay for something that was the result of gifts from donors (Dijsselbloem 1995).

A detailed study of a PLAN project in the indigenous community of Sunicorral provides a clear indicator of the development methods used by PLAN in upper Cañar (see Figure 2). PLAN financed project activities in the community from 1986 to 1988 (potable water and electrification projects), and from 1993 through June of 1997 (agricultural projects), working with a group of 23 agriculturalist families (in a community of 75). Before assistance began, a local PLAN staff member completed a community diagnostic, which consisted of a description of the community (2 pages), accompanied by a plan of action (1 page), which was followed-up later by a statement of observations and recommendations (1 page). In general, PLAN had a poor record of documenting community conditions, and lacked a clear and systematic way of documenting project activities and accomplishments. The completion of project components and observational assessments were the principal indicator of success. Carpio, the PLAN field director for agriculture, felt that the staff lacked time to keep extensive records (Carpio 1994).

PLAN began assistance in agriculture in 1993 by giving the project participants high-yielding potato, corn, wheat, and onion seeds, along with chemical fertilizer and a truckload of chicken manure, as an attempt to increase agricultural yields. PLAN reported first-year production gains of 15 percent (Carpio 1994). According to community members, yields declined quickly after that because the families did not have sufficient income to purchase the inputs once PLAN stopped giving them. Also, one of the families took the onion seeds for itself, indicating the potential for abuse of give-aways.

PLAN helped the project-group acquire four plots of land, totaling two and a half hectares, by financing up to 80% of the cost. The plots were being farmed by the group in a combination of traditional crops and pasture. A one-quarter hectare plot was purchased by the participants themselves, with PLAN helping them get a $1,300 bank loan, but the group was soon delinquent on the payments. A hectare and a half of the newly acquired land was used for a pasture and irrigation demonstration project. PLAN built a modern gravity flow irrigation system (with cement holding tank) that utilized rain-bird style sprinklers (see Table 1 for cost data). PLAN also provided support for veterinary assistance, breed improvement, and pasture improvement. Milk was being sold at a nearby collection point. PLAN used one of the communal land holdings to test a high-yielding pea variety. The plot was divided into 32 squares to test how peas grew with different fertilizers and cropping techniques (results unknown). These purchases and inputs risked fostering paternalism. They sent the message that development could only be achieved through the application of expensive “scientific” methods and technology provided by outsiders.

In 1994, PLAN personnel began to reassess some of the methodologies being used and started a shift away from a capital intensive give-away approach toward a more participatory agroecologically-based approach. PLAN began providing assistance for integrated family gardens. An integrated family garden included a plot for vegetables, earthworm raising for humus, small animals (i.e., pigs, sheep, guinea pigs, and chickens), and a quarter to half-hectare plot of pasture. PLAN provided 80 percent of the materials and technical assistance, while the people provided some materials and the labor. Integrated pest management and organic fertilization methods were utilized. Vegetables, not part of the traditional diet, add to family nutrition, and any surplus could be sold in the local market. PLAN added pig and guinea pig raising to the integrated gardens in 1994 and 1995. Pigs, which are part of the traditional system, provide a valuable source of income and meat, as well as manure for the crops and other parts of the garden system. Guinea pigs provide a valuable source of meat and manure, and sanitation is improved if they are penned. Integrated garden projects target women (and children) and teach them important productive skills.

Table 1 contains a simple cost/benefit analysis for the PLAN project in Sunicorral based on my field data from twenty-three families. The project activities requiring expensive capital inputs (land, fertilizer, and irrigation equipment) do not justify the costs. The activities that utilize existing resources or focus on training and technical assistance (garden plots and pig raising) make more sense economically, organizationally, and ecologically.

Table 1: Cost/Benefit Analysis for the PLAN Project in Sunicorral

Date	Activity	Total Cost	Annual Return Per Family
1992-1995	land purchases	$1,000	<$10
1992-93	fertilizer and seed	250	<10 (one time) 1993-95
1992-93	pasture/irrigation system	8,185*	55
1993-96	household gardens	250	78
1994-96	pig raising/pens	960	45
1994-96	guinea pigs	250	unknown
1995-96	pea test plot	100	none
Total:		$10,995**	$178/family

Net Benefit: $43/capita/year or 50% increase

*PLAN tried a similar system in only one other community in the region.

**Cost for land and materials only. Local costs for personnel, office, and vehicles were not available.

(Source: Adapted from Keese 1998)

PLAN has also placed great emphasis on community organization as an essential component of sustainable development. Carpio (1994) believed that getting people to work together on projects was the only way to confront the problems of poverty and development. As stated above, Bebbington *et al*. (1993) argued that strong local organization was a prerequisite for sustainable resource management. PLAN required the formation of a "PLAN group," with its own president, treasurer, and secretary, which worked weekly on group projects. Project success depended a lot on leadership. Good leaders were able to get people to attend meetings on time and sober, coordinate group work, manage money, deliver results for PLAN, and deal effectively with interests outside of the community. PLAN project activities were suspended from 1989 through 1992 because of organizational and leadership problems. This could be viewed as paternalistic, but it could also be seen as a necessary push from the outside to get a community organized and accountable.

PLAN Cañar also sought to organize and empower the women in the community by establishing a separate women's group, which had its own leadership, activities, and funds. In Sunicorral, the gardens, pig and guinea pig projects, and milk sales were largely managed by women, giving them control over a significant portion of household production and income. PLAN expected the well-being of the household to increase because women were viewed as being pragmatic and focused on basic needs of the family. PLAN purposefully created a women's group, which was not opposed by the men, in order to give women more financial and decision-making power. Despite the added workload, this action constitutes empowerment.

PLAN spent substantial amounts of capital on projects that benefited relatively few families, and the members resisted inclusion of more families because the benefits would have been diluted. This fueled jealousy and created conflict with some non-participant families. In practice, the PLAN families made up a separate social group within the larger community. PLAN personnel were aware of the problem of exclusion and were attempting to bring membership up to at least 50 percent of the total number of families in a community.[5] Paternalism was also a problem. There was a strong sense in the community that progress was only possible with outside ideas and technology (a problem that pre-dated PLAN), and none of the local PLAN extensionists working in the community were indigenous or farmers. Diffusion of new ideas to non-PLAN families was difficult to detect. PLAN ultimately is accountable to its donors, and justifies many of its methods because it wants a high level of control in order to reduce waste and ensure results (Dijsselbloem 1995). In a time when participatory development is in vogue, balancing accountability among both project recipients and donors is a difficult task.

In April of 1995 (nine years after PLAN first entered Sunicorral), PLAN instituted the use of the participatory community self-diagnostic, a method derived from cooperation with the local CARE project. The one-day annual workshop is a technique of participatory development that helps community members document and assess historic and current conditions, define problems and needs, and develop strategies and techniques for carrying out project activities and coordinating with other groups. It also provides PLAN and the community with a baseline for evaluation. This method represented another attempt to shift away from the reliance on give-aways and capital inputs toward approaches that relied on education, training, and technical assistance. In addition, discussions that accompanied the diagnostic raised the issues of soil erosion and the training of community-member agricultural trainers (though no results were observed). The self-diagnostic and shifts in project methodology represented years of accumulated experience and a slow, but clearly positive, process of institutional learning.

CASE STUDY OF CARE-PROMUSTA

CARE International is the second organization under review. CARE is an international NGO that finances and administers development programs in more than sixty less developed countries. Every year, CARE International spends more than 400 million dollars in emergency and sustainable development funds that benefit more than twenty-five million people (CARE 1999). CARE's PROMUSTA project (Proyecto Manejo del Uso Sostenible de las Tierras Andinas del Ecuador, or Sustainable Andean Land Use Management Project) was the CARE-Ecuador project in the area of agricultural and natural resources. PROMUSTA was founded in 1988 through the consolidation of CARE's Communal Forestry Project with the efforts of the Ministry of Agriculture and Livestock's soils division.[6] PROMUSTA's national budget for the funding period of 1988 to 1996 was $5,000,000, sixty percent of which came from CARE (CARE 1995). PROMUSTA Cañar worked in 22 communities in the study area with an annual budget of approximately $75,000.

PROMUSTA's principal objective was to promote grassroots development among minifundistas in the Ecuadorian Sierra through the adoption of sustainable land use techniques (PROMUSTA 1995). PROMUSTA had a clear ecological and land use management emphasis, with a secondary focus on community organization. Project activities included soil conservation, pasture improvement, livestock raising, conservation agriculture, agroforestry, and forest management and protection. However, the field study revealed that PROMUSTA's methods, like those of PLAN, changed with time and experience.

Field study from PROMUSTA's work in seven indigenous communities in the Parish of General Morales in upper Cañar from 1992 to 1996 was used to document the project methodologies and results (see Figure 2). Communities were small, averaging 25 families, with project participation rates between fifty and sixty percent. Project personnel sought out “early adopters” who were the most enthusiastic and innovative, and who ultimately might teach others. PROMUSTA, like PLAN, required that communities be “organized” (Gárate 1995). To avoid division within a community, PROMUSTA worked through existing leadership, generally not forming its own group(s). However, community members had to agree to work with PROMUSTA's methodology.

Forestry and agroforestry project components received early emphasis because of the soil conservation focus of the NGO. Trees were planted in forestry plots and along stream banks in order to protect slopes and provide wood for fuel and construction. Agroforestry plantings were used in crop areas to line fields, prevent erosion, add nitrogen and organic material to the soil, and as natural barriers and windbreaks. Conservation of natural forest and watershed areas was discussed, but PROMUSTA had little success in reducing deforestation in the zone. PROMUSTA sold trees (a variety of Andean alder, pines, cypress, and eucalyptus) to community members for about 3.5 cents each. Each project family typically purchased 100 or more trees. PROMUSTA also helped several communities in upper Cañar to establish tree nurseries.

Project participants constructed terraces and deviation trenches to prevent erosion on steep slopes. Agroecological practices were tested to enhance soil fertility, including crop rotation, intercropping, organic fertilizers, integrated pest management, green manure, and contour tilling. Instruction on fertilizer use, pesticide use, seed selection, and planting and harvesting methods was given. A simple demonstration plot for crops consisted of dividing a small plot in half, with one side planted using traditional techniques, and the other with improved methods. Improved yields were documented by observation and drawings by the extensionist and participants.

Results from the new practices varied. Terracing proved ineffective because of the large amount of labor required to construct them, and because the steepest slopes were generally not cultivated in the zone. Deviation trenches, however, were adopted on a wider scale because they were better suited to local conditions and resource availability. Locally-made insecticidal soaps were tested, but not adopted because of the time required in application. The use of green manure also was not embraced because farmers refused to plow under what was viewed as a viable crop (peas), and could not afford to leave land idle. Increased crop rotation, contour plowing, composting, and the use of chicken manure as fertilizer were widely adopted by local farmers.

Livestock and pasture improvement activities emphasized improving the quality of pasture forage, silvaculture (integrated trees with pasture), and irrigation. Demonstration plots showed cultivated pasture plantings with rye grass, blue grass, and clover. Livestock courses taught techniques to improve animal management and breed quality, which leads to higher milk production and improved fertility in the animals (not documented). Animal health courses (organized with cooperation from the government rural development agency) emphasized the management of either large animals (usually cattle) or small animals (guinea pigs and rabbits).

A cattle course, given at the time of the study, discussed practical remedies to local illnesses, and had a hands-on segment where cattle were treated for parasites. One of the most positive aspects of the course was that an indigenous Quichua-speaking extensionist was involved. She commanded a lot of attention. However, there were two drawbacks to the otherwise good method. First, there was too much information, which was overwhelming. Second, a video was shown that demonstrated artificial insemination, mechanical milking, and computer tracking of milk production. The video reinforced the idea that poor people can not solve their problems without complicated outside technology.

Beginning in 1994, PROMUSTA introduced community vegetable gardening in all project communities as part of an increased emphasis on income improvement. This was in response to expressed needs by project participants. PROMUSTA gave training and seeds to get the gardens started, and the community gardens were usually worked by groups of women and children. However, the income benefits were limited because of the distance to market and limited access to irrigation water. During the same period, PROMUSTA began giving assistance for guinea pig projects. PROMUSTA was providing a small amount of fencing material along with technical assistance. A cost/benefit analysis is not provided for PROMUSTA because the NGO used few capital inputs and required cost-sharing by project participants. Also, the early improvements were designed to enhance the sustainability of the traditional agricultural system, and there were no documented increases of incomes or yields.

PROMUSTA adopted participatory and agroecological methods in its development projects, methodologies that came from CARE International (Cadena 1995). PROMUSTA's goal was to help the poorest farmers to intensify and diversify the traditional farming system, not replace it. PROMUSTA generally did not use improved seeds because of the farmers' concern over change and risk. Nevertheless, when the emphasis shifted toward increasing incomes, some experimentation was done with improved crop varieties. Except for demonstration plots, PROMUSTA relied less on give-aways. Project emphasis was on training and technical assistance, and the people were expected to contribute land, time, and money. PROMUSTA project personnel believed that if participants paid for something, they were more likely to take care of it, thus contributing to sustained development (Gárate 1995).

There were several clear methodological shifts during PROMUSTA's eight years of work in the Sierra. In the early years (1988-1990), the emphasis was on activities that were designed to conserve the soil, including forestry and conservation agriculture. However, project participants were more interested in increasing incomes than in conservation. In 1990, the emphasis began to shift to more economically productive activities as a result of expressed needs at the grassroots. The improvement of livestock, pasture, and crops, and the introduction of vegetable gardens, took on more emphasis. PROMUSTA Cañar sought to find a balance between production and conservation, but continued to try to demonstrate that increased production and resource conservation could be compatible.

From 1988 to 1993, goals for each regional office were set in Quito (e.g., a target number for terraces or hectares of demonstration plots), and project field directors were then responsible for meeting them in whatever way possible. However, this approach was top-down, there was a lack of consistency in implementation methods, and project activities sometimes were inconsistent with local resource availability and desires. After 1993, regional project directors were given more latitude in determining appropriate project activities, but the methodologies became more standardized. Before 1993, projects focused on individual farmers. An extensionist would spend four days a week in the same community working with a different farmer each day. This was time consuming and limited the NGO impact. After 1993, the emphasis changed to community groups. An extensionist was responsible for three or four communities, and visited a different community each day. The role of an extensionist became primarily that of an educator.

CONCLUSIONS AND RECOMMENDATIONS

There is little doubt that NGOs have become important actors in the international development arena. The literature on NGOs reveals that much of the early work focused on field-based studies of individual projects. A more recent focus has been on the larger institutional and policy concerns related to NGOs. However, there is still an urgent need to examine the methods used and results obtained by projects in the field, especially if the ultimate goal of NGOs is to improve the well-being of individuals who live in communities. Once the lessons are learned at the grassroots, then the results can more successfully be extended to other regions and institutions.

The case of highland Ecuador indicates that economic transformation, a changing policy environment, and population growth have contributed to urbanization, migration, land pressures, and land degradation. The conditions of a contemporary context have demanded that new adaptive strategies be implemented if the farmers and communities of the region are going to maintain themselves successfully. As Bebbington (1996) indicates, *campesinos* in the Andes must intensify or they won't survive. NGOs have stepped in to provide essential development services and resources where government and the market have failed to do so. Furthermore, international NGOs provide a vital link between global and local scale processes. They facilitate the adoption and adaptation of new technical information and organizational structures within the context of local cultural systems.

The results of this study suggest that NGOs working in marginalized communities in LDCs must focus their efforts in four critical areas if their goal is to promote sustainable agricultural development. These areas are community organization, income improvement, resource conservation, and the wider impact. In terms of organization, people have to be able to work together and coordinate resources if they expect to solve development problems. Participatory development provides the methods for helping project participants to get organized, and PLAN International and CARE-PROMUSTA were increasingly adopting these methods as they gained experience in the field. The NGOs placed emphasis on finding good project and community leaders who could manage people, money, and material. Both organizations went as far as to suspend project support for communities that failed to organize to the satisfaction of the NGO directors. This appears top-down and paternalistic. Yet, some change in forms of community organization may be necessary to enable traditional peoples to participate effectively in contemporary society.

There are limitations to participatory development. Communities will ask for anything, including animals, trucks, and tractors. PLAN bought land and gave seeds and fertilizer because this is what the community wanted. However, dependence on these inputs may not be economically or ecologically sustainable. The NGOs did take local direction by shifting project assistance toward more income producing activities. Yet, local knowledge and norms sometimes need to be challenged so that local people can limit destructive practices and successfully confront change and contemporary problems. An NGO must play the role of leader and change agent, as well as learner and follower. NGO approaches to development need to maintain a delicate balance between bottom up and top down.

The second focus of an NGO must be economic. In the Andean context, indigenous people increasingly want and need cash incomes. In order to gain farmer support for any changes, whether they be productive or conservation practices, NGOs have to offer alternatives that provide concrete and economically viable benefits.[7] In upper Cañar, the projects promoted the combination of traditional and new products. Most had strong demand in local markets, which is important for economic sustainability. PLAN improved income by up to 50 percent, while the actions of both NGOs represented an intensification of traditional agriculture. NGOs often have a role in helping resource poor farmers overcome the technical and capital constraints to improving local agricultural systems.

The third component of a successful NGO project in agriculture must be ecological. Agroecology provides the methods needed to promote ecologically sustainable agriculture, specifically focusing on soil erosion and soil fertility. The protection, maintenance, and enhancement of soils are essential to the long term sustainability of any agricultural system. PROMUSTA was the leader in the implementation of holistic agroecological methods in the study region, with a strong record in conservation agriculture, agroforestry, and pasture management. PLAN's more recent project activities (specifically, the integrated gardens) were soundly based in agroecology. PLAN personnel showed an increasing awareness (but with less action than PROMUSTA) of the need to add soil and slope management to their agricultural projects.

In terms of the wider impact, one of CARE's objectives is to work with government and NGOs at all levels to strengthen local and national institutions (Cadena 1995). PROMUSTA was the product of a cooperative agreement. PLAN's focus was on the community and the child (Dijsselbloem 1995). However, on a regional level, both PLAN and PROMUSTA showed a willingness to work with other organizations, being active in a number of efforts at institutional cooperation, including sharing of methodologies, co-sponsoring field days and courses, and working with schools and municipalities. The efforts by the NGOs within the communities also indicate the potential for a larger impact. The emphasis on participatory development requires individuals to work together, which ultimately will lead to a more enduring local social organization and community cohesion. New project activities also promote capacity building because participants must interact with markets, government agencies, banks, and other sectors of society. These efforts suggest that both PLAN and CARE recognize that the success of community-level development projects is linked to what happens outside a community.

The NGOs in the study showed the ability to learn from the experiences gained in the field, and thus modified and improved the focus of projects and the methods used. PLAN was clearly moving away from an approach based on give-aways of purchased inputs and technology toward one that was more participatory and agroecological in focus. PROMUSTA shifted from work with individuals to work with communities, and to an approach that was more sensitive to local needs and constraints. PROMUSTA also moved from a conservation emphasis toward production techniques that were ecologically sustainable and economically viable. Overall, there was clear evidence of a convergence of methodologies used by all NGOs working in the region, which was the result of experience and cooperation. Nevertheless, one critical area that went unaddressed by all NGOs in upper Cañar was population growth, an issue that must be linked to sustainable development. Despite the fact that conversations with indigenous women revealed a

keen interest in controlling fertility rates, local NGO directors (all middle class and *mestizo*) felt that this issue was too culturally sensitive.

Accumulated knowledge and experience in the field suggest that some activities are more productive and beneficial than others. However, neither NGO had a standardized method of qualifying or quantifying project results. (This problem is not limited to NGOs or projects in less developed countries.) PLAN personnel knew that community members were selling milk and vegetables, and PROMUSTA personnel made some visual observations of plant growth. The newly-implemented participatory diagnostics did provide valuable baseline information for evaluation. It would be helpful if NGOs were to do a cost/benefit analysis of each project activity, and track the yields, sales, and results of just one representative family. This type of simple field data would be valuable for evaluating the effectiveness of project methods and prioritizing assistance.

In conclusion, NGOs must focus time and resources on project activities that emphasize education and technical assistance. The participatory and agroecological methods fit this criteria because they are generally labor and management intensive, not capital and technology intensive. These methods are less expensive and more consistent with local knowledge and resource availability, thus offering the greatest possibility that project beneficiaries will be able to continue the development process once assistance ends. Expensive capital inputs should only be used if a large number of people benefit, if the input is critical to the development process, and if other means of assistance are limited. Except for some infrastructure projects, most agricultural assistance by NGOs does not meet these criteria.

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[1]Field research for this paper was completed in 1995, while the literature review examines later works.

[2]The population estimate for the upper Cañar region comes from an internal report prepared for the Cañar office of the Ecuadorian government rural development agency DRI (Desarrollo Rural Integral).

[3]The other international NGOs that were working with agriculture in the region are the Lutheran Mission (Norway), World Vision (U.S.), and FUNDAGRO (Canada).

[4]PLAN Cañar's budget finances approximately 150 projects in the provinces of Cañar and Azuay.

[5]The average percentage of families enrolled in the approximately 45 PLAN project communities in upper Cañar ranged from 14 to 72 percent.

[6]PROMUSTA is administratively considered an Ecuadorian national NGO, even though the national administration and project methodology come from CARE.

[7]This conclusion is consistent with Kaimowitz's (1993) findings for the Central American countries.