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The Campesino to Campesino Program of Siuna, Nicaragua

Context, accomplishments and challenges

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Methodology and acknowledgements

This study is part of a collaborative effort by PRISMA in the framework of the project "Learning to Build Accompaniment[SCG1] Models for Grassroots Forestry Organizations in Brazil and Central America," supported by the Ford Foundation and jointly executed by the Center for International Forestry Research (CIFOR) and the Asociación Coordinadora Indígena Campesina de Agroforestería Comunitaria Centroamericana (ACICAFOC), which is the project's executing agency in Central America.

The study combined a literature review of secondary sources; a review of primary documents; field work in Siuna, Nicaragua (April 2004) that included participation in workshops with leaders, farmers, promoters and community self-systematizers; and interviews with Siuna PCaC leaders and with informants in Siuna and Managua. This paper was enriched by contributions from international workshops and exchange visits held in San Salvador, El Salvador (May 2004, methodological workshop), Petén, Guatemala (October 2004) and Costa Rica (July 2005), where the preliminary findings were reviewed and discussed with community leaders and members of the project's steering and advisory committee. The document also includes findings from the report commissioned from Eduardo Baumeister about the development of the municipality of Siuna and the basic characteristics of the farms.

Peter Taylor (Department of Sociology, Colorado State University, United States) was in charge of methodological assistance and also carefully reviewed draft versions, making extremely useful suggestions that resulted in sounder research findings. The document was enriched by the substantial contributions of Rubén Pasos (Project Coordinator), Deborah Barry (Program Officer for Development and Environment, Ford Foundation for México and Central America) and Nelda Sánchez (project consultant), which grew out of discussions during the July 2005 workshop in Costa Rica. Suggestions made by Herman Rosa (Director of Fundación PRISMA) based on his review of drafts of this report contributed to giving it greater clarity and structure. Interviews with Adolfo Castrillo (Coordinator, Special Program for the Caribbean Coast) and Abelardo Rivas (Central Technical Team of the UNAG Campesino to Campesino Program) provided valuable input and information for understanding the evolution and current status of Siuna PCaC. Abelardo Rivas also carefully reviewed the final draft and provided details that substantially clarified the relationship between Siuna PCaC and UNAG.

We would especially like to express our gratitude for the contributions and information provided by Fabián Saavedra (Coordinator of Siuna PCaC), Gabino Lizano and Pedro Martínez (promoter leaders) during the field work and the workshops in Siuna and Petén, where results were also presented from the research done by Andrés Lizano, Andrés Martínez and Karina Martínez (community self-systematizers from the communities of Tadazna and El Bálsamo in Siuna municipality).

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Introduction

Siuna and the general North Atlantic Autonomous Region (RAAN) in Nicaragua have historically been characterized as ungovernable territories heavily influenced by the presence of outside actors. In recent years, the region has been a zone of enclaves (lumber, mining, and banana companies), the destination of waves of internal migration from the country's central and Pacific regions, the scenario of military conflicts related to global cold-war politics, and a region of increasing cattle ranching and accelerated expansion of the agricultural frontier, all of which have left their mark. This, along with its incipient regional autonomy and the creation of the BOSAWAS Biosphere Reserve, have contributed to new conflicts over access to land, exacerbating the already ungovernable conditions in Siuna.

In this framework, different processes that coalesced around Siuna in the early 1990s led to the creation of the Campesino to Campesino movement in this municipality and determined the form it took. In a context of ungovernability and social disintegration, local peasant farmers engaged in slash and burn agriculture as a survival strategy in what was to have been the BOSAWAS buffer zone. They came up against restrictions, which in turn encouraged them to search for alternative farming methods in order to deal with these challenges to their food security and to restore law and order.

In a bid to contribute to surmounting this insecurity, the *Programa Campesino a Campesino* (Campesino to Campesino Program—PCaC) of the *Unión Nacional de Agricultores y Ganaderos* (National Union of Farmers and Ranchers—UNAG) promoted and supported peasant-farmer experimentation and the accumulation of social and human capital. That this support was able to respond to people's needs was also explained by the already existing organizational experience in Siuna, where the majority of the local people had ties to the Sandinistas or to the Contras.

In a relatively short period of time, PCaC demonstrated that is was possible to transform local farming methods, replacing swidden agriculture with a variety of land husbandry methods based on velvet bean (*frijol abono* in Spanish) that ensured food security for the families without using up more land. This contributed to a switch from traditional shifting agriculture to sedentary agriculture, and to peasant farming families growing their crops on stable farms.

Building on this, the Campesino to Campesino movement in Siuna contributed to the following: restraining the advance of the agricultural frontier; improving food security; building a network of peasant relationships that improved governance in the area; injecting a social and productive component into the management of a buffer zone for the BOSAWAS; building a new identify of the campesino-mestizo capable of transforming natural resource management and protecting the environment; and a process of campesino innovation that has evolved into new organizational structures and into new strategies for strengthening livelihoods that go beyond food security.

Siuna PCaC has had to go through a process that included not only technical and methodological accompaniment of the different cam-

pesino strategies, but in addition, relationships with actors whose approach to support was not always in sync with the empowering nature of the campesino to campesino methodology. Despite this, the PCaC strategies have led to new strategic proposals to strengthen the sustainability of the BOSAWAS, as well as to innovative social and productive proposals with implications for territorial management.

However, the current context is still posing challenges to the accomplishments made so far. A new wave of in-migration, growing agricultural and livestock intensification, the territorial expression of globalization in the North Atlantic Autonomous Region and the corresponding logistical corridor to Puerto Cabezas (also known as Bilwi) are creating momentum in the land market, which is beginning to have a visible impact. This represents a serious threat, particularly due to continual disputes – still unresolved – over property rights. Likewise, the region continues to be on the receiving end of strategies being forcefully pushed by outsiders.

This context demands that the Campesino to Campesino movement make a qualitative leap toward a territorial perspective, and seek greater ties with territorial partners to ensure that it gains a favorable position in all the above-mentioned dynamics. Internally, PCaC is facing the challenge of its evolution as an institution. Not only does it have to address the expansion of its strategy of promoting widespread implementation of natural resource management in Siuna and deal with the process of introducing changes in the emerging community groups, which are clamoring for accompaniment in new areas, it also has to make connections with the other stakeholders in the territory in order to solidify a new perspective and design a joint proposal for the territory's sustainable social, productive and environmental management.

The first section of this report contains a brief discussion of some of the features of Nicaragua's North Atlantic Autonomous Region. These are helpful for understanding issues including the role played by outsiders attracted to the wealth of natural resources; some of the attempts by the Nicaraguan government to have a presence in the region; and some of the historic problems linked to land rights, which were magnified by the BOSAWAS conservation strategy, distinguished by its lack of a proposal for managing the buffer zone.

The second section discusses the conditions that contributed to the creation of Siuna PCaC, its development and some of the characteristics of the external support that it has received.

The third section explains the current context, marked by agricultural and livestock intensification; the dynamics around the acquisition of land rights; and some of the proposals from the central government and external cooperation agencies.

The fourth section highlights the principal achievements and implications of Siuna PCaC for governance, for the accumulation of social and human capital, and for its contribution to a campesino proposal for buffer zone management and a new peasant identify.

In closing, the fifth section lays out the primary challenges and opportunities this valuable experience is facing, based on the analysis of its achievements and of the current context in which it is taking place.

Nicaragua's North Atlantic Region: Historical background and overview

Nicaragua's North Atlantic region is a territory that has been heavily influenced by outsiders, ever since the British influence (15th to 19th centuries) and the strong United States involvement during the first half of the 20th century. Later, this territory was also used by enclaves (lumber, mining, and banana companies); as an escape valve for dealing with the social pressure resulting from the collapse of the agroexport model and the lack of access to land by the peasant population in the Pacific region; and even as important military territories, such as during the Somoza family's rule and later under the Sandinistas. Through these various stages, the indigenous communities made alliances with outsiders out of a desire to maintain control over their territories. The Nicaraguan Atlantic or Caribbean Coast region reflects the difficulty the Nicaraguan government has had in integrating the territory into the life of the dominant central and Pacific regions. Siuna, one of the seven municipalities that make up the current Región Autónoma del Atlántico Norte (North Atlantic Autonomous Region—RAAN), is the scenario of serious conflicts over access and rights to land, which were magnified by the declaration of the BOSAWAS Biosphere Reserve (see Map 1), propelled, once again, mainly by outsiders, which rekindled demands related to the region's historic problems.

The History of Nicaragua's North Atlantic Autonomous Region

In contrast to Nicaragua's Pacific and central regions, the Atlantic Coast remained essentially isolated from the 16th century Spanish conquest and influence.[1] This region – covered by a vast and impenetrably dense tropical rain forest – was strongly influenced by European pirates, mainly British, who, like the Spaniards, were seeking to expand their domain and exploit natural resources.[2] However, a common struggle against the Spanish monopoly by Atlantic Coast indigenous peoples and the British led to a British-indigenous alliance grounded in the defense of territories that had traditionally been under indigenous control. This alliance made it possible to carry out attacks on cities under Spanish control. By 1678, the British had already created a Miskito kingdom that had not existed in the indigenous culture, but which constituted a clear but artificial structure for territorial control. Although, in reality this had a limited function, the Miskito kingdom existed for nearly two centuries (Envío, 1981).[3] Following Central American independence in 1821, the British reorganized their domination through the declaration in 1843 of a British Pro-

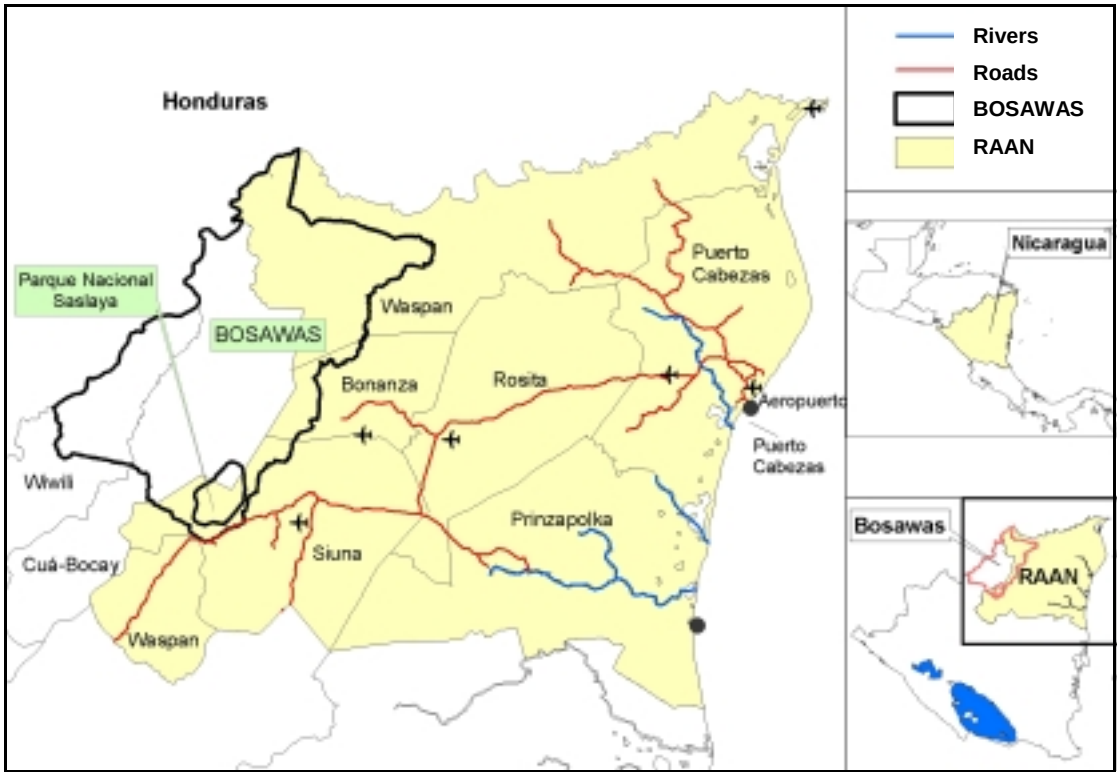
[1] Thompson (n.d.) and Ortega Hegg (1997) refer to the dichotomy that arose between the indigenous peoples as a result of the Nicaraguan colonial process. Those who suffered Spanish colonization in the country's Pacific and central regions and the indigenous peoples of the Caribbean Coast where the British influence was strong belong to two essentially differentiated territories, which even now are only weakly integrated, with each region maintaining its own culture.

[2] In 1630, the British established a trading post near the mouth of the Coco River and began logging operations for the purpose of providing materials to repair and build their naval fleet. Later, they exported hardwoods such as mahogany (*Swietenia macrophylla*) and Santa María (*Calophyllum brasilense*), and later on, pine (*Pinus caribaea* var. *hondurensis*). In 1776, the British had several sawmills on the Atlantic Coast that exported lumber to the British colonies in the Caribbean and to Europe (Andersen, 2003). The British also had begun tapping rubber, which came to be an important product in the region's economy; however, this impact was fleeting, since around 1879 rubber prices fell and rubber lost its sway.

[3] In this way, the Miskito kingdom was primarily a product of the British strategy against the Spaniards' colonial monopoly in Nicaragua, and was created as an essentially political structure, which lasted despite treaties and conventions that required England to withdraw from the territories under Spanish domain (Mattern, 2002).

Map 1:

Nicaragua: Present Boundaries of the North Atlantic Autonomous Region and BOSAWAS



Source: SIG-PRISMA

tectorate over the Mosquito Coast, as a legal mechanism to protect their interests in that region. This lasted until 1860, when the Nicaraguan government exerted its claim over the territory in the Treaty of Managua, and put an end to the Protectorate (CACRC, 1998). This claim did not end British extractive activities, however. In fact, there was an exponential surge in the exploitation of natural resources, similar to what would happen in the 1870s with rubber and in the 1880s with the gold fever, following decades of rumors about gold deposits (CACRC, 1998).

By 1884, some 22 indigenous communities had recognized Nicaraguan sovereignty over the Atlantic Coast, leaving behind its status as a protectorate and subkingdom of England, which also created the need to have the rights of the communities over their lands recognized and formalized. Ten years later, the government of Nicaragua, with United States support, issued the Declaration of the Reincorporation of the Mosquitia. The Harrison-Altamirano Treaty of 1905[4] between England and Nicaragua was intended to resolve the problem of the rights of the communities, through the creation of the Mosquito Coast Titling Commission. But in practice, of some 500 communities, only 22 were awarded titles (around 100,000 ha), while the rest of the territory remained without the legal recognition implicit in property titles

[4] In this Treaty, England ceded all the rights of the Protectorate over the indigenous peoples of the Mosquito Coast and recognized the sovereignty of Nicaragua over the region.

(Andersen, 2003).[5] By 1909, 10% of the Mosquito Coast had been granted to U.S. investors who would exploit the region's mineral and timber resources and establish banana plantations there (Envío, 1981).

In addition, the United States began a military occupation, with a presence that lasted for over two decades, replacing prior British domination. By 1931, this presence, along with the establishment of enclaves of U.S. capital, resulted in considerable growth in exports, at that time primarily to the United States. The main exports were gold, rubber, mahogany, cedar, pine and bananas (Envío, 1981). In the case of timber, by the 1940s, over 400,000 hectares (ha) of forest had been felled, primarily of pine and precious woods, such as mahogany. This was done independent of the Nicaraguan government; the amount of timber harvested was underreported and officials were bribed so that U.S. companies could evade paying taxes (Thompson, n.d.).

The U.S. enclaves on the Caribbean Coast were attraction poles for population groups. However, in the case of the U.S. banana enclaves, the influence of increasing production costs, low soil fertility, pests such as Panama disease (Fusarium wilt) and a devastating hurricane in 1941 brought the end of the banana plantations in the Nicaraguan Caribbean. Meanwhile, by the 1950s, the enclaves in general had passed their pinnacle and had begun to collapse. This was the result of several factors, among them, a tax increase that affected the profits of the foreign companies, and the depletion of the forests, leading to lower production (Thompson, n.d.; Envío, 1981).

The historical dichotomy between the Caribbean and Pacific coasts in their relationship with the Nicaraguan government is mirrored by Nicaragua's export products, which before the 1950s, were comprised of two main segments: coffee, produced primarily in the Pacific region, and the Atlantic region products, primarily precious metals and high-quality wood. The Atlantic had a significant share of all exports, and among these, metals grew to represent over half of all exports in 1945 (Graph 1), which included the production of the "mining triangle," made up of Siuna, Rosita and Bonanza in the North Atlantic. After 1950, mining waned in importance.[6]

As Maldidier and Marchetti (1996) point out, the Atlantic region developed on the basis of an enclave economy devoted to extractive activities that attracted population groups scattered along the Atlantic Coast and mestizo groups from the Pacific. This created new core areas for an agricultural and livestock economy that supplied the workers with food. When the enclaves declined and closed, many of the former employees also turned to farming and cattle raising.

Attempts were made during the Somoza era (1935-1979) to integrate the Caribbean Coast into the rest of the country. Part of Somoza's strategy was to lure foreign investors to the Atlantic Coast by attracting poor, landless mestizos from the Pacific in search of jobs and by

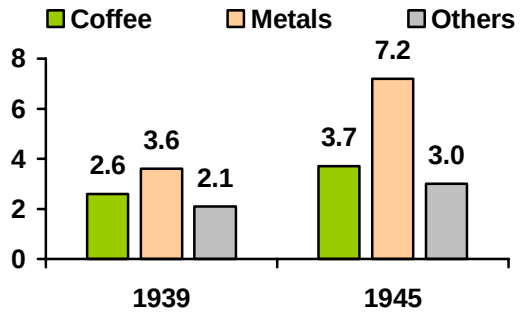
[5] The Moravian Church was a strong, influential presence in the communities that received property titles between 1915 and 1920. This church had been established in 1847 by German missionaries in the region (CACRC, 1998).

[6] While in the late 1940s, precious metals made up 52% of the country's exports, by 1960, their share had dropped to 14%, and their relative importance dropped even further in the ensuing decades. The "mining triangle" would reflect this collapse. In Bonanza, by 1971, in addition to gold and silver, the mining industry had expanded to copper, lead and zinc production; operations which shut down in 1978. In Rosita, the mine workings were abandoned between 1981 and 1982. There, installations included some 20 gold mines, a copper deposit, an iron deposit and large limestone deposits (Lundberg et al., 2004). In Siuna, the collapse occurred earlier, since by 1968, mining activities had shut down and, despite the attempt to reactivate them in 1979, traditional mining ended definitively in 1984 (Hodgson, 2004).

Graph 1

Nicaragua: Principal Exports

(Millones de US Dólares)



Source: Baumeister, 2004

making relative improvements in the communications infrastructure, particularly the opening of the Waslala-Siuna road. One example was Tropical Colonias Inc., which, starting in 1951, promoted the influx of colonizers, particularly to Puerto Cabezas (Bilwi) and Twappi (CACRC, 1998).

This is how the colonization process began, which was then fueled by successive waves of migration. The pace and motivation of these migrations was related to the strategies of the Atlantic enclaves, to the Pacific agroexport model that forced people out, to the opening of dirt roads and all-weather roads, and to the availability of land on the Atlantic.

The Somoza period was characterized by stripping communities of land and natural resources and transferring people from the Pacific. The transportation monopoly assured relative economic control over the region by the Somoza government, which designed a territorial economic integration strategy and continued its policy of concessions for economic developments (Mattern, 2002). In fact, in 1960, the Somoza government unveiled a large-scale Colonization Plan, through which it intended to colonize the foothills of the Caribbean region—over 5 million ha in a continuous belt from the Honduran border to the Costa Rican border (Jones, 1990).

The Somoza governments, as well as those of Violeta Chamorro and Arnoldo Alemán (during the 1990s), used the land colonization strategy as a political safety valve, rationalizing that the rural poor would be less likely to rebel if they had access to land (Nicaragua Network Environmental Committee, n.d.). In this context, the Caribbean Coast presented an enormous opportunity for colonization, especially considering that in the Pacific region the predominance of large landholdings devoted to agricultural and livestock production had limited poor peasants' chances to gain access to land, condemning them to work on large Pacific estates as farm laborers (Envío, 1981).

The mid-20th century boom in cotton, sugarcane, coffee and cattle in the Pacific region meant putting the land in that region into production, leading newly landless peasants to advance inexorably toward the Atlantic. This movement continued to expand, due to land pressure and the later stagnation of agroexports in the Pacific region that dried up jobs (UNDP, 2000).[7] In addition to its role as a colonization territory, the Nicaraguan Caribbean Coast also had a geopolitical and military function during the Somoza regime; this role was magnified with the launching of the Bay of Pigs operation from Puerto Cabezas in 1961, following a propaganda campaign by the governments of Nicaragua and the United States.[8]

The National Agrarian Institute, created in the mid-1970s, promoted the occupation of gov-

[7] Thompson, (n.d.) points out that between 1960 and 1978, the cotton and cattle expansion meant the displacement of new colonists toward agricultural frontier zones, leading to the doubling of agricultural lands during those years—from 1,750,000 ha to 3,500,000 ha.

[8] The campaign consisted of persuading the Caribbean Coast population that their greatest enemy was Cuba, which was attempting to export atheist communism to the entire world (Envío, 1981).

ernment lands in different agricultural frontier zones in the Atlantic, facilitating occupation by peasants from the central region, and to a lesser extent from the Pacific. The amount of land being farmed grew rapidly and logging continued unchecked. Occupation of new land, deforestation, and slash and burn agriculture was accompanied by the sale of the best logs to timber dealers, at very low prices. Livestock production grew rapidly, specializing in breeding and in rustic cheeses. The government had an open land policy for small, medium and large producers and also for timber harvesting. The first primitive road linking the Pacific to the Atlantic was built in 1976 along the Waslala-Siuna route. By then, there was already an all-weather highway between Siuna, Rosita and Bonanza (the mining triangle) and a dry-season road had been built between Rosita and Puerto Cabezas (Bilwi).

During the Sandinista years (1979-1990), the Atlantic region had different roles. In contrast to the Somoza era, during which the government maintained a rather limited, sporadic presence in the Atlantic, the Sandinistas would seek to integrate the region into the revolutionary process and its benefits (Envío, 1982).[9] However, little care was taken – particularly in the first years after the Sandinista revolution – to understand the unique history and culture of the Caribbean Coast, which in addition, had been quite detached from the Sandinista revolution.

In the 1980s, the first consequence of the agrarian reform program was a decline in the advance on the agricultural frontier by campesinos, while the mid-sized and large producers scaled back their search for new ventures and land. The Sandinista government tried to improve the primitive road from Río Blanco to Puerto Cabezas, but it was unsuccessful in building an all-weather (dry and rainy season) road. In the areas where the central government institutions had a presence, restrictions were placed on felling trees. Mining picked up some momentum following nationalization, but it never flourished again as it had before the 1970s. Differences were growing between different indigenous groups and the government because the national authorities held a myopic view of indigenous peoples' territorial rights.

Even though the agrarian reform implemented in the 1980s impacted each of Nicaragua's main regions differently,[10] the Caribbean region and indigenous communities would once again come to play an important military role in the internal war between the Sandinista army and the Contras. Box 1 gives an overview of what that role looked like in the early 1980s.

It is believed that some areas in the Atlantic region, among them Siuna, constituted 'military enclaves' where the Sandinistas, for military reasons, created a cordon of cooperatives that served as barriers to contain resistance groups (Rocha, 2001a).

The historic demand for greater autonomy for the Atlantic Coast and the political need to build understanding with the indigenous people there (natural allies for the United States to exploit in its war against the Sandinistas), led the Sandinista government to announce its acceptance of this demand and to appoint, in De-

[9] Using this rationale, the Sandinista government promoted, among other things, the following: the Coastal Literacy Campaign (in Spanish, English and Miskito), which included the most isolated villages, and which would receive international accolades; the Adult Education Crusade, implemented throughout the region; a resident doctor and clinic in every town with over 2,000 inhabitants; health campaigns to fight dengue fever, malaria and other diseases; and the deployment of volunteer teachers and doctors, particularly Cubans (Envío, 1981).

[10] Baumeister (1998) explains that during the agrarian reform of the 1980s, there were regional differences in the formation of the state enterprise and cooperative sectors due to the location of land subject to the reform (primarily in the Pacific region), pressure from peasant farmers and farm workers who were demanding land, and because of the priorities of the revolution's leaders.

Box 1
Indigenous Peoples, Sandinistas and the Nicaraguan Atlantic

During the Somoza era, the Alliance for the Promotion of the Miskito, Sumu and Rama (ALPROMISU) was formed, promoted by the Moravian Church to improve trade conditions for the indigenous groups, which is why it was never considered to be a political threat to Somoza's rule. Following the Sandinista triumph in 1979, the government felt that ALPROMISU was an organization that would not collaborate with plans to integrate the Atlantic Coast into the rest of the country. Given that the indigenous population protested and insisted on maintaining the organization, the government yielded, but pressed them to change the name to Miskito, Sumu, Rama and Sandinistas (MISURASATA). MISURASATA worked freely and grew in membership and influence. There were tensions with the Sandinista Front because they prioritized economic issues and felt that ethnic concerns constituted separatist aspirations by the indigenous groups. For their part, the MISURASATA leaders maintained a skeptical stance toward the revolution and encouraged their membership to stir up conflicts with Sandinista authorities.

By 1980, MISURASATA was already voicing deep concerns about the assimilationist ideals for the Coast. They felt that the methods, curriculum and language of the rural school program were foreign to the local culture and not only did it seek to turn the children into a sort of generic mestizo lacking personality, but it also sought their assimilation into the national, capitalist culture. In MISURASATA's plan for 1981, their special demands already included regional autonomy. The government acknowledged the indigenous people's concerns over land; however, the plan did not take into account the interests of the mestizos and creoles on the Coast. MISURASATA demanded five seats on the Council of State and a representative on the Government Junta. In light of this, the Sandinistas felt that MISURASATA had betrayed their trust.

Ronald Reagan had become president of the United States and was seeking to derail the Sandinista revolution by using accusations that it was helping Salvadoran guerrilla forces, at the same time that Contra camps were operating openly in Honduras without any kind of objection. The Sandinistas made public the details of a conspiracy by the counterrevolutionaries, whose goal was to provoke a general uprising by the Miskitos on the Atlantic Coast and set up a provisional government in the department of Zelaya, which would then make an appeal for aid to sympathetic governments, led by the United States. Members of the Moravian Church were supposedly also involved in this conspiracy, which increased Sandinista distrust of the church and of course of the Miskitos. Out of this came the decision by the Sandinistas to relocate the people living along the banks of the Coco River (the border with Honduras) to a region located deeper within the Nicaraguan Caribbean Coast. In turn, the Moravian Church claimed that the principal causes of the problems on the Atlantic Coast were the following: the lack of providing progressive orientation to the coastal population so they could better understand the revolution's objectives; unemployment, which made it more difficult to understand the revolution; the culture clashes between natives of the Atlantic and those from the Pacific; mishandling of the MISURASATA problem, which drove a wedge between the people on the coast and the Sandinista Front; and finally, the problems over communal lands.

Source: Based on Envío, 1982.

cember 1985, a National Commission that would initiate the process for defining the region's autonomy (Envío, 1985).[11]

The Statute on the Autonomy of the Regions of the Atlantic Coast of Nicaragua was passed in 1987. This region covers approximately 50% of Nicaragua's territory, and at that time was

[11] Regional commissions (North and South Atlantic) were also formed to carry out a consultation process among the coastal peoples, which would be taken into account when drafting a special statute on autonomy that would form part of the new Nicaraguan constitution (Envío, 1985).

home to 9.5% of the country's total population, with fewer than 300,000 inhabitants.[12] Two autonomous regions were established: the North Atlantic and the South Atlantic.

Despite the statute's passage, it was not until 15 years later that its respective regulations and other important legal provisions were created, especially in reference to the problem of land ownership in the Atlantic regions,[13] which for many people reflected the lack of political will for supporting the process of institutionalizing regional autonomy. In fact, the establishment of the autonomous regions presented the Nicaraguan government with a dilemma and a contradiction as it sought to exercise and consolidate its sovereignty over the nation's entire territory. In this, it was crucial that the Sandinistas were trying to moderate the historical demands of the indigenous territories, while at the same time they were trying to prevent these territories from becoming bases of support for the Contras, which required concessions to the indigenous groups. Likewise, this region served – as it always had – as an important escape valve in order to provide land to poor peasants.[14]

In the 1990s, several significant events took place. The population increased considerably as people who had been displaced by the internal war returned and migrated toward the ex-conflict zones.

The government continued its "open land" policy, in this case for resolving immediate political problems, while lumbering intensified using the route that links Río Blanco with the rest of the country. The aim of these policies was to guarantee the reintegration of ex-combatants, prevent confrontation, improve governance in the short term, and attract resources from cooperation agencies; but in general, no controls were put on the extraction of wood and other resources. One important event in the mid-1990s was the paving of the Boaco-Río Blanco highway, with aid from the government of Venezuela during the Alemán administration (1996-2000), and expectations (still unmet) that the Río Blanco-Mulukukú-Siuna-Puerto Cabezas section would be paved.

In the post-war period, there was also a significant increase in basic grain production, explained by the reopening of the agricultural frontier and liberalization of Central American trade, which turned Nicaragua into a supplier of maize and beans for the regional market. Something similar occurred with livestock, due to the boom in small-scale cheese production for the Salvadoran market and to a lesser extent for the U.S. market.

Post-war Nicaragua also proved to be fertile ground for the environmental conservation movement, which had been gaining strength around the world. In Nicaragua, it came to play a role that would further complicate the historical territorial demands and problems with governance in the North Atlantic region. Proposals for forest and natural area conservation began to include the Atlantic region, particularly in the north. Here, the BOSAWAS conservation proposal gained momentum, in the framework of the Mesoamerican Biological Corridor and regional, international and central-government environmental commitments.

[12] 182,000 Spanish-speaking mestizos; 75,000 Miskitos; 26,000 Creoles; 9,000 Sumus (Mayangnas); 1,750 Garifunas; and 850 Ramas (Asamblea Nacional de la República de Nicaragua, 1987).

[13] The Law for the Communal Land Tenure System of the Indigenous Peoples and Ethnic Communities of the Autonomous Regions of the Atlantic Coast of Nicaragua and of the Bocay, Coco, Indio and Maíz Rivers was passed on 13 December 2002 (Asamblea Nacional de la República de Nicaragua, 2003).

[14] Historically, the Atlantic Coast has been an escape valve to take pressure off Nicaragua's Pacific and central regions. In the early 1990s, some 701,500 manzanas were distributed to demobilized combatants as part of the peace agreements between the Contras and the Sandinistas (66% of these lands were allocated to ex-Contras).

Declaration of the BOSAWAS Biosphere Reserve

The declaration of the BOSAWAS Biosphere Reserve converged with the worldwide environmental boom and concern about accelerated environmental degradation and its effects. This environmental awareness translated into a growing worldwide conservation movement and discourse that brought to the fore the urgent need to "protect" particular zones of global interest. In 1979, the BOSAWAS territory was designated as a reserve in response to the advance of the agricultural frontier. However, during the 1980s, the area was not managed, since it was a battleground in the armed conflict between the Sandinistas and the Contras. In October 1991, BOSAWAS was established as a National Natural Resource Reserve through Executive Decree No. 44-91.

BOSAWAS covers 14% of Nicaragua's land area; the core zone covers almost 800,000 ha, and when the buffer zone is included, the area extends to approximately 2,000,000 ha[15] and constitutes, together with the Tawaka, Patuca, Rus Rus and Río Plátano protected areas (all in Honduras), the largest contiguous protected area in Central America and one of the most extensive woodlands north of the Amazon. Six years after the presidential decree, BOSAWAS became a Biosphere Reserve in the framework of the Man and the Biosphere Program of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and joined the World Network of Biosphere Reserves.[16]

The name BOSAWAS comes from the geographical features that serve as landmarks for the boundaries of the Reserve's Core Zone: "BOcay" River, Mount "SAslaya," and "WASpuk" River. The boundaries of the buffer zone correspond to the administrative limits of the six adjacent municipalities bordering the Core Zone (see Map 2): Bonanza, Siuna, Waspam, Waslala, Wiwilí and Cuá-Bocay (the last two are in Jinotega, a department outside the RAAN). The buffer zone contains four protected zones (Mount Kilambé, the Peñas Blancas Massif, Mount Banacruz and Mount Cola Blanca in Bonanza), while the Saslaya National Park is in the core zone, in the municipality of Siuna (MARENA-BOSAWAS, 2004).

Over 200,000 people live within these limits.[17] Part of the population is made up of the main settlements of two indigenous communities inside the Reserve's core zone: the Miskitos, who live along the banks of the Coco River; and the Mayangnas, living in the center of BOSAWAS and along the banks of the Pis-Pis, Waspuk, Bocay and Lakus rivers (MARENA-BOSAWAS, 2004). These groups have a total population of approximately 25,000 people (Eriksson, 2003). It is also estimated that approximately 200,000 mestizos live primarily in the buffer zone (Eriksson, 2003).

Legally, BOSAWAS is Nicaraguan government property, under the management of the Ministry of Environment and Natural Resources (MARENA).[18] However, there are overlaps in

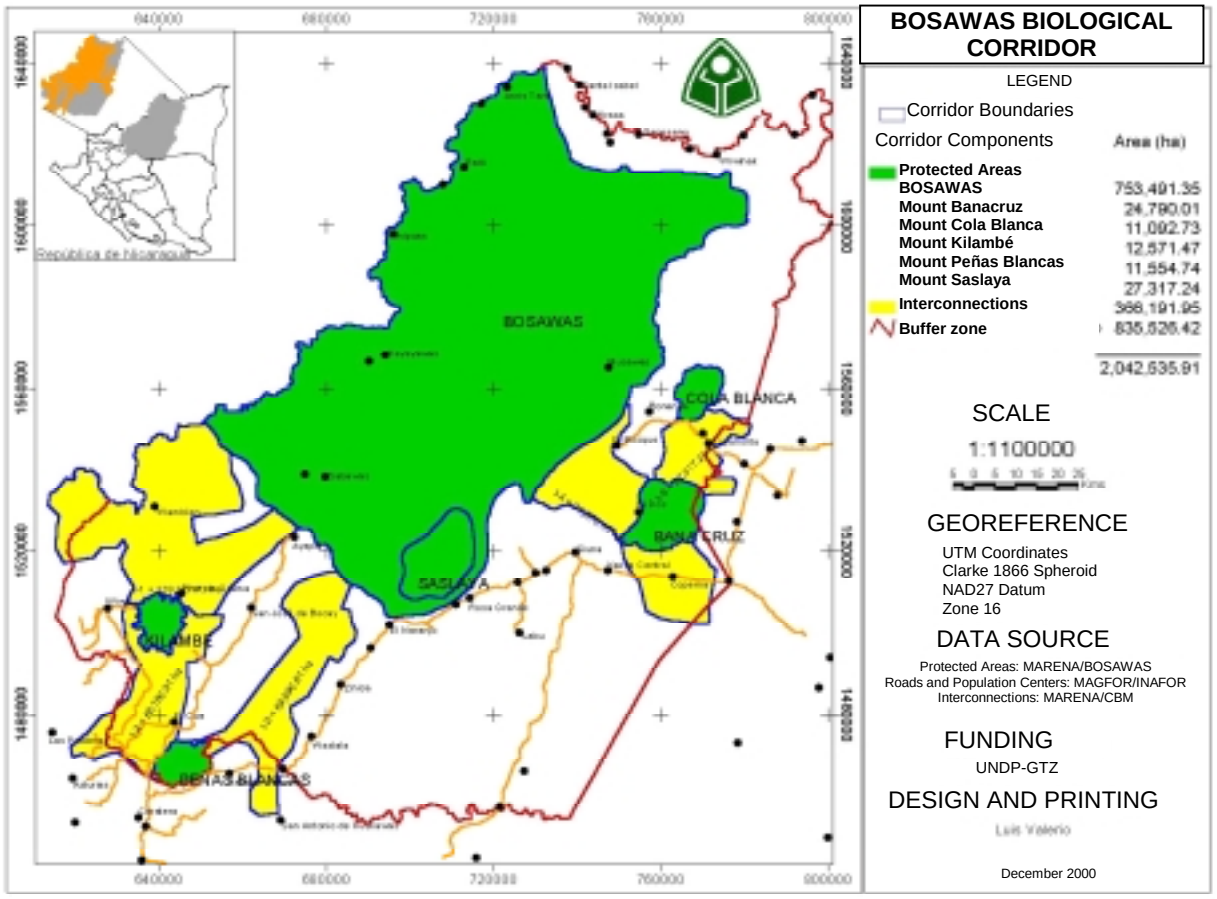
[15] The core zone covers 735,491.35 ha (7,441.9 km^2 and the buffer zone covers 1,307,044.56 ha (12,400 km^2). From: www.marena.gob.ni/areas_protegidas/reserva_biosfera_bosawas.htm

[16] www.marena.gob.ni/areas_protegidas/reserva_biosfera_bosawas.htm. The Reserve was created to conserve the flora and fauna of the region through the sustainable management of its resources and to protect the cultural heritage of the indigenous groups in the zone (Stocks, 1998).

[17] This was the estimated population when Decree No. 44-91 was issued and included the core zone and buffer zone.

[18] The BOSAWAS Technical Secretariat (SETAB) is the executive body of the Ministry of Environment and Natural Resources and of the National BOSAWAS Commission. The conservation activities were set forth in the BOSAWAS project, initiated in 1994, which was funded primarily by German cooperation agencies, particularly GTZ and KfW (SETAB-UNESCO-MAB, 2002). This aid was centered on formulating a management plan and on addressing the issue of the demarcation of the indigenous territories. The reason the activities were concentrated in the core zone was that this was the most

Map 2:
BOSAWAS Biosphere Reserve and Corridors



Source: Corredor Biológico del Atlántico de Nicaragua.

jurisdiction, since geographically, BOSAWAS is located in an autonomous territory (RAAN), it is shared by several municipalities, there are six indigenous territories inside the core zone, and even within the central government, there is overlapping authority between different government ministries.[19]

In additional to this array of legal authorities, the Reserve was created against a backdrop of significant disputes of differing natures between indigenous and mestizo groups, armed bands, national and international extractive industries, non-governmental organizations (NGOs) and churches (Kaimowitz, 2003). This has meant that its creation as well as its control and management have been quite complex, and reflect the contrasting interests and points of view of the different territorial actors.

peaceful area in a climate of extreme insecurity and social disintegration.

[19] A clear example of this is the mining concession inside the Reserve to the U.S. company Nycon Resources on land that the Mayangnas consider to be theirs. It was approved by the Ministry of Economy and Development (MEDE) and the concession was granted without consulting the Ministry of Environment, the RAAN, the municipality of Bonanza or the Mayangna community (Stocks, 1994, in www.alistar.org.ni/ English/case_study.htm).

Both the declaration of the BOSAWAS National Natural Resource Reserve and the subsequent declaration of the BOSAWAS Biosphere Reserve were manifestations of convergent international conservation interests and Nicaraguan governmental interests, demonstrated by the lack of mechanisms and processes for consulting with the coastal population, which was not even informed about the declaration. BOSAWAS was declared a reserve so hastily that baseline studies and precise territorial demarcation were left undone; rather, the declaration revealed the Nicaraguan government's urgent interest in meeting the requirements for qualifying for financial aid, especially from the World Bank and the Global Environment Facility (GEF). Along these lines, the establishment of the BOSAWAS also reflects the conservationist wave that came to the Atlantic region, which was attempting to increase conservation areas in ecologically important zones, from the standpoint of maintaining global environmental security by seeking to protect and conserve biodiversity.

The declaration of the BOSAWAS was advantageous to the Nicaraguan government, not only for gaining access to new funding sources, but also for exercising territorial control through a concrete institutional framework. The declaration of the BOSAWAS implicitly reinforced the State's property rights, as the entity with the authority to designate the natural reserve status first and the biosphere reserve later. However, the central government has little presence and even less actual control in BOSAWAS.

In practice, there are other actors and populations that have the actual control, and in some cases, legal rights over this territory. Among these are the indigenous communities, which are traditional inhabitants and have a historic claim to the territory. In fact, the Autonomy Statute of 1987 recognized the communal, collective and individual property rights of the indigenous populations, including rights to management, exclusion and alienation. This law established that the exploitation of natural resources (minerals, woodlands, fisheries, etc.) on communal lands in the autonomous regions must be governed by agreements between the regional and central governments. However, no clear regulations exist for putting this law into practice. Even more critical, the government has not awarded property titles for the indigenous lands – only 9% of the land in the RAAN is titled—and absent this, the land is deemed to be State property (Eriksson, 2003). This fact enters into frank contradiction with the intention of the Autonomy Statute, and also with the way the indigenous people view their ancestral territorial rights. The 1991 declaration was made at almost the same time that indigenous and other groups of people who had been forcibly displaced during the war between the Contras and the Sandinistas were being repatriated and were seeking to return to their traditional territories, which compounded the situation and made it a source of tension (Stocks, 1998).

Another key actor in the zone – actually the majority of the population – is the mestizo peasants, who also were not consulted about the declaration of the BOSAWAS. In general, these people are natives of Nicaragua's Pacific region who migrated to the Atlantic region encouraged by the mining, banana and logging companies being established and in search of access to land. Mestizo peasant settlements abounded in the municipalities of Wiwilí, Cuá Bocay, Waslala, Siuna and Bonanza, precisely in the territory that now corresponds to the Reserve's buffer zone. This population depends on access to land to ensure the viability of their livelihood strategies, based primarily on subsistence farming with the goal of their own food security. However, more and more these strategies are being combined with small-scale livestock pro-

duction. This population's main interests are linked to land tenure security in order to ensure their livelihoods, buttressing the colonization process, which uses "improvements" as a mechanism to facilitate the acquisition of property rights.[20]

Restrictions on access to the BOSAWAS core zone

Control and administration of the Reserve is made even more difficult by the particular history and evolution of property rights, overlapping authority and economic interests in the territory, exacerbating the tensions between all the stakeholders claiming control over the territory. The declaration of the BOSAWAS reserve sought greater restrictions on access and use by all these stakeholders. Given the haste in the process, no specific regulations were established, especially important given that in Nicaragua the status of Natural Reserve lacked a precedent (Stocks, 1998). The legal instrument that governs the protected areas is the Management Plan, which until very recently was still in the draft stage.

It is striking that indigenous groups and other actors in the territory were not consulted prior to the declaration of the Reserve. In fact, when preparation of a management plan for the Reserve began, with support from agencies such as The Nature Conservancy and the German technical cooperation agency (GTZ), the process was limited to the communities in the core zone (which are almost entirely indigenous groups), relegating the rest of the actors, such as the settlers in the buffer zone, to the sidelines. This mirrors the initial approach to management of the Reserve, which was based on an essentially top-down approach to planning. This is consistent with its status as a biosphere reserve, which has been characterized by processes that pay only lip service to participation (Stocks, 1998).

With the declaration of the Reserve, the historical demand for autonomy by the indigenous populations resurfaced with more intensity and they used this as an opportunity to demand the demarcation of their territories. Eriksson (2004) explains that before the demarcation process, the communities had not felt any need to make this demand, since the land was considered to be theirs de facto. However, the designation of the Reserve forced the communities to demarcate their territories for the purpose of underscoring their claims on the Nicaraguan State and to gain a foothold in the management of the reserve.

Despite the fact that the Autonomy Statute supported indigenous communal, collective and individual property rights, it was not until 1994 that the process began for the demarcation of the six indigenous territories in BOSAWAS.[21] The World Bank included US$10 million in the Rural Municipalities Project for supporting activities related to the Atlantic Biological Corridor, including funding for the management of protected areas, biodiversity projects and the demarcation of indigenous territories (World Bank, 1996).[22]

[20] Commonly, in Nicaragua only land under "efficient use" is considered to be eligible for being claimed. Efficient use means land being used for agriculture or livestock, which explains why "improvements" on the land (clearing the forest, burning, etc.) have become a means backed by law through which it is possible to gain access to land (Eriksson, 2004).

[21] These territories are Mayangna Sauni As, Mayangna Sauni Bu, Mayangna Sauni Bas, Miskitu Tasbaika Kum, Li Lamni Tasbaika Kum and Kipla Sait Tasbaika. The territorial demarcation was based on traditional areas of the different Mayangna and Miskito family groups. The process adopted the traditional territorial concept of the indigenous people, where boundaries are defined by the forks in rivers. However, conflicts arose in defining the borders, particularly in the areas more distant from the rivers, which were traditionally lesser-used territories, although they were considered to be common areas (Eriksson, 2004).

[22] This project also included the involvement of the local communities, indigenous groups and regional and local governments in biodiversity management using communication, par-

The demand for demarcation led indigenous groups and international conservation organizations to forge alliances. This became manifest in the new environmental discourse adopted by indigenous groups in which they consider themselves to be part of nature, as traditional inhabitants that live in harmony with their surroundings and as such, safeguard the environment. In this collective imaginary, the colonizers (mestizos) are seen as the invaders and destroyers of natural resources. These ideas struck a chord and indigenous people and conservation organizations integrated them into their discourses.

In the case of the indigenous communities, the environmental discourse was based on the argument that their practices with regard to natural resources involve caring for the environment, but more importantly, their discourse was related to their historical claim for autonomy and control over their territories (Eriksson, 2004). Thus, for the indigenous groups, demarcation was directly linked to their efforts to stop the mestizo invasion, which was also manifested in their voluntary formation of a corps of indigenous forest rangers for their territories, along with filing complaints with the central government to evict the invaders (Stock, 1998).

The Lack of a proposal for the BOSAWAS buffer zone

The indigenous-mestizo dichotomy was reflected in the efforts to design a management plan for the BOSAWAS Reserve – with its implications for financial and technical assistance and with the demarcation of the indigenous territories – which have been almost entirely focused on the core zone. In fact, in a study on BOSAWAS, done by SIMAS-CICUTEC (1995), it came to light during the information-gathering stage that the informants were referring to a "Buffer Zone," even though there was no legal or technical frame of reference to support the use of this concept.

The lack of greater integration of the buffer zone reflects the prevailing trends and approaches of those years (which still predominate), of traditional conservation discourses, which tend to concentrate on "primary" or "virgin" forests, without paying sufficient attention to the important role played by the buffer zones in maintaining the ecological stability of the ecosystems. The minimal references regarding management of the BOSAWAS buffer zone reinforce this obsession, which in its most recent version proposes the need to establish "biological corridors" that connect the four protected areas located inside the buffer zone (Mount Kilambé, Peñas Blancas Massif, Mount Banacruz and Mount Cola Blanca) and the Saslaya National Park in the core zone.

BOSAWAS: The conjunction of several frontiers

The primary purpose announced for declaring BOSAWAS a National Reserve, and subsequently its joining the World Network of Biosphere Reserves, was associated with containing the agricultural frontier. The definition of an agricultural frontier is an area where agricultural activities compete with and put pressure on forest zones. However, in the case of BOSAWAS, several frontiers come together, ranging from the economic to the cultural and institutional. Eriksson (2004) considers that agricultural frontier is a term that refers to human interventions that convert primary forests to agricultural or livestock uses. Thus, the agricultural frontier describes a change in land use that is environmentally and economically unsustainable due to losses in biodiversity and land productivity. It is also unsustainable socially and spatially, because the carrying capac-

ticipation and training activities; and planning, monitoring and evaluating land and biodiversity use.

ity of the land cannot sustain the human population for more than a couple of years, forcing the people to abandon their lands and to move to new areas, expanding and/or extending the frontier. Eriksson (2004) also points out the kinds of frontiers that exist in Nicaragua's North Atlantic Autonomous Region:

- Ethnic frontiers: because this is a region with an enormous diversity of ethnic groups (Mayangnas, Miskitos and mestizos), with distinct cultures, beliefs and traditions;
- Political-administrative frontiers: because of the different jurisdictional levels that exist and overlap within the same region (autonomous governments, municipalities, indigenous territories);
- Occupational frontiers: because even though the region is more suited to forestry, this is juxtaposed with extractive enterprises such as mining, with subsistence agriculture and with livestock;
- Mental frontiers: due to the legacy of paternalism and handout-based aid that has smothered the self-management potential of the local population;
- Institutional frontiers: expressed by different institutions working on their own, with little or no coordination.

This multidimensionality of the frontier makes management of the territory particularly complex. Comprehension of this complexity is crucial, not only for advancing toward better governance in this territory, but also for understanding the emergence of PCaC and valorizing its positive role in more viable and sustainable management of this territory.

Origins and development of Siuna PCaC

In the buffer zone of the BOSAWAS Biosphere Reserve, the work in Siuna stands out for having successfully decreased the advance of the agricultural frontier, by building peasant farmer networks that spurred the accumulation and sharing of their "campesino knowledge," a part of their livelihood strategies

This section first discusses several critical contextual elements that contributed to the beginnings and success of the campesino to campesino methodology in Siuna and to its later evolution, and then several characteristics of the support that Siuna PCaC has received during the different stages of its development.

PCaC's origins[23]

PCaC came out of a time of transition and reflection in the Nicaraguan campesino movement. This transition was marked by the role played by the Contras, who had ignited a military revolt with the participation of peasant farmers and who were very active in northern Nicaragua, including the territory around Siuna. Reflection and discussion in the mid-1980s around the reasons for the military revolt and why peasants had gotten involved in the Contras led to the conclusion that it was necessary to start a pilot project in an attempt to reconquer those territories, which involved developing an organizing strategy. By the 1990s, the association of peasants and farmers created under the Sandinistas (the Unión Nacional de Agricultores y Ganaderos – National Union of Farmers and Ranchers—UNAG) had set their sites on making an attempt at rural reconciliation, recognizing that "the peasants had been victims of the main political forces," and that "a reconciliation effort" was merited (Castrillo, 2004). In this context, UNAG began PCaC in Siuna to provide an opportunity for dialogue and reconciliation centered on small individual farmers, who had been relegated by the Sandinista government, which had favored the cooperatives. Strategically, PCaC's work would revolve around its methodology using dialogue, communication and empowerment.

In point of fact, campesino to campesino is an intensely empowering methodology. Beyond the significance and bearing of the technologies that are disseminated and explained, a fundamental element of campesino to campesino methodology is peasant experimentation and horizontal learning, where the systematization aspect of experimentation is a determining factor in establishing horizontal learning relationships. López and Rivas (1997) stress that in horizontal experimentation and learning communication is essential, understood as peer relationships among farmers that break down their wariness toward participating and fear of contributing and where clear, simple language is used to promote understanding, in an attempt to strengthen their innovative spirit and the capacity to pass on their knowledge among themselves.

Pasos (2001) explains that campesino to campesino is not only a methodological toolkit or a set of farming techniques, but is the largest farming movement in the Nicaraguan countryside. Through it, small farmers and cattle ranchers are addressing the perennial state of crisis in rural life, as well as creating proposals

[23] This section is based on the discussions and contributions of the coordinating team for the Project "Learning to Build Accompaniment[0] Models for Grassroots Forestry Organizations in Brazil and Central America," particularly Rubén Pasos, Deborah Barry and Nelda Sánchez, during the meeting held in San José, Costa Rica, 19-20 July 2005.

for developing their farms and communities. This movement, therefore, must be understood in the light of the "seven secrets" that ensure its relevance and sustainability (see Box 2).

Of the 14 PCaC's being fostered by the National UNAG across Nicaragua, the one in Siuna progressed the most quickly and most successfully, both in terms of leadership and growth, as well as with innovations in the use of velvet bean and other crops. This can be explained by the conditions in the region and the history of the commitment and dedication of the first campesino promoters who were trained by PCaC in Siuna. In the 1980s, Siuna was a Sandinista–Contra war zone, and in the 1990s – despite the ceasefire – numerous armed bands continued to operate in the area (ex-combatants, armed illegal loggers, drug traffickers and criminals).

Likewise, with just one dirt road that was impassable half the year, Siuna was an isolated region on a frank course to social disintegration, to such an extent that in 1994 the public bus between Siuna and Río Blanco was held up 14 times. The region was a no-man's land; only the army, the armed bands and PCaC could operate.

The first generation of PCaC promoters in Siuna was made up, almost in its entirety, of Sandinista supporters, including those who had been Sandinista guerrilla fighters and collaborators. However, at present, Siuna PCaC's members come from a variety of sectors, including Sandinistas, ex-resistance members, Liberal Party supporters, Catholic and evangelical church members, among others. The commitment displayed by the promoters who began PCaC in Siuna is related to their own histories and to the historical period the country was going through at the time. Siuna was a war zone, and the significance of the revolutionary paradigm meant that people who decided to become militants were willing to give their lives.

The growth of PCaC in Siuna also coincided with the loss of the revolution. Therefore, what happens with PCaC in Siuna – Why does it work? Why does it grow? – is also associated with the fact that it fills a void left by the revolutionary paradigm. The empowering methodology and the characteristics of Siuna PCaC's promoters were crucial to rebuilding the social fabric of the territory. Its growth among peasants linked to the ex-resistance and different political parties, who have gotten involved in PCaC activities, is a testament to its capacity to create conditions for reconciliation and dialogue.

Stages in PCaC's development[24]

Siuna PCaC has evolved since its creation in1992, going through a process in which four stages can be distinguished: peasant experimentation, stabilization of families in a fixed territory and restraining the advance of the agricultural frontier,[25] widespread adoption and organizing the promoter network, and the group's reorganization and move toward commercialization.

[24] Las siguientes etapas fueron identificadas y discutidas por los líderes fundadores del Programa Campesino a Campesino de Siuna durante el taller realizado en Siuna, el 1 de abril de 2004, en el marco del Proyecto "Aprendiendo a construir modelos de acompañamiento para organizaciones forestales de base en Brasil y Centroamérica."

[25] Restraining the advance of the agricultural frontier refers to the transformation of farming practices by the Siuna Campesino to Campesino farmers, although it is clear that the agricultural frontier continues advancing in the rest of the BOSAWAS buffer zone.

Box 2

Nicaragua: The seven secrets of the Campesino to Campesino Program

Farmer experimentation and appropriation: When PCaC begins working in new communities, they limit what they offer to an agricultural technology that has a proven impact on the system of production. Farmers learn how to measure the results of an experiment and compare them with their traditional farming methods, which at the same time fosters appropriation of the experimental method on their farms. The experiments are simple and small-scale, and designed to not compete for resources (labor, land or supplies) with the farm's traditional crops and, in the case of failure, will not endanger the family's livelihood.

Experience sharing that invokes local knowledge: Campesino to campesino entails dialogue among peers, among farmers who have an issue in common, contributing significantly to building self-esteem. The people get involved in a collective quest to improve their farms, which draws them into an increasingly broad effort through trying to do something individually at the farm level. When society recognizes the value of the positive results of experimentation on the farm, it leads to an "almost biological" need to share them. For this reason, campesino to campesino promotes and organizes exchange programs between farmers, encouraging them to develop the capacity to mobilize their farming knowledge.

Productive dialogue and productive innovation: Productive dialogue starts among the people themselves at the local level; it emphasizes proposals that improve on what is already in place while attempting to avoid promoting technologies that are the sole domain of experts or that require extensive prior training. When an array of technologies are introduced by experts, the local process of mobilizing capacities and experiences is quashed, and the opportunity is missed to set in motion local efforts to seek constant innovation in the communities, which is a central pillar of PCaC's approach to rural development.

Horizontal dialogue and the logic of having things in common as a factor in the multiplier effect: Campesino to campesino spreads rapidly because there is little or no differentiation between the farmers. Horizontal dialogue means that proposals for farming practices come from one farmer whose only difference from the other farmer is the "new practice" with which he has experimented. The principle of PCaC is that sharing only takes place when it goes both ways, when the farmers have something to share. This is understood as a horizontal relationship that raises the self-esteem of the farmer who has accomplished something with his crop that he can now share, and when the "new farmer" is encouraged to use the proposed technology so that he too can try it and see for himself.

Promoter – an organizer of productive outcomes: In order to expand and multiply, campesino to campesino does not require the most highly-trained farmer, just the most highly motivated ones; it does not require special farms, just common ones where there are "productive outcomes." The role of the promoter is to point out productive outcomes and make them visible, along with visiting the farmer-experimenters and encouraging them to share and exchange their experiences.

Innovation happens...when its constant pursuit becomes fashionable: The combination of productive breakthroughs on individual fields, motivation and self-esteem contribute to the community's capacity for constantly pursuing innovation, where the local initiative that is set in motion easily branches out to new areas of activity (commercialization, credits and environmental issues), as well as to changes in the organization, and especially, to changes in what people do, with respect to what they were doing before.

The constant emergence of local leaders: As an outgrowth of the dynamics of experience sharing, new leaders acquire new visibility; their influence is based on a new profile, characterized by their making a contribution to production alternatives in a difficult social and productive context and by the pride they feel in what they are doing with their land.

Source: Based on Pasos (2001).

Experimentation (1992-1994): Finding the key in the velvet bean

The National Union of Farmers and Ranchers (UNAG) of Nicaragua was created in 1981. It brought together core groups of peasants and medium-sized producers who had collaborated with the Sandinista guerrilla forces and who then became pillars of UNAG's development (Baumeister, 1998).

In 1987, UNAG began the Campesino to Campesino Program (PCaC) in Nicaragua as a training program for peasant farmers. This was the only concrete assistance available for small, individual farmers in a political and institutional climate that favored state agricultural enterprises and the cooperative movement, where the dominant official view favored a socialized model for the countryside (Pasos, 2001).

UNAG, through PCaC, sought to promote the adoption of agricultural techniques that would be more appropriate for Nicaraguan peasant families in living hilly areas with degraded land.[26] The initial campesino to campesino proposal was focused on promoting a soil conservation program aimed at small-scale hillside farmers, implemented primarily in the dry areas of Nicaragua's Pacific and central regions. By 1989-1990, PCaC had grown and had concentrated on soil and water conservation, as an option for natural resource management on hillsides in the dry tropics of Nicaragua.

In 1992, UNAG decided it would promote Campesino to Campesino Program activities in Siuna, for the purpose of using peasant practices and methodologies to contribute to the stabilization of farmers on the agricultural frontier, contribute to food security and to begin restoring deforested areas in the southeast part of BOSAWAS (UNAG-PCaC, 2002). However, this was a region of heavy armed conflict and associated social disintegration. UNAG was unfamiliar with the region's humid tropical conditions and lacked a technology and resource management plan for the specific conditions in Siuna. Therefore, it centered its proposal more on promoting the campesino to campesino exchange methods, a key aspect of its empowerment methodology. The Program was officially run by the UNAG president in Siuna. In 1993, UNAG was at the point of closing down in Siuna, but the Campesino to Campesino Program would give it a concrete reason to remain (PCaC-UNAG de Siuna-Oxfam GB, 1999).

The unstable conditions were aggravated by the constant migration of peasants toward the BOSAWAS Reserve zone in search of fertile land. Their agriculture was based on cutting down and burning the forest in order to grow food, which was accelerating the advance of the agricultural frontier. This spurred the interest of Oxfam Great Britain, which was already supporting projects in the Nicaraguan Caribbean, to allocate the first funds to the Campesino to Campesino Program in Siuna through UNAG, for beginning exchange programs and workshops between peasants in the mining region (Siuna, Rosita and Bonanza) and farmers from Matagalpa and Boaco (Oxfam GB-PCaC-UNAG Siuna, 2000).

The first exchange programs were with peasants from the community of Rosa Grande, which was a colonization front in Siuna.[27] In

[26] During the start-up years of the Campesino to Campesino Program, UNAG and the Servicio de Desarrollo y Paz in Mexico coordinated exchange programs for peasant farmers from both countries, encouraging them to share technological practices and experiences (López and Rivas, 1997).

[27] In addition to Rosa Grande, the BOSAWAS National Reserve Natural Resource Management Project identified five more colonization fronts: Wiwilí, San José de Bocay, El Naranjo, Waní and Raití Walakintang (SIMAS-CICUTEC, 1995); while PCaC identified an additional front made up of the communities of Campo Uno, El Dorado, Azadín and San Pablo de Aza, all in the municipality of Siuna (Zamora and Rivas, n.d.).

August 1993, three peasant farmers from Rosa Grande participated in an exchange program in the community of Cafén, in the municipality of Boaco, where velvet bean had been used to help restore and conserve soil fertility. The Rosa Grande farmers were interested in finding out whether they could get similar results on their farms, which motivated them to learn enough about velvet bean to be able to experiment with and adapt this new production technological to their own situation (Rivas and Zamora, 1998). Enthusiasm sparked by the results that the Rosa Grande farmers observed led them to start a trial with velvet bean based on the exchange program methodology (Box 3 discusses velvet bean's qualities and characteristics and its importance to farmers).[28] Between 1993 and 1994, 13 Rosa Grande farmers began to experiment with velvet bean. This initial experiment spread to five communities of Siuna, which built up sufficient local experience and documentation to support preparation of a first project proposal in 1995, which was funded by Oxfam Great Britain (Oxfam GB-PCaC-UNAG Siuna, 2000).

This stage consisted primarily of trying out what the Rosa Grande farmers had seen in Boaco. The PCaC coordinator had convinced two farmers who had been in UNAG, who soon became the main velvet bean experimenters. For this, they decided to start on land that was no longer productive. They experimented by using test plots and concentrated on farms that were located close to the "auras,"[29] which made it easier to see the impact of these new farming practices that use cover crops. Thus, Rosa Grande became a "bastion of experimentation" and although the organization was new, the leaders had begun to map out a proposal that would include their interests in harvesting more on less land, growing crops in one place and preventing burning.

In addition to the local work with exchange programs, visits and field days in the municipality, the farmers who adopted the velvet bean technology were visited by over 300 farmers from the municipality in the first two years (Zamora and Rivas, 1998). At the end of this stage, Siuna PCaC did not have permanent technical staff to accompany the process, beyond the assistance from the PCaC Central Technical Team from the National UNAG office in Managua. According to Siuna PCaC, at this point, there were 25 promoters and around 76 farmers who had begun the process of transforming their traditional farming practices.

Systematically, Siuna PCaC successfully put together an alternative that surpassed and replaced slash and burn agriculture. Practices that worked to stabilize and restore degraded territories based on the promotion of legumes and green manures became the key that opened the door to capturing farmers' interest: *"…If your whole life you have been looking for good land and suddenly you realize that you can always have that good land right next door, you only have to know how to use velvet bean and the good land comes to your house, and you can plant whatever you want there, that is what you have been looking for your entire life. How can that not have an impact on you? How can that not have an impact on others? ... Yes, all you need to do is look at Fausto's farm, which was on junk land, and suddenly he is harvesting and he harvests 30, 40 and up to 50 hundredweight of maize every year and what he plants, produces, so, for me, that is a tremendous impact"* (Agustín Mendoza, in OXFAM GB-PCaC-UNAG de Siuna, 2000).[30]

[28] Campesino to campesino methodology is based on instructional strategies intended to motivate agricultural experimentation by using community participation methodology and relying heavily on the communication that arises among farmers, which is understood as horizontal peer relationships (Sáenz, 2004).

[29] These are roads inside the peasant landscapes traveled by farmers and their families, which are used for transporting their produce by beasts of burden.

[30] Mr. Agustín Mendoza was one of the best promoters that Siuna PCaC had and one of the best UNAG leaders. In 2002,

Box 3
Velvet bean

Velvet bean (Mucuna pruriens) or green manure (*frijol abono in Spanish*), originally from China, has been grown since antiquity for improving degraded soils, human and animal consumption, crop rotation and weed control. It is said that velvet bean was brought to Mesoamerica by the banana companies to feed the mules used to haul bananas. The banana companies stopped growing it, but farmers began to use it as green manure in order to provide forage and cope with dwindling soil fertility and weed infestation.

Velvet bean is a climbing annual with hardy growth and a height of 30-80 cm. It has fleshy, shallow roots and sturdy, sparsely pubescent stems that grow up to 15 m long. The seeds may be broadcast, planted in rows or planted with a digging stick. Planting with a digging stick uses 30 lbs per manzana; planting in rows, 50 lbs; and broadcasting, 60 lbs. It can be planted alone as a soil conditioner in fallow fields or as a companion crop with maize, cassava, coffee and others. For green manure, it is incorporated in the soil at the flowering stage; as a cover crop, it can stay in the field until the harvest.

Velvet bean contributes to:

Improving soil fertility and structure: Velvet bean's biomass degrades rapidly, liberating its nitrogen. Its contribution to increasing the organic matter in the soil is slow and becomes noticeable after several years of intercropping velvet bean with other crops. Velvet-bean cover improves soil structure in the medium term.

Weed control: It contributes to weed control by forming a dense ground cover. If it is not managed, velvet bean can become a weed itself because of its vigorous growth.

Source of human food: The beans can be roasted and mixed with coffee or maize. Human consumption requires careful processing to detoxify the beans. In Siuna, it is used as an ingredient in *cajeta, atole,* rice and beans, and mixed with meat in meals.

Erosion control: It reduces erosion through reducing the impact of the rains on the soil. This effect can be seen three to four weeks after the velvet bean is planted. On steep slopes, especially in areas with high precipitation and soils with low infiltration capacity, it is combined with other soil conservation practices.

Soil moisture conservation: The denser ground cover reduces the impact of the rains, improves infiltration and preserves moisture better. However, in drylands, intercropped velvet bean competes with the main crop for water. Studies have shown that velvet bean has a positive effect on yields of all other crops because of its excellent soil moisture retention.

Wind protection: If velvet bean stubble is left in the field following the second season it protects the soil against wind erosion.

Source: CBM, 2002.

In Siuna, as a result of the war in the 1980s and the prevailing climate of insecurity, many families were fragmented and some of the communities were polarized. But there was a situation that would contribute to awakening the interest of the farmers. Many were interested in finding alternatives to their traditional swidden agriculture, and this became the motivating factor for the first visits and exchanges. In this context, PCaC also became a vehicle that would later contribute to uniting farmers, families and communities around a common technological

Agustín was murdered by one of the armed bands active in the area.

and production agenda. This agenda would be developed by the people themselves and would eventually become a platform for addressing other social problems, such as security, health and recreation, among others (UNAG, 2002).

Promoting velvet bean (1995-1997): Stabilization of families, food security and containing the agricultural frontier

This stage was marked by two milestones: the first pilot project in 1995 to support Siuna PCaC's strategic objectives and the Siuna UNAG Assembly in 1997. Growing velvet bean as a companion crop to maize had already become an option for sustainable production. It is easily adopted and transferred and requires few external inputs and, in addition to contributing to the stabilization of agricultural systems, was promising to reduce the pressure on natural areas. Using this as their rationale and based on the results obtained in Rosa Grande, PCaC submitted its first project proposal to Oxfam Great Britain, aimed at expanding the work in Siuna and diversifying the technological and methodological components in order to implement an agricultural system appropriate to humid tropical conditions. The project's central objectives were aimed at improving the production systems of peasant families, conserving the environment and improving the campesinos' quality of life (Oxfam GB, 2000).

During this stage, PCaC concentrated on promoting a shift away from practices based on slash and burn agriculture, on initiating diversification of farm production and on containing the advance of the agricultural frontier. The resources provided by Oxfam went into expanding PCaC's area to eight additional communities along all the routes near Siuna (to Waslala, Rosita and Río Blanco), and the exchange visits between communities started to take place.[31] PCaC's aim was to get people talking amongst themselves about the benefits of what they were promoting.

The methodology of exchange visits was no longer limited to promoting and experimenting with green manures; it now included agricultural diversification strategies using at least 10 different crops, including fruits and perennials such as cacao, allspice, coconut, cinnamon and medicinal plants. This led to planning how farms and house yards would be used, the latter leading to getting women involved. Thus, in addition to increasing yields of basic grain crops, diversification was contributing to improving the conditions for food security, which would be a key element in farm stabilization, leading to a reduction in the amount of land need for basic grain production.

At this stage, PCaC was growing stronger. Plant stock was provided to the promoters, whose job included making visits in their own communities. During this stage, they started to use videos filmed on the promoters' farms and they sought a strategy to reach out to community leaders (church workers, health promoters, etc.), who contributed to expanding program outreach. Promoter groups were formed and gradually these committees started naming coordinators. Eventually, the first promoter committees grew into the group that participated in the First UNAG-Siuna PCaC Assembly in April 1997.

[31] Zamora and Rivas (n.d.) mention that 91 activities were held during 1996, including workshops on the use and management of velvet bean; experience sharing between communities in the same municipality; promotion using videos filmed on promoters' farms in Siuna; and exchange visits outside of Siuna. By then, a total of 2,389 individuals had participated in the different activities. There were 10 exchange visits outside the municipality that same year, which included Boaco, Matagalpa, Santa Lucía, Nueva Guinea, El Rama, Río San Juan, Managua and Dipilto; two farmers also participated in exchange programs in Honduras and Cuba.

Since it began in 1992, the practice of campesino-led promotion and experimentation had been aiding in the emergence of new leaders and promoters. Although the process was supported by the Siuna UNAG president, there were differences of opinion from some of the National UNAG directors. In part, this could be explained by information problems, but additionally, in 1997, several of the Siuna PCaC leaders were interested in taking control of Siuna UNAG. The Siuna UNAG president and the Siuna PCaC coordinator were also dealing with personal problems at that time.

This was the backdrop to the assembly in 1997 where the Siuna UNAG authorities were elected. Almost all of the assembly members had been motivated to participate by having been involved in the campesino to campesino process. At the assembly, a new Siuna UNAG president was elected and agreement was reached to reelect the Siuna PCaC coordinator, who also became a member of the Siuna UNAG Board of Directors. However, the new Siuna UNAG president would have a different perspective on the work of Siuna PCaC and he was much more interested in taking advantage of the fundraising potential Siuna PCaC had developed. He used the argument that Siuna PCaC should be controlled by UNAG, despite the fact that the promoters and farmers had always been grateful for UNAG's role and support. For the Siuna PCaC promoters and coordinator, this reflected the Siuna UNAG president's vested interest in controlling the resources and projects that were supporting the process, rather than in supporting the development and consolidation of Siuna PCaC.

In these conditions, the Programa[SCG2] Frontera Agrícola (PFA- Agricultural Frontier Program) was close to providing support for Siuna PCaC's strategies and objectives, convinced that sufficient local management capacity existed.

The promoter-leaders became aware that the new Siuna UNAG president wanted to change the focus of PCaC and they decided, without breaking ties with UNAG, to form a Board of Directors, and they convened an assembly of the most active promoters. In late 1997, Siuna PCaC had formed its Board of Directors, which had the objectives of keeping alive the organizing process created by PCaC, becoming more involved in Program decisions and improving implementation and monitoring of the activities supported by Oxfam GB and by the PFA. In this way, the network of leaders, promoters and farmers was able to maintain control over the real power that gave life to PCaC, and therefore, to Siuna UNAG, even though they did not control the formal structure.

Scaling Up (1998-2000): Organizing and consolidating the promoter network

This was the stage of the most widespread dissemination and promotion. Funding from the Agricultural Frontier Program was used to provide PCaC with the means for communicating, such as televisions, video cameras, motorcycles, and other equipment. PCaC worked on expanding to other municipalities with the objective of making the Program visible everywhere, reaching out to other farmers and disseminating information on a mass scale. In addition to these communications tools, in this stage they began to use methodological tools that later would have a considerable impact on natural resource management, such as true-to-scale mapping of farms and communities.

The promoters' Board of Directors divided PCaC's work into four zones, the initial step toward a more territory-oriented organizing process. Regular Board of Directors meetings were scheduled every two months and they began writing reports. Meetings were held with

community leaders and in contrast to the prior stages, each promoter had to serve a group of six or seven communities. It is estimated that at this stage, 60 communities and 300 promoters were involved in the Program.

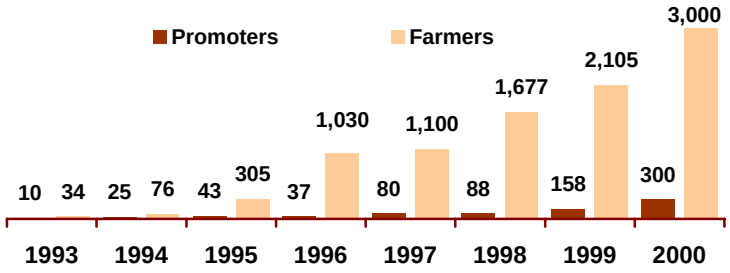
The Siuna UNAG budget was essentially covered by Oxfam GB funds channeled through National UNAG, in contrast to the funds provided by the Agricultural Frontier Program, which were allocated directly to Siuna PCaC,[32] which made it possible to purchase the current Siuna PCaC office.

It was at this point that the relationship between the Siuna UNAG president and the Siuna PCaC promoters' Board of Directors fell apart. Up through 1998, Oxfam GB had been disbursing funds for Siuna PCaC to National UNAG, which in turn, disbursed the funds to the Siuna UNAG president, according to a quarterly plan that he would submit. Up until then, two Siuna UNAG administrators were the ones in charge of administering the funds. With the prior Siuna UNAG president, this had worked well, but the new president stopped informing the PCaC promoters and Board about the disbursements, generating mistrust. In April of that year, the PCaC Board agreed to form an administrative team so that the funds could be administered by specialized personnel. It was in this context and in the framework of this agreement that the PFA funds were given directly to PCaC, which were provisionally administered by an administrator from PCaC, while the administrative structure was being set up. The Oxfam GB funds also switched to being administered by the PCaC officer.

This arrangement worked for three months, until discrepancies arose among the Siuna PCaC administrator, the Siuna UNAG president, the Siuna PCaC coordinator and the new promoters' Board, ending in the dismissal of the administrator, which was agreed upon by all. Despite the hiring of a professional administrator, the Siuna UNAG president centralized the administration. In 1999, Oxfam GB allocated the funds to Siuna UNAG, but given that the UNAG president was frequently in Managua, many of the programmed activities were delayed; in light of this, Oxfam GB channeled the second disbursement for that year directly to Siuna PCaC, streamlining the execution of activities (PCaC-UNAG de Siuna-Oxfam GB, 1999).[33]

Graph 2

Siuna PCaC: Number of promoters and farmers (1993-1999)



The PCaC Board was obstructed by the Siuna UNAG president with the support of a National UNAG board member at the time. Despite attempts at proving that the PCaC Board of Directors was supporting and strengthening UNAG, a year after the Siuna PCaC Board was

[32] The funds were handled in a separate account by the administrator hired by Siuna UNAG.

[33] The Siuna UNAG president not only confused the handling of PCaC funds, but he was also trying to "place and remove" promoters in a completely mechanical way, which PCaC also had to address. The process of training and selecting promoters was an organic process, determined by the work of the farmers. They are the ones who become promoters, and neither PCaC nor UNAG decide who is and who is not a promoter (PCaC-UNAG de Siuna-Oxfam GB, 1999).

formed, it was declared to be illegitimate by the UNAG national board member who was serving Siuna, and the Siuna PCaC Board ceased functioning.

In 1998, Siuna PCaC made a request to have a World Bank representative visit the communities of Rosa Grande and El Bálsamo, which were interested in the potential for extracting essential oils from crops such as allspice. The potential for the extraction and commercialization of essential oils sparked the interest of 15 communities and the formation of the Siuna Multiple Services and Essential Oils Extraction Cooperative (COOPESIUNA), with 53 members. It obtained legal status as an organization with the idea of beginning to seek long-term investment funding (Oxfam GB-PCaC-UNAG de Siuna, 2000).[34]

Work continued on the objectives for widespread adoption and by 1999, the number of promoters and farmers participating in the Campesino to Campesino Program had doubled (see Graph 2). PCaC had achieved considerable territorial coverage in the municipality. This can be seen in Map 3, which shows the communities most deeply involved in the campesino to campesino process, demonstrating the high level of territorial coverage that had been achieved in the municipality by 2000.[35]

During this stage, Siuna PCaC conducted exchange visits throughout Central America and intensified their use of methodological tools. Out of this, a much clearer territorial perspective emerged, based on achievements in farm management. Through the use of velvet bean, stabilization and diversification, this perspective had led to a totally new concept of the mestizo on the agricultural frontier who was being transformed through campesino to campesino methodology.

In addition to scaling up, there was more resolute promotion at this stage of initiatives for farm land-use planning and community mapping,[36] training around different kinds of products, the concept of campesino biological corridors and the proposals for forming cooperative groups. In October 1999, the first cooperative groups were formed, in the framework of support to Siuna PCaC from the organization Intercambio Solidario 44. The communities of Rosa Grande, Tadazna and Montes de Oro were trained in cooperative organization and financial management, which enabled them to apply for small revolving funds projects to repair homes and put up fences, which were monitored by Siuna PCaC (Oxfam GB-PCaC-UNAG de Siuna, 2000).

[34] The project for the extraction and commercialization of essential oils involves a local supply based on already-existing crop production, practices and management in Siuna. Organized as a cooperative enterprise (COOPESIUNA), the farmers accept and provide continuity to a series of standards that they integrated into their farm management, which are to be monitored by the community in order to guarantee the environmental attributes of the essential oils.

[35] By 1999, PCaC had expanded into over 60% of the communities in the municipality of Siuna, reaching around 90 communities through the volunteer promoter network (Oxfam GB-PCaC-UNAG de Siuna, 2000). Later PCaC documents mention a coverage of 80 communities.

[36] PFA aided PCaC in the use of territorial analysis tools. This support included equipment (Global Positioning System, computers, software such as MapMaker, among others), cartographic maps and satellite images, and community and farm mapping methods. The PFA's original plan contemplated the use of geographic information systems and satellite imaging in Central American agricultural frontier zones. A single satellite image covering all of Central America is available on a daily basis. However, in 1996, the PFA would have found that the Siuna Campesino to Campesino Program was already drawing community maps, since these were requested by credit-granting institutions. They were also probably used to monitor community health conditions or as part of rural participatory appraisals (Torrealba and Laforge, 1998).

Map 3:

Siuna: Communities Participating in the Campesino to Campesino Movement, 2000

Source: Prepared by authors, based on PFA

An assessment of 32 Siuna communities in 1999 found that all of them had become very familiar with velvet bean; 76% of the families surveyed were using velvet bean; 65% were in the process of diversifying their farms; 26% had decided to conserve forested areas; and 24% were allowing lands they owned to regenerate naturally (PCaC-UNAG de Siuna-Oxfam GB, 1999). In 2000, Siuna PCaC had over 100 experts in the use of green manure, one of the results of campesino experimentation (Oxfam GB-PCaC-UNAG Siuna, 2000).

Farm land-use planning was associated with a larger-scale land use planning process that was documented with community mapping tools, which contributed to highlighting the environmental and territorial role that farm management plays. Community mapping also contributed to prioritizing and coordinating collective actions. These included running community projects and the development of a land-use planning proposal for farm practices and management intended to increase the sustainability of BOSAWAS: *campesino biological corridors.*

In effect, based on the methodology of experimentation, exchange visits and community mapping, the campesinos began to view the larger dimensions of the issues and farming practices they were addressing. Several communities promoted proposals linked to the creation of campesino biological corridors, seeking not only recognition of their contribution to the sustainability of the BOSAWAS core zone, but also a way to link and expand their livelihood strategies and strengthen their collective actions, with the aim of constructing a new territorial identity. The proposal involves connecting natural regeneration and mountain areas (natural forest) in order to form several biological corridors connecting to the BOSAWAS Reserve. This also ties in with the significant direct benefits peasant families receive from natural resource management, where the need for a supply of water, firewood and timber (for fence posts, house repairs, etc.) has also been a factor in their revalorizing the forest and natural regeneration areas.

The strategy for creating campesino biological corridors reinforced the adoption of farm plans so that the natural regeneration areas and remaining forested areas would be linked to these corridors. The proposal was developed through negotiations undertaken by the peasant families themselves in their own way. In this strategy, the methods used for community mapping contributed to redefining the role of the communities and their farms through an endogenous effort at revalorizing their territory. This played a key environmental role for BOSAWAS and for different environmental services, which now form part of the farmers' livelihood strategies.

Through this experience, along with other efforts, projects and organizations, PCaC also contributed to making it possible for closer relationships to develop and for a broader common agenda to be set. From a starting point of promoting alternative practices for more sustainable agriculture, they have advanced toward joint actions which also address deficiencies in essential services (housing improvement, clean water supply, basic sanitation and education), citizen security problems, risk management and forest fires. All together, these collective actions have also contributed to improving the capacity of the Siuna communities to run themselves.

The importance of opening up participation to women was directly addressed in this stage. In fact, it was pointed out that there were still serious limitations on getting the promoters to be more open to women and to getting them more involved. This was due, in part, to having not integrated a gender perspective in the PCaC workshops or in planning. Therefore, it was proposed that between 2000 and 2001, the self-assessment, community self-mapping and planning processes would all be carried out with the inclusion of a gender perspective, with assistance provided by the PCaC National Technical Team (Oxfam GB-PCaC-UNAG de Siuna, 2000). An evaluation in 2000 brought out that the primary problems facing PCaC were insecurity in the municipality, weather conditions, pests, the increasing momentum of the land market and the role of Siuna UNAG, which did not correspond to Siuna PCaC's strategic or operative course (see Box 4).

Box 4

PCaC's Principal Difficulties in 2000

- For a large part of the year, the work in the countryside was done under very insecure conditions, causing activities to be delayed or cancelled. For example, the self-assessment process was put on hold because of the insecurity.
- Weather problems, pests and fires made it slower to obtain results. Most of the sugarcane and pineapple fields, which had been producing since 1996, were destroyed by a plague of rats in early 1999 and a good number of the promoters had to start over.
- Land buyers began to exert strong pressure on the owners, especially due to expectations generated by the paving of the road to Río Blanco. This generated other types of expectations in the campesinos and many of them delayed their decision to use velvet bean, expecting that some cattle rancher would come along and buy their pastureland. In the opinion of the leaders in Tadazna, if the people in that community had not been having good harvests with velvet bean, they would have already sold their lands and migrated to the municipality of Bonanza, especially considering that the price of land went from 200 córdobas to 1,500 – 2,000 córdobas per manzana.
- The UNAG president in the municipality kept the PCaC technical support team busy developing new projects most of the time and for a good part of the year they lost contact with the promoters, since if they did not follow the president's instructions they would risk being dismissed.
- The focus of the work entered into contradiction with other projects being promoted by Siuna UNAG; for example, at the same time that PCaC was encouraging people not to burn their lands or use agrochemicals, Siuna UNAG was involved in a bean project that did use agrochemicals.
- Support for other regions, such as Waspam, Bocay, Bonanza and Rosita, resulted in an overload of work and many of the local activities and coordination initiatives that had begun in Siuna were neglected. This affected the submission of narrative and financial reports to Oxfam GB as well as the successive disbursements.

Source: PCaC-UNAG de Siuna-Oxfam GB, 2000

Dispute over the control of PCaC (2001-2004): Reorganization and commercialization

This stage was characterized by the struggle for control of Siuna PCaC and Siuna UNAG, and by the search for market access, following on the progress made by the cooperative groups formed during the previous stage. The founding leaders of Siuna PCaC explained that during this stage more cooperative groups were formed, and they decided to work on other issues including the forest and to start talking about what they could do. According to them, when food is ensured, people begin to talk about what comes next; and when the harvests are bountiful, surmounting the food security problem, the need to sell follows: as one of the Campesino to Campesino promoters explained, "*Our bellies are full, but our pockets are empty*." The need to earn income grew much stronger during this stage, which had already been the rationale behind the creation of COOPESIUNA during the previous stage.

By this point, Siuna PCaC had already attained a high national and international profile, and now they became members of the Central American Indigenous and Peasant Coordinator of Communal Agroforestry (ACICAFOC).

Other cooperation agencies became interested in the Atlantic region and the municipality of Siuna, especially in response to the destruction left behind in the wake of Hurricane Mitch in Nicaragua. In some cases, the assistance offered to PCaC was channeled directly to the recently formed cooperative groups and to some communities, in particular because these new agen-

cies required a legally established entity with which to enter into cooperation agreements. Most of these agencies would promote credit projects for basic grains.

Having access to credit led to problems with defaults and with payment of arrears, which tainted PCaC. Many promoters became debtors while others became debt collectors. As a result, not only did the momentum gained during the previous stage of mass implementation weaken, but additionally, promoters dropped out in at least 50 communities. The credit projects also encouraged the use of agrochemicals, because they sought to ensure good harvests. Once again, the role of the Siuna UNAG president was crucial, since he was seeking to broaden the UNAG membership by using credit as a way to bring in more campesino affiliates. The project, called Strengthening the Stability and Economy of Peasant Families with Sustainable Agricultural Practices in 30 Communities of the Municipality of Siuna (FDCV-CN/Save The Children Canada/UNAG-PCaC Siuna, 2002), required that beneficiaries needed to be UNAG affiliates, and that to be eligible for credit they or their families needed to own land and be using sustainable agricultural practices.[37]

Another trait of these new cooperation agencies that weakened PCaC was the condition put on the projects that PCaC had to accept the hiring of a specialist. In addition to paying the person, the specialist was trained, but when the project finished, the benefit from the training did not remain with PCaC. This is the project stage in PCaC; they had the most resources but were facing a serious crisis. For their part, the promoters felt undermined and stopped doing the work they had been doing.

In April 2002, support from Oxfam GB finalized and that same year Siuna PCaC won the world Equator Initiative prize, which coincided with a financial crisis.[38] However, despite the adverse conditions, PCaC continued to hold its exchange activities and be proactive, leading them to declare their process a *Program With No Expiration Date* (UNAG-PCaC, 2002).[39]

Meanwhile, the Siuna UNAG president delayed the Assembly for one year, which had initially been scheduled for 2002. In an assembly of its own, PCaC chose a slate made up of promoters and founders who had been on the PCaC board years earlier, the one Siuna UNAG had declared illegitimate. The Siuna UNAG Assembly in February 2003 resulted in the election of a Board of Directors in which the campaign by PCaC promoters and farmers was determinant. Currently, although Siuna UNAG and Siuna PCaC are under the leadership of the original Campesino to Campesino promoters and founders, they are confronting the need to change the methods that have been passed down, especially their heavily project-based mode of functioning, which had distanced them from their capacity to make social and productive proposals.

Under these conditions, it is understandable that the cooperatives that started at the end of the previous stage developed their own pro-

[37] According to data from the project, only 10% of the farmers in Siuna hold a public deed or land reform title; 20% of farmers have an unregistered deed or title; and 70% have only an affidavit, a conveyance document or no document proving their ownership of the property.

[38] The Equator Initiative of the United Nations Development Program (UNDP) recognizes and rewards experiences in sustainable natural resource management in the equator belt, where most of the world's poverty and biodiversity are concentrated. UNDP in Nicaragua played an important role in the effort to publicize Siuna PCaC in the framework of the Equator Initiative, which positioned the PCaC experience as one of worldwide importance.

[39] Between 2003 and 2004, the Ford Foundation, which was the first cooperation agency that supported the beginnings of PCaC in National UNAG, funded a project to support Siuna PCaC. It was aimed at reactivating and consolidating the work of the promoter network and expanding the Siuna PCaC experience by initiating activities through UNAG in the municipalities of Rosita, Bonanza (in the RAAN) and Cruz de Río Grande in the South Atlantic Autonomous Region (RAAS).

posal, but they also participated in developing the strategy for gaining access to power venues, such as the case of Siuna UNAG. Therefore, this stage is also characterized by the reorganization of PCaC, because the cooperatives were looking for markets where they could sell their products.[40]

Despite these problems, PCaC's work has demonstrated its capacity to contribute to arresting the expansion of the agricultural frontier, by strengthening livelihood strategies along with moving toward new modes of territorial management. It is striking that these new modes continue to operate under a campesino way of thinking, but with clear environmental and sustainable natural resource management dimensions.

Currently, the Campesino to Campesino Program in Siuna includes over 300 promoters; more than 3,000 families in 80 communities are using the practices and knowledge disseminated by the program (UNAG-PCaC, 2002).

External support: Features of the accompaniment to PCaC

Siuna PCaC's origins and development have been strongly influenced by UNAG's role. Not only did it support the establishment of a program using campesino to campesino methodology in Siuna, at a time when it was an ungovernable area experiencing social disintegration, but also because of the technical and especially methodological accompaniment that UNAG provided through the Campesino to Campesino Program's Central Technical Team. The Central Technical Team has played a determining role in the methodological expertise of the Siuna PCaC promoters and farmers, which is visible in their considerable command of experimentation, horizontal exchanges and innovation, to name a few. This accompaniment has been crucial to learning different ways of using and cultivating velvet bean and using methodological tools.

Furthermore, the trade-association model that held sway in UNAG was a determining factor in the dispute for the movement that had been created around the campesino to campesino methodology in Siuna. This model not only fought for hegemony over the different kinds of organizations that Siuna PCaC was developing; it also had implications for ensuring that the different kinds of external support and accompaniment would be consistent with the empowering campesino to campesino methodology. During Siuna PCaC's early stages, UNAG fulfilled the incipient movement's need for formal organization. UNAG operated as the formal agency that represented and mediated agreements and projects that supported Siuna PCaC. Although this by itself is not a determining factor, in this case it was important, to the extent that PCaC, despite being part of UNAG, also needed to begin to exercise its own management capabilities, including the negotiation and management of funds from cooperation agencies that were supporting PCaC activities. In some cases, this aid ended up tainting the aim of the activities and strategies, such as in the case of the credit projects.

In this framework, external aid for Siuna PCaC through projects and cooperation agencies has had different aims. In the case of Oxfam – the cooperation agency with the greatest presence throughout the different stages – the aid had a dual character: on the one hand, it funded the implementation of campesino to campesino activities, which evolved in a scenario of UNAG involvement and kept management of financial resources centralized in National UNAG. On the other hand, Oxfam was also key

[40] The insecure conditions in Siuna also affected PCaC. Eight promoters lost their lives at the hands of armed bands and some 40 families left their farms and moved away (UNAG-PCaC de Siuna, 2002).

in complementing the incorporation of other concerns that were no less important into Siuna PCaC's activities, such as the role of women and a gender perspective.

The support for PCaC from the Agricultural Frontier Program stands out because of the design of its support from the beginning. While continuing to coordinate with National UNAG and with the PCaC National Technical Team, it also sought a direct link with Siuna PCaC, reasoning that local management capacity did exist. It also supported and promoted the use of important methodological tools, such as the community mapping that would be crucial to the development of proposals for farm land-use planning and campesino biological corridors, among others. It also helped the farmer-promoters understand the territorial-scale impact of their work in the BOSAWAS buffer zone.

In addition to financial support for projects, support has been provided for the strategy to publicize PCaC's achievements, such as enabling its involvement in regional exchanges through ACICAFOC, and the role that UNDP played in PCaC's participation in the Equator Initiative.

1 A look at the current context

The current context has implications for Siuna PCaC. This involves the dynamism of the agricultural and livestock activity in the municipality of Siuna, the emerging momentum in the land market and the complexity associated with land ownership rights, the new proposals and strategies of the central government for the Atlantic region, expanded conservation proposals and, once again, the role of outsiders in proposals for natural resource and territorial management of the RAAN.

Agricultural and Livestock Intensification in Siuna[41]

From the 1950s to the 1970s, the population in Siuna grew at a rate of less than 2% per year.[42] With the signing of the peace agreements, thousands of ex-combatants and repatriated people sought out Nicaragua's Atlantic region to reestablish their lives. During the peace process, which granted Contra combatants control over certain areas and resources for their security and reintegration into the economy, as well as their interest in regaining land, there was a large influx of immigrants who were also attracted by the social services promised and by the opportunity to reconnect with old leaders, employers and other ex-combatants. This process activated very aggressive "pioneer fronts" on the agricultural frontier in areas inside the current BOSAWAS Reserve (Rocha, 2001b).

Siuna is a destination for the heavy migration that has taken place toward the Nicaraguan Atlantic region and is one of the municipalities with the heaviest in-migration.[43] According to the 1995 census, of rural farm heads-of-household, only 38.5% were born in the municipality or were not in another municipality five years ago, and almost half (48.4%) were born in another municipality.[44] The estimated population of Siuna for 2004 was estimated at 78,169 (Larson, 2004). The population is by and large mestizo—98% of the residents. The indigenous population, made up of Miskitos and Mayangnas, is just 2%.

The "peasantization"[45] of Siuna accelerated after 1960, going from 44% in 1963 to 61% in 1971 and 77% in 2001 (Table 1).[46] This is explained by three factors: a) the earlier makeup of the population was a combination of miners, loggers and strictly subsistence-based indigenous peasants, supplying the internal demands of mining activities or of the rest of the current RAAN; b) the new pattern of encroachment on

[41] This section is based on the report by Eduardo Baumeister (2004).

[42] This was related to changes in the natural population growth rates, particularly in the mortality rate, due to the decrease in malaria deaths and the introduction of antibiotics following World War II, which would have a strong impact following 1950; the effect of internal migration; the fact that mining was not labor intensive; and that the region's extreme geographic isolation from the rest of the country slowed population growth.

[43] According to the most recent population census (1995), of a total of 144 municipalities studied, Siuna held sixth place in the proportion of "old" rural internal migrants in the rural population. The municipalities with the heaviest rates of internal migration in the country are in the Atlantic regions: Muelle de los Bueyes, Nueva Guinea, El Castillo, San Juan del Norte and San Carlos.

[44] Most of the internal migrants came from Matagalpa, Jinotega, Boaco and Chontales, all in departments in the Nicaragua's central region. Quite probably, the next population census, in 2005, will show a similar proportion, since the trend to high natural growth rather than internal migration has held since 1995.

[45] The ratio of farms to the approximate number of families living in the municipality.

[46] This proportion is higher than the national average, which was approximately 59% in 2001.

Cuadro 1

Explotaciones agropecuarias, superficie y tamaño medio de fincas, 1963-2001

Año	Número de explotaciones agropecuarias	Superficie (manzanas)	Tamaño promedio de fincas (Manzanas)
1963	1,325	41,529	31
1971	2,692	246,264	91
2001	8,029	608,678	76

Fuente: Elaborado con base en Censos Agropecuarios de 1963, 1971 y 2001.

the agricultural frontier that is associated with the relocation of areas for basic grains crops and pasturelands that were displaced by the expansion of cotton-growing in the Pacific region; and c) by the promotion of colonization and agrarian reform processes.

The expansion of the agricultural frontier translated into a formidable increase in land being farmed, from 41,000 manzanas in 1963 to 608,000 manzanas in 2001. This increase is also characterized by the strong upward trend in average farm size, as well as an expanding number of commercial producers and a greater proportion of extensive livestock production. Between[SCG3] 1963 and 2001, the proportion of different animals per farm shows an increasing specialization in breeding and dairy cattle for cheese production, which flourished even more following 1990. An enormous change has taken place in less than 30 years, with close to 80% of the land area in Siuna now being farmed.[47]

Of the 5,096 km^2 in the municipality, nearly 733 km^2 (104,086 manzanas) are in the BOSAWAS core zone, while the rest—around 619,546 manzanas—are in the Reserve's buffer zone.

The 2001 Agricultural and Livestock Census breaks down farm area by the portion used for agriculture and livestock and the segment of farm holdings covered in brush and forest. In total (on and off farms), 38% of Siuna is forested land. It can be assumed that the municipality's 104,086 manzanas inside the BOSAWAS core zone are part of the off-farm forest (see Table 2).[48] This means that the core area is made up exclusively of off-farm forested land, while the buffer zone includes all the farm area plus an additional area with off-farm woodland.

According to the 1995 Population Census, households devoted to agriculture make up over 90% of the municipality's rural households. Nearly three-quarters of households are headed by a self-employed agricultural worker; only 4% are headed by an agricultural employer, and a minimal percentage of households are headed by a salaried agricultural employee.

Table 3 shows the distribution of the principal variables used in the 2001 Agricultural and Livestock Census, stratified by farm size. The stratum of farms between 10 and 200 manzanas totals almost 80% of the farm area, which supports the evidence that the intermediate strata, between the small producer (<10 manzanas) and large producer segments, have considerable weight.[49] The average farm size in Siuna is 73 manzanas, which is much larger than the

[47] During these years, three main periods are distinguishable: First, rapid growth in farm land area, in the number of farmers and in herd size; second, the reversal of this process during the 1980s due to the war; and third, rapid repopulation and agricultural and livestock expansion during the post-war period.

[48] The area corresponding to the buffer zone, estimated as 619,546 manzanas, is broken into the 558,000 manzanas of farms (sum of categories 1, 2 and 3 in Table 2) and the 55,000 manzanas of off-farm forest that is not part of the estimated 104,086 manzanas in the core zone.

[49] As can be seen, farms over 500 manzanas stand out; these are the large producers, which hold over 12% of the municipality's total land area.

Cuadro 2

Siuna: Uso del suelo, zona núcleo y zona de amortiguamiento de BOSAWAS

Usos del suelo	Superficie (Miles de manzanas)	Porcentajes
1. Superficie agropecuaria (cultivos y pastos)	266.5	36.8
2. Superficie en fincas bajo bosques	119.7	16.5
3. Superficie en descanso, tacotales y otros usos	171.7	23.7
Superficie en fincas (1+2+3)	**557.9**	**77.0**
4. Bosques fuera de fincas	158.9	21.9
5. Otros usos (centros urbanos, vías, etc.)	7.2	1.1
TOTAL (1+2+3+4+5)	**724.0**	**100.0**
Zona de Núcleo de BOSAWAS	104.0	14.4
Zona de Amortiguamiento de BOSAWAS	620.0	85.6

Fuente: Elaborado en base a Censo Agropecuario 2001 y Larson (2004)

Cuadro 3

Uso de la tierra según tamaño de las explotaciones, 2001 (En manzanas y porcentajes)

Estratos	No. de fincas	Superficie	Cultivos Anuales	Cultivos Permanentes	Pastos	Bosque	Otros Usos
				Manzanas			
0-10	1152	7,431	3,241	565	946	559	2,120
10-50	3,520	110,002	23,310	4,041	27,408	17,436	37,807
50-200	2,574	266,672	29,849	4,915	90,728	52,357	88,823
200-500	334	106,070	6,192	883	42,257	25,650	31,088
500 y más	68	67,787	2,633	313	29,226	23,727	11,888
TOTAL	**7648**	**557,962**	**65,225**	**10,717**	**190,564**	**119,729**	**171,727**
				Porcentajes			
0-10	15.0	1.3	5.0	5.3	0.5	0.5	1.2
10-50	46.0	19.7	35.7	37.7	14.4	14.6	22.0
50-200	33.7	47.8	45.8	45.9	47.6	43.7	51.7
200-500	4.4	19.0	9.5	8.2	22.2	21.4	18.1
500 y más	0.9	12.2	4.0	2.9	15.3	19.8	7.0
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Fuente: Elaborado en base a Censo Agropecuario 2001.

national average of 45 manzanas, according to the 2001 Agricultural and Livestock Census.[50]

Annual crop production is concentrated in the smaller farm strata; farms with less than 50 manzanas have 40.7% of the land used for these crops. However, the weight of farms between 50 and 200 manzanas is notable; this is the stratum with the greatest weight in the entire agrarian structure in the municipality, representing a little over one-third of all farms, 47.8% of total area, 45.8% of annual crops, a similar percentage of permanent crops, 47.7% of cattle,

[50] This municipal average is consistent with its location in an agricultural frontier zone, with low population density and a growing influence from livestock activity.

and 50% of fresh cows in the municipality. In land use, two categories weigh notably: 'brush and forest,' and 'other uses.' In the municipality as a whole, 21.5% of land is on-farm woodland and 30.8% is for other uses, which include fallow land, scrubland (*tacotales*) and areas that are unusable for production (swamps, rocky ground, etc.).

On-farm land use is clearly oriented toward cattle raising; 34.2% of farm area is used for this purpose. The majority of the remaining on-farm land is brush and forest, including a few areas of dense forest, and land classified as other uses, including the *tacotal*[51] areas. Cattle ranching is of an extremely extensive type, with a ratio of 1.7 manzanas of pasture per head of cattle.[52]

The increase in cattle ranching is shown by the increase in the number of animals per farm and by the increasing influence of livestock in the municipality. The average farm devotes approximately 8.4 manzanas to annual crops, mainly maize and beans, and 1.4 manzanas to permanent crops, used for a few small-scale coffee, cacao and banana plantations. Average pasture area is around 25 manzanas per farm and there is an average of 14.5 head of cattle per farm, which results in a stocking rate of 1.7 manzanas/head (0.58 head/manzana of pasture), meaning almost half a head per manzana of pasture, a clear indication of the extensive nature of beef cattle ranching in Siuna. Farms under 50 manzanas are used more for basic grain growing and less for cattle ranching.[53]

Farms over 200 manzanas are mainly used for extensive livestock production. Of total farm area, 41% is devoted to pasture, 29% is under forest and 25% is fallow, mainly *tacotal* land and other unusable areas.

In Siuna, the upward trend in cattle ranching is notable, which is tied to farm size and to the proportion that have cattle. Of farms smaller than 10 manzanas, only 22% have at least one head of cattle and in the stratum from 10 to 50 manzanas, 53.7% have cattle (see Table 4). Therefore, on farms smaller than 50 manzanas, around 54% have no livestock, which indicates the lack of on-farm consumption of milk, cheese and meat in those families and the low capital formation in this segment. This raises the question as to whether these strata will obtain beef cattle on their own or as public policy once the road system is expanded or programs are implemented to facilitate obtaining animals.

In cattle ownership, the intermediate group (50-200 manzanas) stands out, holding nearly 48% of the cattle and 50% of the fresh cows in Siuna, with an average of 6.7 fresh cows per farm, which can produce around 27 liters of milk a day, or over half of a 40-liter milk container.

Siuna is in fourth place for the availability of fresh cows, after the municipalities of Paiwás, El Rama and Nueva Guinea, all located in the Atlantic region in areas where the amount of farmland has expanded in recent decades due to the expansion of basic grain production (especially in Nueva Guinea) and cattle raising activity.

[51] Tacotal areas are naturally regenerating pastureland and bushes that can be used later for crops or pasture.

[52] There are no large differences in intensity between strata, except for the denser stocking rate per unit of area on farms smaller than 10 manzanas, a marginal segment for cattle raising.

[53] On average, farms under 10 manzanas have only 0.92 head of cattle per farm and farms between 10 and 50 manzanas have an average of 5.3 head of cattle per farm. However, in the stratum between 10 and 50 manzanas, farms with cattle have almost three fresh cows per farm and account for 20% of all fresh cows in the municipality. A clear picture of the farm profile can be had by looking at the demand for permanent employees: Farms under 50 manzanas essentially do not hire permanent employees. Starting at 50 manzanas, there is a greater demand for salaried labor, while farms over 200 manzanas have more than one permanent salaried employee in charge of cattle management (animal care, milking, transport to receiving centers).

Cuadro 4

Siuna: Fincas con ganado, 2001

Estratos (manzanas)	0-10	10-50	50-200	200-500	500 y más	TOTAL
Fincas con ganado	254	1,890	2,055	297	65	4,561
Fincas con ganado como porcentaje del total de fincas	22.0	53.7	79.8	88.9	95.6	59.6
Cabezas de ganado	1,065	18,766	53,074	22,232	16,023	111,160
Porcentaje de ganado	0.95	17	47.7	20	14.4	100.0
Vacas paridas	313	5,463	13,680	4,961	2,924	27,341
Porcentaje de vacas paridas	29.4	29.1	25.8	22.3	18.2	24.5
Vacas paridas como porcentaje de ganado	1.2	20.0	50.0	18.1	10.7	100.0
Vacas paridas por finca con ganado	1.2	2.9	6.7	16.7	45.0	6.0
Manzanas de pasto por cabeza	0.89	1.46	1.7	1.9	1.82	1.71

Fuente: Elaborado con base en Censo Agropecuario 2001

Cattle ranching in Siuna is linked to two value chains (Mendoza, 2004). One is for *morolique* cheese (a hard cultured cheese), primarily for export to El Salvador and the United States and tied to the cheese makers and vendors of Matiguás and Río Blanco. The other value chain involves the production of more rustic, native cheeses, which most producers are involved in during certain times of year; these cheeses are difficult to market commercially and are mainly distributed along the Atlantic Coast and to a lesser extent on the Pacific. It is estimated that around 30% of the producers supply milk for *morolique* cheese production.

The increasing cattle ranching activity in the departments of Boaco, Chontales and Matagalpa is extending into the RAAN. The expanding market, through the liberalization of foreign trade, often through informal routes such as contraband, is linked to the growth of the herd, to a significant proportion of fresh[SCG4] cows and to the establishment of a small-scale cheese industry that buys milk[SCG5] and processes cheese for export with little government regulation over the sanitary conditions of the milk used, the processing facilities, and the packaging and transport of the cheese. Siuna is becoming one of the important secondary hubs [SCG6]in the dairy—cheese-making—cattle-breeding production structure.

Public policy has not been successful in improving yields for cattle or basic grain production, despite having created the general conditions for the expansion of cattle ranching and basic grain production without placing restrictions on the conversion of forested areas into pastureland or fields for annual crops.[54]

The course that is seen as most feasible is intensification of cattle ranching, both through the route of dairying—cheese-making—sale of calves, and the route more tied to the breeding and raising of calves and young steers, or a combination of these (depending on the relative prices and demand for each route). This could lead to the increased sale of land that is in the hands of small and medium-sized producers

[54] According to the 2001 census, only 2.6% of farms in the municipality had access to a technical assistance service and 4.7% to agricultural and livestock loans. Both rates are far below the national averages, which are close to 16% for farm technical assistance services and 14% for credits.

located along communication routes or of land that would benefit from the expansion of the road network, which would be bought by the wealthy; this second option could have the logical consequence of land being purchased or occupied farther into the interior of the municipality, in areas that are relatively more forested, for their later incorporation into cattle ranching and basic grain production.

As the road system expands, it is to be expected that there will be an intensification of extensive cattle ranching, continually demanding new land in Siuna, thus replacing the dynamic of the agricultural frontier with that of the cattle-ranching frontier. This will require governmental and non-governmental initiatives to promote more intensive livestock production methods, in addition to feeding systems that are less dependent on natural pastures, systems for rotating grazing-land that are more conducive to maintaining the nutritional value of the pastureland, fodder systems and living fences.

The dynamics of acquiring land rights: A critical obstacle to governance

The way in which land ownership rights are acquired in the North Atlantic constitutes one of the principal barriers to the proper management of territories rich in natural resources. This aspect is central to understanding the issues and conflicts over governance among the panoply of actors on the agricultural frontier, and in particular, over the management of BOSAWAS. However, little reliable data exists on the land tenure and ownership system in Siuna. This lack of data reflects not only the feeble state of the government's statistical monitoring, but also reflects the legal ambiguities surrounding land tenure in this region.

Land that is not legally owned or in open and obvious "use" is considered officially to be national or state-owned land. Since the government has little institutional power to exercise control over the land, government lands are regarded as free access areas, open to colonization, use and land claims (Eriksson, 2004). Land designated as national or idle land constituted a special class of state property intended for concessions to large enterprises for the exploitation of natural resources or for colonization by landless peasants (Mordt, 2002, cited in Eriksson, 2004) and in the case of Nicaragua, for redistribution programs at the end of the conflict.

"...The most widespread mechanism of acquiring rights to land ... has been *adverse possession [prescripción adquisitiva]*: that is, the occupation in good faith for a continuing period of time. ...Rights of possession can be acquired after one year. Ownership rights can be obtained after 10 years (*prescripción ordinaria*) in cases where a document had been issued, and 30 years (*prescripción extraordinaria*) where this was not the case" (World Bank, 2003, p. 40). 'Improvements' can be purchased from third parties in order to acquire access to the land through rights of possession. Over time, these rights undergo a process of institutionalization, where rural extension projects, credit systems and other things reinforce these property rights.

This situation favors colonization through 'improvements.' On the North Atlantic agricultural frontier, the common practice has a marked pattern and sequence: First, the colonists (campesinos-mestizos) cut down trees to delimit the area claimed. In many cases, this task is left to loggers, who extract the most valuable species (mahogany and cedar). Then, the "new farm" is prepared by cutting, clearing and burning. Basic grains are grown in cycles of approximately three to four years in the same field. Since the soils in the region are fragile and are unsuitable for intensive agriculture, soil fertility is rapidly

depleted, requiring new land to be opened up, starting the cycle over. The depleted, degraded land is abandoned or sold to cattle ranchers, which contributes to the concentration of land in the hands of the ranchers.

In addition to the different types of *adverse possession*, property rights can be obtained through *supplementary titles (títulos supletorios)* or *judicial sales (ventas judiciales)*, which often have an unlawful origin, but which end up resulting in legal ownership rights (Stocks, 1998). "*Supplementary titles*...can be requested by anyone who is in possession of a property without a title that supports his rights. Upon verification of possession through three witnesses form the same municipality and a public announcement to check that there is no opposition to the issuance of the title, a civil judge will grant such a certificate. (...) They can be registered, and...used...for gaining full title through ordinary prescription after 10 years... *Judicial sales*...grant ownership and award full title, rather than just rights of possession. (...) Although they were initially designed as a means to cancel debts in a forced liquidation, judicial sales are widely used to create new registry records. Given the high cost of this rather complex process, judicial sales are biased in favor of the rich. The process consists of four steps. First, the possessor of the property files a suit stating that he or she bought the property but did not receive the corresponding deed from the seller. Second, the judge notifies the seller...to appear in court.... Third, if there is no opposition, the judge grants the property to the claimant. [Finally]... the sentence is registered in a new registry record" (World Bank, 2003, p. 41).

This dynamic for the acquisition of rights is clearly driving the ongoing migration toward the agricultural frontier. As a consequence, the future management of the BOSAWAS territory (both the core and buffer zones) will depend greatly on the manner in which land ownership rights are determined.

RAAN: Projected central Government and foreign aid involvement

Central government proposals and strategies exist for the Atlantic region that have clear implications for the municipality of Siuna and for BOSAWAS. An important factor informing any proposal for the Nicaraguan Atlantic is its isolation from the rest of the country and its history of underdevelopment. The concrete manifestations of this have been limited investment in production, minimal transportation infrastructure, lack of coordination with the regional production structure, citizen insecurity, limited coverage for essential services and public investments, and a shaky democratic framework (Blanco, Bendaña and Guevara, 2004). Thus, the Proposal for a National Development Plan states that a central government policy is demanded because of the region's ethnic composition, isolation, poverty, weak government presence, heavy migration from the rest of the country, and recent drug activity. Four large actions are proposed: i) strengthen the presence of the government on the Caribbean Coast, both central government institutions and the judiciary; ii) make progress toward the resolute definition of property rights; iii) undertake the construction of infrastructure that results in the Coast being more connected to the rest of the Caribbean, under the rationale that it is unreasonable to think that tourism and services can be attracted to the Coast from Managua; and iv) work on a closer relationship with the Caribbean countries (Gobierno de Nicaragua, 2004). These actions are aimed at laying the groundwork for a strategy to promote tourism, given

the wealth of natural resources on the Caribbean Coast.[55]

In fact, actions are already being taken to improve connectivity in the Atlantic region, including paving the Río Blanco-Siuna-Puerto Cabezas highway, which would convert it into an all-weather highway. This highway (in the fundraising stage) and the San Lorenzo-Muhan-Rama highway (under construction), El Rama Port (being upgraded) and the Nueva Guinea-Bluefields highway will all contribute to strengthening the development of mining zones, renewable energy, the meat and dairy industry, forestry plantations and ecotourism. They will also serve as an incentive to national and foreign investment, along with the installation of free trade zones that will take advantage of the connections to Atlantic ports. In addition to improving the connectivity of the Atlantic regions, these highways could shore up security and contribute to decreasing the use of the Caribbean ports of neighboring countries (Gobierno de Nicaragua, 2004). The proposed upgrading of these highways seeks to support a number of sector proposals for the North Atlantic, several of which are described below.

The Atlantic Biological Corridor project of Nicaragua includes proposals for agriculture and livestock, which cover four strategic areas and are based on the Atlantic region's biophysical characteristics (Blanco, Bendaña and Guevara, 2004). These include: i) crop production to ensure food security (basic grains, bananas, root and tuber crops), primarily on a small scale for on-farm consumption by rural families and to a lesser degree for generating a surplus; ii) traditional export crops that are highly profitable and from a forest habitat (roots and tubers, cacao and oil palm, among others); iii) non-traditional export crops, such as exotic fruits, palms, ginger, cinnamon, black pepper and others; and iv) cattle ranching, which requires the introduction of improved pastureland and sylvopastoral systems, the installation of a slaughterhouse in the Siuna and Rosita area, promotion of a cattle-feed industry, and promoting the development of the poultry and pork industries.

A forestry proposal for the North and South Atlantic regions is framed in the national forest policy that was passed, which includes four principal areas aimed at increasing the commercial value of forests and encouraging their management: i) increasing the performance and productivity of the entire forestry chain; ii) redistribution of the profits earned from forests to benefit their owners; iii) the development of wood and non-wood products for market and increasing the percentage of raw material that is processed in industries and workshops that are in the regions; and iv) marketing of forest products (Andersen, 2003). The[SCG7] forestry proposal for the Atlantic regions also includes studies[56] that could serve as the database for regional and municipal governments, given their limited capacity to manage the sector. It recommends revisiting the ECOT-PAFP [SCG8]proposal from 1991, considering that many of its objectives are relevant for forestry development on the Nicaraguan Atlantic. It also recommends strengthening forest management capacities that include natural forest (pine, broadleaf forest, mangroves), secondary forest and commercial forest plantations; and

[55] Proposals for an Atlantic Biological Corridor include the development of tourism, which includes an inventory of tourist attractions needing minimal infrastructure, such as "mining museums and mine tunnels;" the Santo Labú Trail in Siuna; the promotion of protected areas and the biological corridor included in the BOSAWAS Management Plan; the development of cultural tourism in indigenous communities; sports fishing; ecotourism; adventure tourism; scientific tourism; and community tourism; among others (Friecke, 2004).

[56] Community organizations and options for strengthening bargaining power; the wood market and proposals for increasing transparency and competition in price setting (wood markets, stumpage auctions); production and use of non-wood products; forestry chains (prices, costs, taxes and profits); forestry concession models; areas suitable for commercial forestry plantations; among others.

Mapa 4

Propuesta de Zonificación de la Región Autónoma del Atlántico Norte

Fuente: Cedeño (2004)

modernizing and increasing the value added in the transformation of wood (Andersen, 2003).

Siuna and Bonanza are being explored for new mineral deposits in the framework of the new mining law, which seeks to attract foreign and national investments. Environmental impact studies have already been done for a new hydroelectric dam to supply the demand for energy (Lundberg, Moreno and Hodgson, 2004).[57]

In addition, land use planning is also on the agenda for the Atlantic region. As often happens, a proposal was developed for zoning and land-use planning (see Map 4) on the basis of current land-use maps, potential use, and conflicts over land use and management. The proposal includes biodiversity conservation and protection zones (restrictive conservation, conservation and sustainable use of wildlife, hydrological protection); small-scale fisheries

[57] In mid-2004, there were 73 assigned mining rights in the Atlantic region, concentrated in the mining triangle (Siuna, Bonanza and Rosita). Of these 73 concessions, 20 were granted between 1994 and 2004, and 53 were applications for concessions made between 2001 and 2004. Of the mining concessions, 8 are for gold mining (2 working and 6 inactive) and 12 for exploration, 5 of which are being used for prospecting activities. The mining rights concessioned include all minerals within the concession's perimeter, for a duration of 25 years, renewable for an additional 25 years. The mining rights concessioned cover almost 240,000 ha, of which around 30,000 are in operation and around 210,000 are eligible for exploration (Lundberg, Moreno and Hodgson, 2004).

zones; forestry production zones (production and management of pine and broadleaf forests); zones for sustainable production systems in agricultural frontier areas (agroforestry systems, extensive livestock production and annual crops in consolidated agricultural frontier; agroforestry systems, extensive livestock production and annual crops under sylvopastoral systems and soil conservation in pioneer agricultural frontier zones); and mining zones (Cedeño, 2004). These proposals include a portfolio of "strategic project" profiles for implementing the land-use planning proposal, totaling almost US$150 million.

All these proposals must address one common problem, land ownership rights, which constitutes a critical element for any proposal for management, conservation, production and investment. The World Bank is attempting to improve land tenure security – through a Land Administration Project – under the assumption that this will "(i[SCG9]) boost investment in agriculture, leading to productivity and income growth; ... (iii) promote the sustainable use of natural resources; and (iv) increase revenue collection and facilitate planning at the municipal level, as a means to foster the decentralized provision of services" (World Bank 2002, p.3).[58] In the RAAN, this project is supporting the demarcation of the indigenous territories in the BOSAWAS, covering a total area of 655,572 ha.

Even though these proposals and actions may constitute concrete opportunities and agendas for the Atlantic territory, the autonomy process has been characterized by limited advances, as has happened with the regulatory framework for the Autonomy Statute. In fact, 16 years went by between the passage of the Autonomy Statute for the Regions of the Atlantic Coast of Nicaragua before its regulations were issued, and many of its sections appear instead to be a mechanism for extending central government roles and commitments to the regional governments. For example, Articles 18 and 19 (Asamblea Nacional de Nicaragua de la República de Nicaragua, 2003b[SCG10]), establish that the autonomous regions shall establish appropriate regulations to promote the rational use of the waters, forests and communal lands and the defense of their ecological system, taking into consideration the criteria of the communities of the Atlantic Coast and the regulations in this respect that the competent agencies shall establish.

The passage of the Regulation for the Autonomy Statute for the Atlantic Coast grants the regional governments the right to administer their resources and institutions, which shall administer the programs for health, education, culture, procurement, transport, community services, sports and infrastructure in coordination with the corresponding central government agencies or ministries (Rosenthal, 2003; Asamblea Nacional de la República de Nicaragua, 2003b).

Mattern (2002) mentions that one of the principal limitations for advancing the autonomy of the Atlantic region is the political parties' domination of the Regional Councils, which subordinates regional political expressions to the large national parties and hinders the development of regional parties. Likewise, he points out a number of factors limiting the development of autonomy:

- The lack of a coastal plan with its own political priorities, given that the powers of the Regional Councils are limited, espe-

[58] "It proposes to achieve this objective by regularizing property rights; establishing a secure and legitimate land rights regime by collecting current field information; and improving land administration services provision. This process will facilitate elimination of overlapping land claims; pending legal revisions; extremely centralized and ineffective services delivery (i.e. titling, registration); land-related conflicts; non-sustainable land use patterns; and other property problems" (World Bank, 2002, p. 3).

cially in their legislative authority, which severely limits administrative autonomy.

- Despite the internal regulations of the Regional Councils, the working commissions have generally not functioned. Even though admirable advances have been made in administrative and technical capacities since 1990, there is little capacity for execution, and project formulation and strategic planning are weak, to such an extent that neither region has a regional strategic development plan.
- The regional offices have serious problems with technical equipment and staffing, which results in low coverage and poor quality in most of the services provided.
- Neither regional government has developed a local taxation plan or applied for the special development fund stipulated in the Autonomy Statute, which means that the financial resources available for investments are extremely limited. Practically the only source of income for the regional governments are the revenues received from the utilization of natural resources, even though these are managed at the central level through the Ministry of Finance, the agency that charges the fees and allocates the funds.

Furthermore, the municipalities have a significant fiscal gap; most of them cannot carry out their basic duties established in the Constitution and the Municipalities Law. They have problems with financial soundness due to budget transfers being delayed or being withheld. In addition, decentralization has put the responsibility on the municipalities for shortfalls in funding for providing services– allocations to the municipalities account for only 1% of Nicaragua's budget (Rosenthal, 2003).

The role in the Atlantic territory of the three tiers of government (national, regional and municipal) is not clear and no institutionalized coordination, cooperation and oversight mechanisms exist. In light of this situation, relations between the central government and the autonomous regions are maintained through political party, discretionary and informal channels. The deconcentrated administration of the Atlantic territory makes coordination between the regional and municipal levels difficult, because the central government representatives in the Atlantic region do not have decision-making authority (Mattern, 2002). Added to this, is the lack of coordination between donors and projects, which leads to duplication of efforts and multiple planning and land use exercises (Rosenthal, 2003).

Desafíos al Proceso Comunitario de Manejo del Bosque

In just one decade, Siuna PCaC has made impressive accomplishments. One of the main achievements of PCaC's work in Siuna has been its contribution to integration, dialogue and reconciliation among the rural population. In doing so, the combination of prior organizing history and the empowering campesino to campesino methodology were crucial, which in turn contributed to the accumulation of human and social capital. This has enabled making a qualitative leap toward an extremely significant social and productive proposal for managing buffer zones in general and BOSAWAS in particular. Likewise, Siuna PCaC is representing a movement that is contributing to the creation of a new "campesino-mestizo" identity and discourse, playing a critical role as a key partner in developing territorial management that is more socially, economically and environmentally sustainable.

Campesino integration, dialogue and reconciliation

Siuna PCaC has achieved a process of true integration, dialogue and reconciliation among the rural population in an extremely hostile environment of social disintegration. During the 1980s, this context was deeply affected by the war between the Sandinistas and the Contras, the socio-economic crisis of the time and the region's geographic and political isolation. With the defeat of the Sandinistas, both sides to the military conflict–Contras and Sandinistas—were abandoned to their fate (Pasos, 2005).

The empowerment methodology resulted in a convincing production proposal – velvet bean—which meant working less while reaping more bountiful harvests. This contributed to the peasants gradually shifting to planting, producing and diversifying on the same piece of land. This combination of elements was key to making inroads in the region and to the work among old adversaries, who went from mutual distrust and fear to working together (Pasos, 2005).

Building and accumulating social and human capital

One of the key achievements of the PCaC methodology has been the building of human capital[59] and social capital,[60] contributing to the development of a campesino movement where the local people themselves become community managers. Based on sustained communication and sharing, they raise the value of campesino knowledge by putting into practice the techniques they themselves transmit. This method has facilitated the program's expansion in terms of territory served, technological content, teaching-learning methodologies, productive capacity, ecological awareness and the organization of experimenter groups. For this purpose, a way of working has gradually been forged that puts people in the middle, attempting to respond to the factors limiting what they can produce, using local resources in an ecologically balanced manner, and attempting to

[59] Human capital refers to the aptitudes, knowledge, work skills and good health that enable populations to implement different strategies and reach their livelihood goals (DfID, 1999).

[60] Social capital refers to the organizing capacities in a locality, and the communities' abilities for securing resources (knowledge, collective action, market access, etc.) by virtue of their membership in social networks or other social structures, and includes two key dimensions: a) the capacity of the members to use its organizational structure to discuss, agree, implement and monitor actions and activities among its members; and b) the quality and density of its external social networks employed for receiving support and resources that advance community goals (Rosa, et al., 2003).

change the traditional top-down relationships between specialists and campesinos (UNAG-PCaC de Siuna, 2002).

The horizontal methodology builds self-esteem and the campesino-mestizo identity by offering something relevant to their lives that contributes to and has forged a new campesino sense of worth and pride. This sense of pride has been reinforced by the regional and international recognition they have received, such as the Equator Initiative prize Siuna PCaC won in 2002.

This strong sense of identity serves as the foundation for the accumulation of social capital both internally and organizationally, which facilitates collective action. Likewise, as PCaC attains greater regional and international recognition – to the point where PCaC has become a regional school (Castrillo, 2004) – it extends its network of relations further outward, which can contribute to expanding collaborative relationships for attaining their community goals.

However, this same campesino prestige – which simultaneously demonstrates and strengthens a strong accumulation of social capital – has its impediments and limitations. Just as social capital increases internal cohesion, it also reinforces the exclusion of "non-members," which can become a barrier to building alliances with other important stakeholders in the same region, for example, with indigenous peoples. Something similar could also occur among the indigenous population, too, as a result of their own internal social cohesion.

PCaC's relevance in buffer zone management

In just one decade, Siuna PCaC has rapidly scaled up from an offer of farm management to an alternative proposal that has stabilized and restored degraded territories. As the Siuna PCaC farmers have said, this has been possible because they found the key to unlock to the door in the velvet bean. However, the process scaled up not only because of the mass adoption of the velvet bean and farm land-use planning, but also because it applied the same methodology of experimentation, experience sharing and community mapping to a territorial scale. The widespread implementation of farm land-use planning rapidly turned Siuna PCaC into a larger-scale territorial planning process. The experimentation and experience sharing contributed to building self-worth and identity, which, combined with community mapping instruments, enables people to look beyond the farm and picture themselves in a larger territory where they are able to perceive the territory-wide problems and opportunities.

Another key element in the program's growth to a territorial scale is associated with the sense of belonging. PCaC, with the adoption of the velvet bean and its methods, has overcome both the need and the imaginary of the pioneer on the agricultural frontier who must encroach on and destroy new lands. In this context, the relevance of the proposal for campesino biological corridors can be understood, which represents a significant leap up from farm to landscape management and a profound concern with ecology.

The strategy for creating campesino biological corridors involves having peasant families come up with their own ways to negotiate among themselves, which is a critical element for collective action and future interaction with other territorial actors. Likewise, these discussions and negotiations are contributing to a growing awareness among the campesinos of their role in managing the BOSAWAS buffer zone, and with this to a growing counter-demand of support for their strategies. The innovative element in this is that the formation of

campesino biological corridors is not only an attempt to gain recognition for their contribution to managing the BOSAWAS, but that it also demands that this support be grounded in linking up with and expanding their livelihood strategies.

Grounded in velvet bean cultivation, the setting aside of land for natural regeneration, and organic farming and agroforestry practices, a collective process has begun for expanding livelihood strategies. This is happening, for example, with the proposal to extract essential oils from allspice, lemongrass, cinnamon, vetiver and ginger, all crops that make up part of the production and agroforestry management strategies that are common in many of the communities, especially in those closest to BOSAWAS.[61]

All of this, in addition to diversifying and strengthening peasant livelihoods, is also contributing to building a feeling of territorial rootedness based on the sense of belonging linked to farm management and to bringing together shared interests and values that had not previously existed in the territory. This is especially true considering that Siuna has for decades been a receiving area for people from Nicaragua's Pacific and central regions. Despite this, it is noteworthy that the peasants in Siuna are disconnected from the dynamic of managing the BOSAWAS core zone, which explains their strong sense of identity with regard to the process that they themselves have fostered, rather than to the importance of the Reserve per se. However, they are growing more aware of the contribution they are making to the Reserve's sustainability, and their peasant livelihoods are beginning to tie in more clearly with new perspectives and opportunities associated with the forest and the environment.

[61] These essential oils are to be marketed as cosmetic ingredients for the U.S. market.

PCaC's contribution to a new campesino identity

The evolution and experience of Siuna PCaC represents the construction of a new identity and imaginaries of the former campesino-mestizo of the agricultural frontier in a buffer zone, which contradicts the predominant discourse that sees mestizos as pioneers of the agricultural frontier pillaging the environment.[62] This new identity creates opportunities for conceiving of forest and natural resource management based on community management that recognizes the role of rural communities in managing anthropogenic landscapes.[63] Equally, PCaC's accomplishments represent a fresh proposal, based on concrete experiences and results regarding the traditional dichotomy between conservation and production, which demonstrates that it is possible to conserve natural resources by using production proposals intrinsic to campesino communities.

In addition to the new identity, new imaginaries have also been constructed, made possible by the confluence of natural, human and social assets that have resulted in the development of a concrete proposal for managing production in the buffer zones based on eminently campesino strategies. These imaginaries include campesinos' aspirations for converting their agrofor-

[62] Zeledón (2004) maintains the hypothesis that the mestizos on the agricultural frontier are social subjects with their own cultural identity, which has been denied and ignored because of the dominant perspective imposed through State-nationalist myths that keep them from being seen as actors who are culturally estranged from archetypical mestizaje. According to Zeledón, the campesinos on the agricultural frontier have family and indigenous solidarity relationships "that impede or inconvenience the full formation of other individualistic mestizo social relationships" and therefore, a "cultural continuum exists between the indigenous communities in the north and center of Nicaragua and the campesino communities on the edge of the agricultural frontier."

[63] This is not trivial and requires a considerable shift in practices and approaches, where the landscape dimension is more fully integrated beyond the core zones of the protected areas, in order to make the management of these areas more ecologically and socially sound.

estry and farm management strategies into cooperative enterprises (campesino-entrepreneur), integrating cattle ranching into a farm management framework (campesino-cattle rancher) and projecting themselves as an alternative for farm management that contributes to the sustainability of BOSAWAS (campesino-conserver of natural resources).

However, from the perspective of the PCaC campesinos, there are several imaginaries that may or may not contribute to future alliances between conservation and productive management of natural resources from a community-based perspective. It would seem that their strongest aspiration is to become cattle ranchers, which, to the extent that this expands could become a scenario that competes even more with the imaginary of being campesinos-entrepreneurs. At present, none of these imaginaries is exclusive of any other, however, decisive collective action is required for ensuring that the first two imaginaries (cattle rancher and entrepreneur) do not become detached from the construction of the third (campesino-mestizo preserver of natural resources). The foregoing supposes new challenges for PCaC, both in terms of selecting imaginaries and making them compatible, as well as in terms of selecting future partners and allies.

It is noteworthy that the need to emigrate is not found among the imaginaries of the campesinos themselves, despite the fact that a considerable proportion of them were immigrants from the Pacific and central regions in search of land and better living conditions. This points to two factors: first, the viability of their livelihoods, and second, the strong identification and sense of belonging that the campesinos feel toward the territory, which they are building together. To a large extent, these factors are testimony to and a consequence of the PCaC methodology, which has contributed to "stabilizing[SCG11] families, food security and restraining encroachment on the agricultural frontier," as they themselves see it.

In Siuna, a process has emerged for the social construction of strategies that seek to strengthen the livelihoods of the campesino population, with clear territorial implications. The local and national UNAG constitute the formal institutional structure that supports and guides the process; however, it needs to improve its performance, especially considering that in the last stage, Siuna PCaC has been accompanying the accomplishments of the process by itself. UNAG can strengthen these achievements even more, especially those related to the mass adoption and intensification of the management of the BOSAWAS buffer zone.

Despite the extremely adverse context that it has endured, PCaC has facilitated an uncommon process, not only for making food security stronger and more practical, but also as a process for forest conservation and natural regeneration on the farms, which runs counter to the traditional ways of thinking and the practices of subsistence agriculture strategies in agricultural frontier zones. This reveals that there is a new way to revalorize the forest and the potential for natural regeneration. For these reasons, in Siuna, PCaC's achievements contribute not only to making the BOSAWAS buffer zone productive, but also to a new campesino identity.

Retos, desafíos y oportunidades para el PCaC de Siuna

The current context in which Siuna PCaC is operating poses different kinds of challenges. First, and foremost, is the trend toward agricultural and livestock intensification in the municipality, which has become much stronger during recent years. This has invigorated the land market, which is also being strengthened by expectations around projects such as the building of an all-season road. There is a clear risk that campesino-to-campesino farmers may sell their land (especially when it is close to the road), particularly to cattle ranchers, in a context where PCaC's current responses and proposals may not be up to the task. PCaC must also respond to the changing aspirations of its members, for whom livestock is an attractive option and for which there is still no production and management proposal, like the one for agricultural production.

The RAAN continues to be the object of strategies strongly pushed by outsiders. This region is a territorial convergence zone for proposals, which, in the case of external cooperation agencies and the central government, are mainly oriented toward addressing pending issues such as territorial demarcation, stimulating the real estate market, investments to improve connectivity and the road system, etc.

As the proposals on the table end up being implemented, they will have clear repercussions for the strategies put forth by PCaC and other actors from the Atlantic region in general, and BOSAWAS in particular. Some of these proposals represent important opportunities for PCaC to expand its networks of relationships based on the potential that its success has for more integrated, inclusive territorial management. In this context, PCaC should make a considerable effort at being in charge of its own institutional development, which, as can be seen, is not independent of the context in the present or in the near future. Thus, it is important to point out several areas to which PCaC should link different strategies.

Property rights are such a central element that it would be very difficult for PCaC to remain on the sidelines of activity around the issue, which particularly affects the agricultural frontier zone, as in the case of the BOSAWAS buffer zone. Defining land rights has clear implications for the management of both the BOSAWAS core zone and its buffer zone.

As PCaC's accomplishments become broader and more involved, its alliance-building with other actors should also broaden in order to improve its advocacy efforts at the public policy, program and project levels. This means widening their perspective to take in the rest of the actors in the territory, not only from Siuna, but also from BOSAWAS. The importance of PCaC's achievements and lessons must be linked up with a more territorially integrated proposal with greater possibilities for governance, which means entering into dialogue with other actors in the buffer zone and also with the communities and actors in the BOSAWAS core zone. With regard to the buffer zone, it seems that PCaC is clear about its potential to contribute to disseminating the campesino to campesino methodology (and velvet bean) in other municipalities of the buffer zone that are feeling their own pressure on the agricultural frontier. With regard to the core zone, it seems that PCaC is reluctant to enter into more direct dialogue with the actors there. PCaC could present itself to them as a movement with territorial,

not just sectoral, importance, which is playing an extremely crucial role for the governance and sustainability of BOSAWAS, based on its community-based farmer networks in the buffer zone.

Siuna and the BOSAWAS buffer and core zones need venues for building consensus over development strategies for these territories. Given this, PCaC, rather than just a sector actor, has accumulated considerable experience and has the potential for assuming a role of a more territorial nature. This is especially true considering its evolution over time, which has involved the dimension of the communities' social and organizational fabric, the expansion and diversification of its production proposal and the environmental-territorial character of natural resource management implied in the Campesino to Campesino seal in Siuna.

The foregoing has implications for UNAG. Siuna PCaC's input and achievements contribute to strengthening and consolidating UNAG, and also to getting a grasp on the growing trends, leadership and interactions of a territorial rather than sectoral nature.

Another key aspect for the social and environmental sustainability of the BOSAWAS Reserve is to look beyond the core zone, so that progress can be made toward a more territorial approach to managing BOSAWAS. This assumes that PCaC will also contribute to countering traditional conservation discourses – commonly supported and reinforced by government and external cooperation programs, policies and strategies – that continue to focus on core zones, with little consideration for the strategic role of buffer zones, as in the Siuna case. In fact, there is strong support in the recent scientific literature for the need for a more integrated approach highlighting the importance that all the areas surrounding reserves have to their viability (see Box 5). However, traditional conservation discourses still predominate, to such an extent that the buffer areas – generally where anthropogenic forests, agro-ecosystems, vegetable gardens or community forests are found – continue to be unseen and generally ignored by policies and programs.

PCaC should also address the challenge of building new relationships with the government agencies that have a territorial presence in

Box 5

Fragment Ecology and the Management of Complex Matrices

Complex matrices refer to the ecosystems surrounding a conservation site and include forest fragments and land uses such as coffee plantations, fruit orchards, manipulated and secondary successions, multi-cropped milpas, agroforestry systems, pastures, hedgerows, etc.

The dynamics and structure of these complex matrices contribute to explaining why many highly endangered ecosystems do not experience the kinds of extinction rates that are predicted by theory. In these areas, human actions of soil improvement and fruit-bearing or seedy vegetation often enhance the value of these anthropogenic ecosystems and act as nurseries and havens for forest species.

Data from Central America increasingly shows that the diversity in these sites is significant. Thus, human impacts on age and heterogeneity of habitats, seral complexity and enrichment of matrices may be on a par with "natural" conservation sites themselves in generating diversity at a landscape level.

Source: Based on Hecht, et al., 2002

Siuna, BOSAWAS and the RAAN. Accumulated social capital should also be channeled into forming new strategic relationships with different municipal, regional autonomous and central government entities, especially considering that various proposals (programs and projects) are being defined at this time that have clear implications for Siuna, BOSAWAS and the RAAN.

In addition to the challenges posed by contextual conditions, PCaC needs to advance in its own institutional development. This refers to developing arrangements for accompanying the cooperative groups that have been forming as part of the process. To respond to them, PCaC must have the capacity to provide technical support to ensure that the mechanisms for commercialization and market access will reinforce current natural resource management and accumulation of social capital. The relationship itself with the market could taint Campesino to Campesino relationships, unless there is an appropriate means for sharing costs and benefits, while respecting PCaC's characteristics. The campesino-entrepreneur imaginary is still to be constructed, although significant progress has been made, such as in the communities of El Bálsamo and Tadazna.

It will be quite a challenge to shift from the subsistence, on-farm consumption and natural resource management that they have already achieved toward a larger-scale proposal that ties into the market. Once again, innovation, which is already part of PCaC's methodology, will be crucial in how this shift to running a campesino enterprise is accomplished. This includes seeking ways to link up with producer networks, aspects of commercialization, and quality and value chains, all of which are extremely important issues that should be incorporated into the exchange program methodology. All of this also assumes the need to balance the community-based nature of the project with the demands of the enterprise, in a setting where disputes arise for the value added in production in the different commercialization channels. The nature of the market niches that they enter will be a determining factor in whether an appropriate balance is achieved in this regard. The strategies for community and enterprise development that include expanding to a territorial scale will require innovations for a territorially-styled institutional framework.

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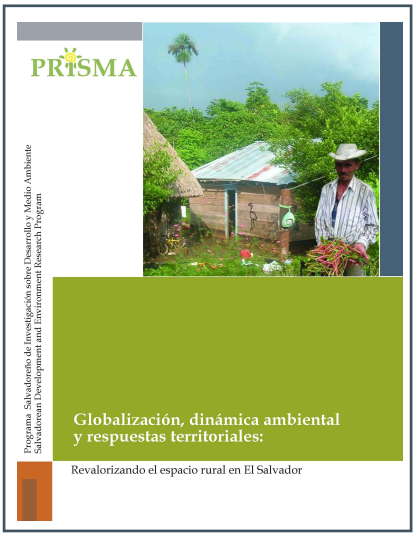

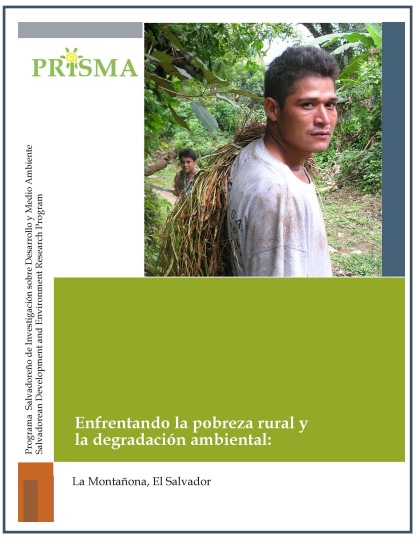

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Central America urgently needs to firmly face the dual challenge of strengthening rural livelihoods and attaining sustainable natural resource management. The experiences of the Campesino to Campesino Program of Siuna, in the buffer zone of the BOSAWAS Biosphere Reserve in Nicaragua's North Atlantic Autonomous Region, offer extremely important lessons for responding to this dual challenge. This experience has taken place in a context characterized by a lack of governance and social disintegration, but it has been able to promote the construction of campesino alternatives that not only have contributed to transforming natural resource management, but have also injected a socio-productive element into the management of the buffer zone of BOSAWAS, the largest protected area in Nicaragua.

The empowering nature of the Campesino to Campesino methodology using experimentation and exchange visits has led to a widespread transformation in farming practices, centered on the cultivation of velvet bean, improving food security and restraining encroachment on the agricultural frontier. Going further, the Siuna Campesino to Campesino Program also entails the accumulation of social and human capital through building campesino promoter networks. Not only have the conditions for governance in Siuna improved, but, in addition, a new campesino identity has been forged that has transformed natural resource management. A process of campesino innovation has evolved into new ways of organizing, and new livelihood strategies have been developed that go beyond basic food security.

Current conditions pose a significant threat to the experience of the Siuna Campesino to Campesino Program. However, it has the potential to evolve and build alliances with other stakeholders in the territory, especially given the strong need for more integrated, inclusive approaches, including the strategies for conserving the protected areas and their so-called buffer zones.

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