THE CHALLENGE OF CATTLE RANCHING TO COMMON PROPERTY: A CASE STUDY IN THE ISOSO, BOLIVIA.

By

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To Diego and Laura, whose love made life more meaningful. They have been my inspiration to believe in conservation and development as an alternative for a better world for them and the next generation. This dedication is also for my family, Elisa(s), Laura and Carlos, whose love and support have been always unconditional. To the Isoseño-Guarani people who introduced me to part of their Ñandereko.
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The Isoseños live along the Parapeti River in the eastern lowlands of Bolivia. Like many other indigenous groups in Latin America, they share a common property territory and their main organizational structures are well developed. These structures, particularly the communal asambleas and the strong inter-institutional links between Capitania del Alto y Bajo Isoso (CABI) and the external world, have allowed them to adapt and incorporate their economic strategies but still maintain their Ñandereko (the Guarani way of life) and the Mbayu (vision as People).

Cattle ranching is the principal productive activity in the area and it is also the main ecological concern because it leads to overgrazing. The goal of this research was to understand the forces contributing to the expansion of cattle ranching in the Isoso as well as their effects on the Guarani Isoseño’s common property institutions and natural resources. I examined the Guarani-Isoseño institutions based on their Mbayu vision within the Common Property and Community Based Management frameworks. I
employed individual and group interviews to gather data and participated in several community meetings. The participant observation approach and research of secondary documents helped me to understand their living conditions as well as their demographic and production systems. Through group interviews with community members I explored issues such as access to natural resources on common land as well as the role of cattle in the Isoseño’s life.

At the community level, the Isoseño people are concerned with problems that accompany the expansion of cattle ranching, including the increased pressure on land and natural ecosystems such as the riverine forests. Certain communities are taking specific decisions to regulate the presence and impact of cattle. Because cattle ranching as a productive activity was only relatively recently adopted by the Isoseños, it is essential for them to adapt local institutions and norms, and establish monitoring systems to balance economic benefits with the maintenance of the ecological integrity of the Chaco ecosystem.

Cattle-raising will continue to play a part in the Isoso because it complements the livelihood of the communities, providing protein and income. Cattle ranching can also contribute to socioeconomic development, and, if the management is sustainable, it could support a biodiversity conservation strategy in their communal land Tierra Comunitaria de Origen (TCO) Isoso. In contrast to industrial agriculture with its concomitant deforestation, cattle-ranching can be a less threatening activity, and for this reason it is included as a central element in the CABI and Isoseño’s development strategy.
CHAPTER 1
INTRODUCTION

Capitania del Alto y Bajo Isoso (CABI) and the Isoso

The study site of this thesis is the *Alto y Bajo Isoso* (Isoso) the home of 10,000 *Guarani-Isoseño* people living in more than 20 communities along the banks of the Parapeti River (Figure 1-1). Like many other indigenous groups in Latin America, the Isoseños share a common property territory. I have been connected with the Isoso since the end of 1997 when I began my work as the coordinator of the Kaa Iya National Park (KNP) management plan. The Guarani Isoseño political organization, *Capitania del Alto y Bajo Isoso* (CABI), was the leader of that planning process. Since then, my interest in indigenous peoples has emerged through my analysis of conservation issues. During that process, planning was viewed as social mobilization because it was focused on the perspective of those most affected by the protected area administration – the local population. For this reason, I developed a deep concern for the process of conservation and development in the Bolivian Chaco.

The Isoso and KNP is part of the region of the Gran Chaco in Santa Cruz, Bolivia. The Bolivian Gran Chaco is ecologically significant worldwide because it is one of the few remaining well conserved dry tropical forests and it protects important endemic species of flora and fauna (Navarro et al 1998). A regional evaluation made by Nature Serve (2006) considered the dry Gran Chaco as a priority site for conservation. Cattle ranching is the principal productive activity in the area (PLUS 1996; CIPCA 1997; CABI 2001) It is
also the main ecological concern because it leads to overgrazing (Saravia Toledo et al. 1996; Navarro 1998, 2002; Taber, Navarro and Arribas 1997).

The objective of this research is to understand the forces contributing to the expansion of cattle ranching in the Isoso as well as their effect on the Guarani Isoseño’s common property institutions and natural resource management.

Figure 1-1.  Map of the Isoso and the Kaa Iya National Park in the Santa Cruz Gran Chaco. (Source: Jose Avila, Kaa-Iya Project/CABI)

**Research Questions**

The broad question addressed in my research is whether it is possible to develop a cattle ranching strategy that is economically, socially and ecologically beneficial to the Isoseño community. To attempt to answer this, I address several more specific questions:

- What are the factors contributing to expansion of cattle in the Isoso?
• What are the effects of this expansion on common property institutions and natural resources?

• How does cattle ownership affect access to land and natural resources among the Isoseños?

• What are the social and ecological costs of expanding cattle ranching in the community?

• Who is introducing cattle in the communal areas in the Isoso and how is it influencing other livelihood strategies?

Methods

I have used an ethnographic qualitative method for this research including open-ended interviews, participant observation and of secondary documents research (Bernard 1994). I adopted an inductive research approach: departing for the field with the research questions in hand, but once on site maintaining an open mind (Bernard 1994). This allowed me to deal with dynamic challenges such as the cattle ranching in Isoso. In many senses I maintained my original questions, although some theoretical and practical arguments were formulated resulting from encounters with people at the field site and from the interviews conducted during the summer of 2005 when I visited the Isoso.

More specifically, my research involved the following steps. In Isoso, I participated in community meetings and in the Isoseño’s daily life, so I could understand their living conditions as well as their demographic and production systems. I employed two different kinds of interviews, one individual and the other in a group (Table 1-1). I interviewed people from the following four Isoseño communities: Pikirenda, Rancho Nuevo, Ivasiriri and Isiporenda. These communities are representatives of the region (Chapter 4). Through these group interviews with community members I explored issues such as access to natural resources on the common land as well as the role of cattle in the Isoseño’s life.
Group interviews were conducted in three communities as unstructured surveys. Each interview was conducted with 15 to 25 members of each community. Due to the fact that few Isoseños spoke Spanish fluently, the communal captain from Ivasiriri and Rancho Nuevo translated questions into Guarani and responses were then translated back into Spanish. These interviews were a quick and effective means of gathering data.

Women were well represented in all the group interviews. For the individual interviews I interviewed other representatives from CABI, KNP personnel and others involved in CABI projects.

This thesis is not only the result of three months of field research, but also an accumulation of my experiences and contact with Isoseños’ culture. As a CABI-WSC technical staff member I maintained contact with Guarani leaders and Guarani people, I participated in several assemblies and I supported CABI in meetings with different authorities and private stakeholders such as cattle ranchers, No Governmental organizations (NGO) and petroleum companies. I visited some cattle ranches neighboring the Isoso. As a member of CABI-WCS, I was part of a research team and had formal contact with scientists and other technicians working in the area. The formal as well as

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<th>Communal Meeting</th>
<th>Key informant</th>
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<td></td>
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<td>4</td>
</tr>
<tr>
<td>Ivasiriri</td>
<td>25</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Rancho Nuevo</td>
<td>15</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Pikirenda Coropo</td>
<td>20</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Key informant CABI*</td>
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the informal conversations with community members during tea hour (porear) also provided me with valuable insights.

**Structure of the Thesis**

The thesis is comprised of seven chapters. The present chapter (Chapter 1) introduces the problem and the methods used on this research. Chapter 2 presents a review of the literature on common property and community base natural resource management as well as the main factors linked to the expansion and global integration of cattle ranching are identified. Common property theory arose partially as a response to the ideas exposed by Garrett Hardin in his well-known “Tragedy of the Commons” article (1968). Hardin largely overlooked social institutions and rules among common users and predicted that open access would lead to the destruction of natural resources. According to the main proponents of common property regimes (CPR), Berkes (1989) and Ostrom (1990), CPR are structured arrangements in which group membership is known, outsiders are excluded, and rules are developed and enforced. Consequently, CPR offer potential for community-based conservation (CBC) which could benefit from interdisciplinary science conservation which incorporates a more elaborate understanding of social-ecological interactions (Berkes 2004).

On the other hand different factors motivate the expansion of cattle ranching in Latin America: population growth, changes in consumption patterns, the relation to the market economy, national and international policies favoring cattle ranching. Today, cattle ranching plays two main roles: it is part of a subsistence and food security strategy to millions of poor people. Cattle ranching is also a major international agribusiness supported by national and international development policies. No matter which causes,
cattle expansion is one of the greatest pressures leading to land use change and
deforestation in the tropical forests of Latin America.

Chapter 3 describes the physical and social landscape of the study area, the Tierra Comunitaria de Origen (TCO) Isoso in the Bolivian Chaco. Different stakeholders are described. Special emphasis is given to description and analysis of the Guaraní-Isoseños, whose community tenure system is a main characteristic. The Isoseños differ from their neighbors and other stakeholders in terms of ethnicity, historical presence in the area, livelihood systems, and culture. However, they have had a long term contact within the market economy as temporary wage workers for harvesting sugar cane, assisting cattle ranchers and other wage jobs. As a result they have not been as isolated as other indigenous groups in Latin America. Despite this history of market activity, the Isoseños maintain a subsistence economy and a strong cultural identity based on common property rights to the land and natural resources - the Ivi Iyambae or “land without owners”.

Chapter 4 presents a comparative analysis of the theoretical basis of CPR and CBM frameworks and the development vision of the Guaraní-Isoseños — their Mbayu. I analyze similarities, coincidences, and contrasts between the Guaraní-Isoseño vision and the CPR/CBM theoretical framework. The purpose of this comparative analysis is to establish the degree to which the Guaraní-Isoseño, through their particular Mbayu, conform, practice, and will be able to maintain CPR institutions in the face of cattle expansion.

Chapter 5 describes cattle ranching in the TCO-Isoso. Originally cattle were introduced by the karai (in the Isoseño language the word is used to define white people and criollos). Today 8% of the Isoseño population owns cattle. Within the TCO-Isoso
boundaries cattle raising is the main productive activity. Cattle is raised by several private cattle ranchers including Mennonites who arrived in the mid-1990s, and the recently established agro-industry in the area, based on private ownership of land.

Chapter 6 presents my conclusions and recommendations. The main challenge, in Isoso, is to improve and develop cattle ranching management systems that will maintain the natural potential of the resources and traditional social values in a changing context. To make that possible, internal institutions and political organizations need to be adapted to use community governance effectively to develop the economic potential of cattle ranching. Guarni Isoseño political organizations must position themselves so as to influence local, departmental, and national policies that favor those changes.
The fruits belong to all and the earth to no one

--Rousseau

Security of Tenure and Property Rights Arguments

A variety of theories and approaches regarding property rights and tenure security have been proposed which have influenced tenure policy, land reform and development programs in developing countries. According to Ellsworth (2002), scholars differ in their perception of what tenure security is, who should get it, its virtues for society, and how it is obtained. In addition, empirical evidence shows that there is not a single property regime that is inherently more efficient, optimal or ideal.

In developing countries, varying community property rights systems can be found, some of which have survived the colonial era, despite the attempts to destroy them as well as their natural resource base. In the words of Ellsworth, “during all this time the voices of their members have been demanding a place in the world emphasizing the non-market value of tenure security.” Based on the western understanding of efficiency, scholars and policy makers have generally supported property rights as individual, private and tradeable titles. Private property is viewed as the indispensable precondition for economic growth and development, and therefore assumed to be the cause of the prosperity of Western countries. Two main theories supporting this view can be traced back to Demsetz and Hardin (Figure 2-1). The evolutionary theory of property rights
proposed by Demsetz (1967) and Alchian and Demsetz (1973) argues that increasing population pressure and commercialization of agriculture tend to cause the emergence of private property rights as if it were a natural change in land tenure systems with time (Otsuka and Place 2001). Hardin's (1968) tragedy of the commons model predicted the eventual overexploitation or degradation of all resources and proposed that privatization of public holding of resources was the solution.

![Evolutionary Theory of Property Rights and Potential Role of the Mbayu](image)

Figure 2-1. Evolutionary Theory of Property Rights and Potential Role of the Mbayu.

The evolutionary theory has influenced the resource management paradigm, including protected areas policies (Maphosa 2002; Richards 1997; Berkes 1989, Brogden, 2003; Piurek 2003) and land reform programs. In the late 1980s and 1990s most countries under the influence of the World Bank promoted individualized property regimes as the means to achieve higher investment and increased productivity. It was argued that more
individualized land tenure regimes would not only allow a greater return on investment but also create a demand for land improvements and increase credit worthiness and farmer’s access to formal credit (Wilson and Nolan 2001; Deininger 2003). At the same time to protect wildlife-rich areas and evade the “tragedy of the commons” the World Bank supported the creation of new protected areas and the strengthening of national protected area administration in different countries. According to this policy, protected areas would evade the tragedy of the commons by taking them away from community property and conferring them to state administration under a state property regime (West and Brockington 2006). From these points of view, community property and indigenous systems provided inadequate tenure security to obtain the rewards of investments made to improve productivity or conserve biodiversity. In the context of land markets and land redistribution, it was generally assumed that land would be transferred to the most efficient user.

Nevertheless, in more recent times those assumption has been questioned (Jodha 2001; Wilson and Nolan 2001). Land titled to private landlords resulted in the smallholder, peasant communities as well as from indigenous peoples loosing access to land and a greater concentration of land among a few landholders (Jodha 1992, 2001; Romero 2003; Scoones 2002; Wilson and Nolan 2001). Furthermore, accumulated evidence and an expanding body of literature have revealed that arbitrary local population exclusion from natural resource management can have negative effects upon natural resources and their conservation (Jodha 1992, 2001; ILRI 1995; Kolhler-Rollefson 1993).

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1 Wilson and Nolan (2001) cite different studies supporting as the main outcome of land registration programs a decreased incidence of land disputes as a sign of tenure security. However, little relationship could be found between land rights or land title and the use of formal credit; with regards to productivity or farm investments, no relation could be found.
The nature of resource management within each major property regime is summarized in Table 2-1 below.

<table>
<thead>
<tr>
<th>Property Regime</th>
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<tr>
<td>Open Access</td>
<td>Resource rights are neither exclusive nor transferable and are owned in common, but openly accessible to everyone, and therefore effectively the property of no-one.</td>
</tr>
<tr>
<td>State Property</td>
<td>Ownership and management control is held by the nation state. Access can be severely limited e.g., military areas, government office and buildings, or more open as with state property that is held on behalf of the public e.g., highways, navigable rivers, beaches, and forests.</td>
</tr>
<tr>
<td>Common Property (private and customary)</td>
<td>Use rights for the resources are controlled by an identifiable group and are not privately owned or managed by governments; there exist rules concerning who may use the resources, as well as who is excluded from using the resources, and how it may be used. Often defined as indivisible, inalienable, not open to prescription, and land cannot be attached for mortgage or lien purposes (inembargable).</td>
</tr>
<tr>
<td>Individual Private Property</td>
<td>Use rights to resources is attached to land ownership and freely transferable as a market commodity; in some instances the state imposes minimal management requirements e.g., management plan or plan de ordenamiento predial (POP) in Bolivia.</td>
</tr>
</tbody>
</table>

Several studies reveal different factors that either enable or inhibit collective action, and demonstrate how, in many cases, local populations are able to find ways to appropriately manage the commons even under relatively complicated and adverse conditions (Berkes 1989; Ostrom 1990, 1999; Otsuka and Place 2001). While the list of those factors continues to grow, what is clear is that Hardin’s and Demsetz’s predictions are far from the only possible outcomes. Alongside individual private property, different types of property regimes persist worldwide (Table 2-1).

**The Common Property Argument and Community-Based Conservation**

Common property activists and academics argue that common natural resources make a significant contribution to the livelihood and economy of rural people. Common
property resources fill crucial gaps in the resource and income flows from other resources, provide complementary inputs into agricultural systems, and often supply a major source of livelihoods for indigenous peoples. According to Ellsworth (2000), common property scholars identify the following virtues of common property:

- It supports a physical and cultural space that strengthens social links among people across time
- It can be the most efficient way to manage natural resources
- It often provides access to survival resources and sustenance (gives a “place in the world”) to millions of peoples worldwide.

Broadly speaking, under common property systems the natural resources are accessible to the whole community and no individual has exclusive property rights (Jodha 1994). Research has shown that under common property, the rights of individuals are defined and limited (Jodha 1994; Richards 1997; Otsuka and Place 2001, Berkes 1989, 2004; Ostrom 1990, 1992, 1999). Common property regimes are structured arrangements in which group membership is known, outsiders are excluded, and rules are developed and enforced. Hence, common property differs from open access. The examination of existing common property regimes shows a number of factors favoring viable and sustainable common property resources (CPR) management. Agrawal (2001: 1653) argues that these factors can be split into four sets of variables: characteristics of the resources, the nature of groups that depend on resources, the particulars of regimes or institutions through which resources are managed and the nature of relationships between a group and external forces and authorities such as markets, states, and technology (Figure 2-2).
On the other hand, community-based conservation (CBC) was defined by Lane and Mc Donald (2005) in general terms, like “the deliberate, programmatic decentralization of authority and resources to communities for the purposes of environmental management.” CBC as an inclusive and people oriented approach to conservation is in part a reaction to the failures of exclusionary conservation (Berkes 2004). It consists of a diverse set of practices, but common conceptual and operational foundations to this bottom-up vision include (Agrawal and Gibson 1999; Lane and McDonald, 2005; Berkes 2004):

- Decentralizing government agencies and institutions concerned with environmental management
• Recognizing the local communities’ role for the development and implementation of environmental policies

• Enabling local participation in more context-sensitive planning.

Despite the general acceptance of CBC, as a theoretical and practical approach among resources management programs, some conservationists have concerns about the emphasis on community-participation because this emphasis may attenuate the conservation efforts (Campbell et al. 2000). According to Campbell et al. (2000) the institutional control over common resources, which is essential for effective common property resource management, is challenged by the pressure for removing it from the traditional institutional systems based on a complex of norm. The factors, identified as challenges to the CBC and CPR include

• national policies and legislation supporting privatization;
• projects that do not take in account local organization;
• changing and differentiated household strategies;
• new connections to markets;
• the loss of legitimacy of local organizations; and
• changing resource characteristics.

The discussion about the use of CBC and CPR approaches, Berkes (2004), Agrawal and Gibson (1999), Ostrom (1999 and 2006) and Lane and Mac Donald (2005) express concern about the conceptualization of a community which is generally defined as “community as a distinct, relatively homogenous, spatially fixed social group that shares a consciousness of being a community and which is characterized by consensus and solidarity” (Lane and MacDonald 2005. pp713). Those authors argue that communities are not static and harmonious social groups. On the contrary, communities are, and are composed by, actors with interests, imperatives and agendas of their own. Consequently, recognize and understand the manner in which they deal with differences within
community is fundamental to avoiding the further entrenchment of elites and the increased marginalization of certain social groups leading to unjust outcomes. For that reason, these authors propose that a focus on local institutions, rather than communities, might provide for a more robust and effective approach. Berkes (2004) affirms that communities are embedded in larger systems, and proposes that it may be more useful to (re)think CBC in terms of “environmental governance and conservation action that stars from the ground up but deals with cross-scale relations [promoting] a systems view of the environment, a perspective that sees humans as part of ecosystems, and an emerging practices of participatory management” (Berkes 2004 pp 28). Land and MacDonald (2005) suggest that the CBC framework has the potential to take into account terms of responding to environmental issues, in the context of the realities and complexities of environmental governance. On other hand, CBC requires us to consider the overlap of formal and informal institutions engaged in resource management and their interactions at multiple political scales. Regarding CPR action, Berkes (2004, 2005) Olsson, Folke & Berkes (2003), Bowles and Gintis (2000) and Brogden (2003) argue that the identity and permanence of a group are not static, and therefore, successful natural resources management depend on certain essential conditions

- cooperation, reciprocity, individual reputation and trust among the different group’s members and between the group and the external institutions;
- the resilience of local groups and communities;
- the capacity to learn from crisis and to nurture their organization;
- the capacity for self organization and conflict management;
- the capacity to combine knowledge and cooperative learning, learning by doing; and
- correctly information flow.
From thus literature review a trend in the CPR and CBC approaches is noticed: Agrawal (2001), Ostrom (1999, 2006), Berkes (1989, 2004, 2005), Olsson, Folke & Berkes (2003) shifted from the community as the center of attention in a local context to one that focuses more broadly on the nature of groups and their internal institutions as well as their relationship with external institutions in a cross scale context. CPR, including CBC, approaches has provided a general framework for analysis which integrates ecological and socioeconomic systems under common property regimes.

**Common Property and Indigenous People**

We are on the edge of our last spatial frontiers, there are no additional territories and resources, at a global scale, to mitigate the consequences and misbalances of the actual predominant development patterns. [Castillo 2006]

While scholars discuss the issue, grassroots movements are looking for a “place in the world” (Ellsworth 2000). Indigenous and traditional peoples inhabit a significant part of the most bio-diverse regions of Latin America and the world. For indigenous peoples the environment is intrinsically linked to their livelihood and cultural values, and consequently with their territorial rights and struggle for autonomy (Arambiza 1998). Even though indigenous peoples are not homogenous groups, as was previously assumed, common access to land and to natural resources characterize them all around the world. Far from being a simple open access system, individual rights are culturally restricted. Rights of individual community members are usually established through customs, and transfers of these rights are vested in the extended family, clan, or community (Otsuka and Place 2001).

In recent years, different countries in Latin America have been increasingly confronted with the need to address the territorial demands of indigenous peoples, especially where they comprise a high percentage of their rural population. Since the end
of the 1980s the indigenous movement has gained a voice in the international forum and has been increasingly integrated into international agendas,\(^2\) including that of conservationists\(^3\) recognizing their rights to common access to natural resources and the right of ownership and possession of the lands which they traditionally occupy has come to be internationally recognized. In contrast to a discourse that favors the privatization and individualization of rights to valued resources, the indigenous movement struggles to defend their traditional tenure systems which typically are characterized by collective rights. Indigenous common property systems continue to thrive and grow in Latin America (Riverstone 2005). Indigenous people focus on land tenure issues because property rights affect the way in which other policies will work.

Escobar (2005) and Hayck (2002) refer to indigenous peoples as perhaps the most striking challenge to the dominant culture and socio-economic models of Latin American societies. Indigenous people must confront opposing value systems. The capitalist system, which is growth-oriented and embedded in globalizing imperatives\(^4\) sees human beings as economic entities driven by self-interest. This is oriented around the wide exclusion of direct access to the means of production and livelihood, and the requisite outside-controls such as government or law to solve conflicts between self-interested individuals (Heilbroner 1985). Opposing these values are the indigenous people’s

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\(^2\) Convention No 169 of the General Conference of the International Labour Organization (ILO) adopted, at its seventy-sixth session (1989), concerns about indigenous and tribal peoples. It recognized officially the aspirations of indigenous peoples to exercise control over their own institutions, ways of life and economic development and maintain and develop their identities, languages and religions within the framework of the States in which they live.

\(^3\) Rio 1992 for example.

\(^4\) Globalization as predominant economic driving force during the last decades (1989 to 2005), determine the global agenda of crucial themes and the correspondent integration and modification of the institutional politic of multilateral organisms like the IMF, WB, UN and at national levels the “structural adjustments” of the states.
attitudes toward the land as common property, and particular relationships to it as part of their culture and identity. In capitalism, nature is an inert object, and people are the master to transform it to their own benefit (Heilbroner 1985; Richards 1997). Therefore, the path to development and growth is to make the land productive by cutting forests, setting up cattle ranches, drilling oil, and promoting export agriculture. In contrast, indigenous peoples maintain their own approach to the land that sees human activity as part of, and dependent on, the natural world based on the idea of self-sufficiency (Hayck 2002).

In Latin America before the 1990s indigenous peoples were widely viewed as backward, primitive, even deficient, and deep racism was rampant because of a failure to see anything positive in their cultures, languages, and way of life. Kirby (2003) identifies some structural and non-structural causes that opened a space for the emergence of the indigenous question in the 1990s which took governments and analysts by surprise. At that time, a well-educated young indigenous leadership developed a new political agenda and dedicated themselves to fostering and protecting their people’s distinct cultural traditions, languages and world view. Kirby (2003) distinguishes the undermining of the socialist paradigm with the end of the Cold War and with it “the left” who tended to view indigenous peoples as a part of the oppressed class rather than having their own identity. At the same time, indigenous groups throughout Latin America mobilized to oppose the official celebration of the 500 years of the Americas’ “discovery”, calling their response “500 years of indigenous resistance”. Moreover, in “Rio 92” indigenous peoples were recognized as important stakeholders in conservation, as forest guardians and holders of ancestral knowledge.
There is no convincing empirical evidence that one type of property rights is inherently more efficient, optimal, or ideal. The notion of what constitutes “efficiency”, “ideal”, and “optimal” are themselves context-specific and constantly changing in a given society. Today, various types of property rights can be found coexisting worldwide: state ownership, individual or private and common property. The actual world economic system supports the privatization and individualization of land property (Richards 1997). Despite this, in many parts of the world the common property regime survives; in others, the common property regime does not survive at all or it changes over time to adapt to new circumstances; and, in other places, entirely new common property rules have been built (Ellsworth 2004).

According to Richards in 1997 a total of two million square kilometers in the Amazon Region were indigenous territories under common property management regimes (CPMR), including the Amazon Region of Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Surinam and Venezuela. This means that 25% of the Amazon Region is occupied by an indigenous population of 925,000 peoples (Richards 1997). Evidence suggests that over a half of Mexico’s forest are on community land (Antinori and David 2004). According to Castillo (2006), protected areas and indigenous territories are becoming the last remaining reserves of natural resources in Latin America. The configuration of indigenous territories overlapping protected areas, despite the contradictions, are part of the best possible alternatives for increasing the quality of life, and at the same time, preserve the environment. Moreover, the social, ethnic and cultural institutions and rights of local people may be strengthened in the process.
Thus, this could simultaneously and preserve the environment, in other words to achieve conservation and development.

**Factors Favoring the Expansion of Cattle Ranching**

Over thousands of years, human cultures and the physical environment across vast rangeland areas have been shaped by herding animals (FAO/GIEWS 2001). Cattle have been a central element in the African pastoralists’ livelihood and culture (Scooner 2002; Cousins 1992; Bodley 1988). Cattle ranching was supported by European governments as a strategy to conquer territories in the Americas and support the European accumulation of wealth in the silver mines. The introduction of cattle was the main way that changed the ancestral livelihood of Indigenous peoples in the “New World.”

Today, livestock production accounts for more than the half of total value of agricultural output (Steinfeld 2002; Kaimowitz 1996). The strong increase of production of meat, particularly in the developing world over the past twenty-five years, is called “the food revolution” or “the livestock revolution” (Owen 2002). This revolution has changed not only farming and distribution practices but also the economic, social and physical landscapes (Steinfeld 2002; Hall, Ehui and Delgado 2004; Black and Nicholson 2004; FAO 2005; Naylor et al. 2005). The costs of social equity, environmental sustainability and public health have often been increased (Steinfeld 2002; Naylor et al., 2005). According to Steinfeld (2002) the “livestock revolution” is connected to the following factors: (1) a rapid and dynamic increase in consumption of livestock products principally in developing countries, (2) a change in livestock production practices from local multi-purpose activity to an increasingly market-oriented business, (3) a geographic shift of livestock production from temperate to warmer and tropical environments, (4) the national government and international-development incentives and subsides, and (5) an
increasing requirement and competitiveness on grazing and water resources, managed today under common property regimes.

**Increase in Consumption**

In developing countries between 1980 and 2004, per capita consumption of meat doubled and production tripled (FAO 2005). Globally, population growth and changing food consumption habits are predicted to double the demand for livestock and its production in the developing countries over the next twenty years (Pica-Ciamarra 2005; Leonard 2005; Owen 2002). Urbanization, rising incomes, and the globalization of trade are the main reasons mentioned for the growth in meat consumption in developing countries favoring meat consumption (Vera 2001, Blake and Nicholson 2004). According to Blake and Nicholson (2004), about 70% more meat will be consumed in 2020 than in 2000, and most of it (60% global production) will be consumed in developing countries (Delgado et al. 1999 cited by Blake and Nicholson 2004).

In contrast with worldwide indices, in Latin America the 77% of the total population lives in cities (Vera 2001) while the world average is 49% (Table 2-2). The consumption of meat in Latin America was calculated as 35 to 45 kg per capita, with the bovine meat making up approximately 50% of that total (21 kg). This indicates that in contrast to per capita consumption African and developed countries, Latin Americans eat considerable more bovine (and buffalo) meat per capita (Table 2-2).

**Market-Driven Changes in Production Practices**

The “livestock revolution” has focused on industrial-scale operations that have increasingly gained control over raising, processing and marketing of meat. Industrializing livestock systems have based on declining real prices for feed grains, advances that have improved feed-to-meat conversion efficiencies, animal health, and
reproduction rates, as well as cheaper transportation costs and trade liberalization (Naylor et al. 2005; Uptom 2004; Vera 2001). Today we see different production systems (Table 2-3), although there is a trend to shift from the traditional system based on natural grassland to a more intensive cattle ranching systems based on management and market specialization: a) highly intensive grass-feed finishing operations, b) breeding-growing systems, and c) extensive breeding systems (Vera 2001; Porzecanski personal comment 2006).

FAO has estimated that industrial livestock operations are growing twice as fast as traditional mixed farming systems and six times as fast as grazing systems (Steinfeld 2002; FAO 2005). This fast growth has defined economies and ways of life across many prairies and rangelands across the world. In Central and South America land has become concentrated in the hands of a few and large areas have been transformed into soybean monoculture and cattle ranches (Hillstron & Hillstron 2004; Naylor et al. 2005). This situation has become a threat, not only to the tropical forest but also to the survival of local communities and indigenous people who inhabit it.

Despite the industrial livestock system prevalence, an alternative market for extensive grass-feed system production is developing globally. Product from pastoral systems have become more valuable because there is evidences that the meat of these systems has a lower saturated fat and is richer in iron and omega 3 fatty acids (Vera 2001). Together with those nutritional characteristics of meat produced on pastoral systems, those systems are, in general, more compatible with ecosystems and the maintenance of biodiversity, than highly intensive and industrial ones.
### Table 2-2. Population, Land and Cattle Herd in Latin America and Caribbean (LAC) Contrasting to World Indexes.

<table>
<thead>
<tr>
<th></th>
<th>LAC</th>
<th>World</th>
<th>LAC/Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human Population, millions (2005)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>553</td>
<td>6499</td>
<td>8.50%</td>
</tr>
<tr>
<td>Rural</td>
<td>127 (22.6%)</td>
<td>3315 (51%)</td>
<td>3.80%</td>
</tr>
<tr>
<td>Total area (million ha)</td>
<td>2054</td>
<td>13098</td>
<td>15.7</td>
</tr>
<tr>
<td>Ha per capita (2005)</td>
<td>3.7</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption of animal protein (% of total protein)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>43.3</td>
<td>34.8</td>
<td>124</td>
</tr>
<tr>
<td>Meat per capita consumption (1992), kg/year</td>
<td>21</td>
<td>10</td>
<td>210</td>
</tr>
<tr>
<td>Cattle million head (1995)</td>
<td>337.9</td>
<td>1306.5</td>
<td>25.9</td>
</tr>
<tr>
<td>Head per capita</td>
<td>0.7</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>Grassland (million ha)</td>
<td>590</td>
<td>3361.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Meat production, millions of tons (1995)</td>
<td>11.2</td>
<td>53.2</td>
<td>21.1</td>
</tr>
<tr>
<td>LAC-tropical</td>
<td>8.1</td>
<td></td>
<td>15.2</td>
</tr>
</tbody>
</table>

Source Vera (2001) and FAOstast 2006

### Table 2-3. Cattle Ranching Systems of Meat Production.

<table>
<thead>
<tr>
<th>System of Production &amp; Management Characteristics</th>
<th>Ecological Characteristics</th>
<th>Social and Economic Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly intensive (industrial) Grass-feed finishing operation.</td>
<td>Not connected to the local environmental characteristics. Intensive production. Include the urban or peri-urban production in developing countries</td>
<td>It is strongly market driven, making them less resilient to market upheavals than other systems. Connected to industrial systems</td>
</tr>
<tr>
<td>Mixed farming systems breeding-growing.</td>
<td>Based on grass with strategic feed supplementation which integrates livestock and crop production on the same farm.</td>
<td>These represent the main systems for smallholder farmers; resource use is often highly self-reliant as nutrients and energy flow from crops to livestock and back</td>
</tr>
<tr>
<td>Extensive razing system. Grass-feed systems based mainly on native grassland with little or no crops integration.</td>
<td>Agro-ecological conditions strongly define the nature and scope of livestock-environment interactions in grazing systems. In this system livestock interact with land, water, and plant and animal biodiversity, especially wildlife.</td>
<td>Grazing livestock is a fundamental source of livelihood for million people around the world, mostly living on common property. Many of them have become the base to extensive breeding systems</td>
</tr>
</tbody>
</table>
Livestock Production—Geographic Shift

For several reasons, including higher energy prices and more rigorous pollution controls, livestock production in the industrial world is moving to warmer areas of developing countries (Steinfeld 2002; Naylor 2005; Kaimowitz 1996). In the developing world, there has been a strong shift in production to the more tropical zones – aided by the recent availability of better disease control, advances in ruminant nutrition, and breeding systems technologies. Modern, intensive meat production is threatening important ecosystems since it requires the use of large quantities of natural resources, particularly land and water (Hill and York 2003).

In Latin America the index of land per capita is higher than the world one (Table 2-2). This supposed availability of land made “South America, in particular, together with Africa, the biggest world arable reserve of land” (Vera 2001:6 based on Gallopin et al., and WRI 1996). Over the last decades, millions of cattle have been “moved” into the more humid savannas in Asia, Africa and Latin America, challenging community property rights to natural resources and in turn the subsistence systems of rural people (Steinfeld, 2002). For example, China and Brazil alone increased production by 59 million ton between 1967 and 1998 (FAO 2005). Brazil has become the world’s largest producer of beef and is the second-largest consumer, only behind the United States.

Government Incentives

Government incentives related to development of infrastructure used in livestock production - feed, water, energy, roads, fencing - as well as policies regarding market prices and subsidies are increasingly being recognized as the direct driving forces related to cattle ranching expansion (Hill and York 2003). At the same time, credit and trends toward privatization act as important indirect incentives promoting the expansion of
cattle ranching. During the 1960s and 1970s, international agencies such as the World Bank, Inter-American Development Bank and the US Agency for International Development (USAID) supported efforts to promote beef production and exports as a central focus of economic growth (Williams 1986 cited by Kaimowitz 1996). In the 1970s the cattle industry came under criticism on both environmental and social grounds. A series of critical studies prompted by Parsons focused the attention on the negative effects of livestock expansion on forests (Kaomowitz 1996).

Over the last few decades Latin American countries have been pushed to adopt economic reforms designed to encourage investment and entrepreneurship, promoting the privatization of large tracts of land. According to Naylor et al. (2005), land conversion in the Brazilian grassland and rainforest exemplifies the large impact of the continued expansion of cattle ranching, a product of a national development policy. The large and medium-sized ranches account for about 70% of the total clearing activity (Naylor et al. 2005). According to Fearnside (2005) by 2003 the forest cleared in Brazilian Amazonia had reached 648,500 km², the 16.2% of the 4 millions km² originally forested portion of Brazil's Legal Amazon Region, including approximately 100,000 km² of "old" (pre-1970) deforestation in Pará and Maranhão.

**Cattle Ranching as a Complement to the Rural Livelihood Strategy of the Poor**

There are around 500 million rural poor people around the world that depend on raising livestock for some or all of their food and income (Figure 2-3) (FAO 2005; Pica-Ciamarra 2005). Small farmers rely on livestock to pull their ploughs, fertilize their fields, and serve as a source of food and as saving that can be cashed in when needed. Many rural households base their livelihoods on a few animals fed on grass and forage from common property pastures and forest. Peasant and indigenous communities are also
increasing their livestock numbers as a complement to their subsistence economy and as a “savings account” to use in times of scarcity and emergency (Mock 2005).

Figure 2-3. Distribution of Poor Livestock Keepers Worldwide. Source FAO (2005: 6)

**National Context and Bolivian Lowlands**

Located at the core of the South America, Bolivia is characterized by its natural and cultural diversity. The total area is 1,098,581 km² with altitudes varying from 6,000 meters above sea level in the Andean cordillera to fewer than 200 meters above sea level in the lowland of the Eastern plain. Bolivia is characterized by a great diversity of ecological and cultural conditions. According to the 2002 National Census the total population was 8,274,325. The Indigenous population represents 62% of the total population; the great majority are Quechuas and Aymaras living in the highland and valleys. In contrast, the eastern lowlands indigenous are 150,000 to 200,000 peoples representing 2.5% of the total population, but belonging to more than 38 ethno-linguistic groups (1995 indigenous census). Among those 60,000 Guaranies live in 246 communities (FAO 2004).

Even though Bolivia is identified as an Andean highland country, three-fourths of the territory is tropical lowlands. Due to the ecological conditions of the Bolivian lowlands and the mineral interest of the colonial and early republican governments, the
lowland Bolivian indigenous peoples were not militarily controlled during the colonial and early Republican times. However, the Jesuit and Franciscan missions and the rubber boom in the second half of the nineteenth century made life difficult for lowland Bolivian indigenous peoples. But the subsistence base of hunter-gatherers and cultivators in the remaining tropical forests never was as threatened as it was by the later advance of loggers, settlers, agribusiness, drug dealers, cattle raisers, and miners who have intensified their activities since the 1950s. The Bolivian national development strategy since the 1950s has been oriented towards the international market and economic diversification proposed by the Plan Bohan. Consequently, the 1953 Agrarian Reform supported the distribution of land in the valley and the Andes, while in the eastern lowlands the “neo-latifundio” was legalized to embrace agro-industrial development (Urioste 1992; Kay & Urioste 2005). Therefore, the rights of lowlands’ indigenous peoples were denied or viewed as a barrier to be eliminated. The market’s advance in the form of the businessmen, ranchers, and entrepreneurs motivated by the riches of the forests has been supported by policies of governments, international agencies, and political parties.

The development policies were reflected in the 1955 Government Plan which urged the colonization of tropical lowlands by Europeans and highland peasants. Considering western technology as the solution to “the lack of productive use” of regional lands,

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5 Development as a concept was created after the World War II. Harry Truman offered “development” as fair deal for the undeveloped world; by this concept prosperous western societies constitute the model that the rest of the world should strive to attain. The concept was created to justify the assistance of the more prosperous, or “first world” countries to the less prosperous “third world” in becoming more “advanced”-high levels of industrialization and urbanization, technicalization of the agriculture, rapid growth of material production, and the adoption of modern education and cultural values (Escobar 1994).

6 US Bohan mission that visited Bolivia in 1948. As a result of this in 1953 the Bolivia received $5 million in economic aid. By 1958 total US assistance accounted for one third of the national budget, making Bolivia became the largest recipient of US aid in Latin America (Klein 1982: 238 in Beneria-Surkin 2003)
between 1954 and 1962, colonies of foreign Mennonites were established, and colonies of Russians, Eastern Europeans, and Japanese were also set up. These foreign colonizers were seen as a means to ensure the modernization of lowland agriculture. Since 1985, with the Supreme Decree No. 21060, the Bolivian economy has changed even more radically, with the liberalization of the markets. Agro-industry - mechanized agriculture, cattle ranching and logging - continued receiving important support from the Bolivian state in the name of “development”. They had access to cheap and abundant credit, subsidized prices, and failed to pay rural property taxes (Bojanic 1988 cited by Beneria-Surkin 2003; Kay & Urioste 2005). This agricultural bonanza also resulted from a shift to large-scale production of export crops, which were more profitable. Land concentration and high rates of deforestation were registered. For example, in Santa Cruz in 1950 the cultivated area was only 60 thousand hectares and that increased to over a million after the mid 1980s. In the 1990s, just 4% of land holders in Beni and Santa Cruz owned 82% of the land (Fundacion Tierra, 2005). According to Camacho et al. (2001) in Santa Cruz Department 1,424,033 ha were deforested between 1993 and 2000. Private cattle ranching is an important productive activity in the lowland departments of Beni and Santa Cruz (Fairfield, 2004; Plan del Uso del Suelo 1996). The cattle herd in Bolivia consists of 5,730,025 head, and the 72.6% of this herd is found in those departments.

Cattle ranching is an important productive activity in Bolivian lowland contributing to Bolivia’s GPD (Bojanic 2001, cited by Fairfield, 2004) and it significantly supports

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7 By 1983, the foreign debt represented 80% of Bolivia’s gross domestic product, and the country fall into hyperinflation. President Paz Estenssoro (1985-89) in 1985 adopted the New Economic Plan known as Decree # 21060, termed a free-market “shock treatment”. The decree deregulated prices, eliminated subsidies and supports, devalued the currency, and suspended foreign payments. The impact was immediate: unemployment and migration of relocated workers was massive.
rural incomes and diversified household activities (Faifield 2004). Despite this increased role of cattle ranching, its influences on communal institutions are poorly researched in the Bolivian context.
CHAPTER 3
THE ISOSO AND STAKEHOLDERS

todos esos lugares no tenían dueños karai, por eso al primer Capitán lo llamábamos Iyambae (sin dueño). Este territorio era libre. Así era nuestra tierra [all those places did not have an owner, thus the first Captain was named Iyambae (without owner). This territory was free. That our land was] Agustín Chiraye, araakua iya (dueño del consejo), La Brecha. (cited by Dixhoorn 1996)

The Isoso and the Gran Chaco

The Isoso is part of the southern portion of the Bolivian department of Santa Cruz in the Chacoan province of Cordillera, and the Municipality of Charagua\(^1\) is located between 63° and 61° 30’ West longitudes and 17° 38’ and 20° 15’ South latitudes (map 3-1). Situated in the tropical dry forest of the Bolivian Chaco, it is part of the “Gran ChacoAmericano” ecoregion which is the continent’s second most extensive forested region after Amazonia. The Gran Chaco extends over parts of Argentina, Paraguay and Bolivia, with a small portion in Brazil, occupying in all more than 1,000,000 km\(^2\). The broad climatic gradients, together with geological and topographic characteristics, generate a wide diversity of environments such as wide plains, swamps, and seasonally flooded savannas, and a great variety of forest and scrublands. The Gran Chaco is characterized by a high diversity of animal and plant species adapted to its extreme conditions (Taber et al. 1994, 1997; Navarro et al. 1998).

\(^1\) Charagua – is the municipality (Bolivian administrative unit) which includes the Isoso. There is also a town of Charagua, west of the Isoso, which is the municipal headquarters.
The Bolivian Chaco is a physiographic unit, a continuation of the “Beni” plain (Ilanura Beniana), extending across 13,766.3 km² and three Bolivian departments: Chuquisaca, Tarija and Santa Cruz. The Chaco has a semi-tropical, semi-arid climate with extreme temperatures with the median temperature from 26°C to 25°C; and extremes reaching 43° C under shadow in summer (January) and in winter the temperature could drop below zero degrees because of cold winds from Antarctica, called surazos from June to August (Dixhoorn 1996; Navarro 1998; Taber 1994). The dry season lasts from 4 to 8 months per year from May to September, some years extending until December. Rainfall is less than 1000 mm in the northern part and in the Andean foothills and averages 300 mm in the plain. The annual and monthly variability in rainfall...
(Figure 3-2) as well as the soil mosaic is an important characteristic of the Chaco landscape.

![Rainfall Graph](image)

Figure 3-2. Annual Rainfall in Charagua, Source Dixhoorn (1996).

The Chaco has been known since the Inca times as the territory of “good hunting”, because of its richness of fauna, principally large mammals such as the Chacoan peccary (*Catagonus wagneri*), white lipped peccary (*Tayassu pecari*), collared peccary (*Pecari tajacu*), tapir (*Tapirus terrestris*), guanaco (*Lama guanicoe vogli*), giant armadillo (*Priodontes maximus*), gray brocket deer (*Mazama gouazoupira*), and jaguar (*Panthera onca*). The Bolivian Gran Chaco located in the department of Santa Cruz represents the best conserved area of this threatened ecorregion.

The Bolivian Gran Chaco is a center not only of natural but also of cultural diversity. The region was home to groups of nomadic hunters, gatherers and fishermen, and some sedentary agriculturalists. Different linguistic groups such as the Zamuco - Ayoreode; Tupi Guarani - Isoseño, Ava, and Simba; and Matako/Maka – Mataco and Weenhayek are present in the Bolivian Gran Chaco (TNC et al. 2005). The Bolivian Tupi
Guaraní or “Chiriguano” 2 were characterized by their strong warrior society and the ability to defend their land; they maintained their independence much longer than any other indigenous group in Latin America. This, along with their historical interaction with the external world (colonial, post-colonial, other indigenous groups, etc.) makes them somewhat unique. Unfortunately, what they share with the rest of the indigenous peoples of America is having witnessed the severe erosion of both their land base and access to natural resources (Albo 1992, Beneria-Sukin 2003). During the first half of the twentieth century, the Guaraní were on the brink of extinction. After the Republican military intervention in 1892 with the battle of Kuruyuki, 3 their resistance was shattered leaving little hope for their future. Some Guaraní communities lost almost all of their population. Guaraní people moved to haciendas in the Bolivian Chaco or emigrated to Argentina to work in the sugar cane harvests as zafreros - temporary rural workers in the sugar cane harvest (Albo 1992; Heyck 2002). Francisco Pifarre (cited by Albo 1990) estimated that 26,000 Guaraní emigrated to Argentina in the early decades of the twentieth century, and nearly 80,000 Guaraní and mestizos were obligatorily sent to the northern rain forest to work on rubber plantations. Throughout this period, multiple forms of resistance including both armed struggle and strategies of negotiation had developed. The Chaco War in the Guaraní territory, which lasted from 1932 to 1935, dispersed them even more and the few remaining people were absorbed by the haciendas. The 1953 Agrarian

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2 The term “Chiriguanos” is not accepted by the Guaraní themselves due it use in a discriminatory way by the others. Guaraní is a more generic name referring to the wide family present in five nations: Argentina, Bolivia, Brazil, Paraguay and Uruguay. Chiriguano is a more specific name for Guaraní in the west near to the Andes Cordillera in Bolivia including the Mbya, Ava, Isosenos and Simba (Albo 1990).

3 In one day more than 800 Guaraní were killed by the Bolivian army. In total Guaraní deaths exceeded more than 3000, and 2000 Guaraní were taken prisoner and dispersed in different regions as peones (Albo 1990).
Reform did not benefit the Guaraní people. The Agrarian Reform formalized the new-
latifundio to support the governmental programs based on agro-industrial development
(Urioste 2003, n/d; Kay and Urioste 2005). The Guaraní never accepted the redistribution
of land that they still regarded as theirs.

Despite the dispersion, the Guaraní people were not assimilated as peasant or
simple labor workers but continued the struggle through a strategy of political
negotiation, maintaining their basic values, language and dignity. Through the years
many Guaraní have returned to their communities, even though today some of them are
still “captives” on the haciendas while others are living in isolated communities with very
little land (Villegas 2006). However, in some cases the Guarani exert political control
over relatively large land areas through communities united in the form of Capitanias.
One of these areas is the Isoso where the Capitania del Alto y Bajo Isoso (CABI) is
located.

At present, the Isoseño villages are the only ones in the study area, however,
several other stakeholders neighbor and interact with the Isoseño people:

1. Cattle ranchers and Agro-industry entrepreneurs.
2. Mennonite colonies.
3. Peasants.
4. The local, regional and national authorities. The Municipality of Charagua, the
   province of Cordillera and departmental authorities of Santa Cruz.
5. Non-governmental organizations (NGOs): Wildlife Conservation Society (WCS),
   Apoyo para el Campesino Indígena del Oriente Boliviano (APCOB), Centro de
   Investigación y Promoción del Campesinado (CIPCA).
6. Catholic and Evangelical churches that support development and production projects.
7. Private petroleum companies.
Figure 3-3. Map of the TCO-Isoso and Location of Different Stakeholders.
The Guarani Isoseño Communities

More than twenty communities, dispersed along the banks of the Parapeti River, are politically organized in the Capitanía del Alto y Bajo Isoso (CABI). The National Census (2002) registered 6,363 people in Isoso. However, according to CABI’s own estimation there are around 10,000 inhabitants. That difference may be explained by the high seasonal migration outside of the Isoso to the sugar cane harvest. Despite those differences Table 3-1 based on the Bolivian National Census of 2002, gives an idea of the population distribution among the Isoseño communities. Isiporenda, the southern-most community, is about 60 kilometers from the municipal center Charagua. The most northern-most community along the Parapeti river banks, Kuarirenda, is over 150 kilometers from Charagua (Map 3-1). Even though during the dry season several routes lead to Isoso, the most stable access from Santa Cruz city is through Charagua, requiring about 7 to 9 hours to reach La Brecha, the central Isoseño community.

The Guaraní -Isoseño people are originally derived from a fusion between a migratory Tupi- Guaraní group and the Arawak-Chane peoples established on the Parapeti banks. The Guaraní -Isoseño communities have experienced the aggression of the colonizers and the Republican military repression, and later the Chaco War, which practically left the Isoso empty. The present communities in Isoso share a set of specific cultural characteristics: the Ñande reko — “our Guaraní way of life”; a common origin and history; the Mbayu (vision or dream); CABI as their political organization; and the TCO Isoso as their common territorial demand. Therefore, they constitute a demographic entity.

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4 Between the 1940’s and 1960’s the area was intensively explored by hydrocarbon companies. The seismic testing lines opened at that time are used as roads.
The Guarani Way of Life: The Ñandereko

Despite having suffered military devastation, the Guaraní-Isoseño maintain many aspects of their ‘traditional’ livelihood strategies. The Ñandereko is based on cooperative work and reciprocity as one of the main internal values which keeps the society and the extended family units together, it is the basis of social and economic relations (Albo, 1992; Beneria-Surkin 2003; Heyck 2002). The household is the unit of production and reproduction. Each household is composed of an extended family and is part of a social network known as Teta (community or village). The communal life characterized by strong kinship ties and reciprocal relationships is the most important element of the Ñandereko.

The Isoseño livelihood is based on a subsistence economy. They farm for their own consumption and only the excess is sold. The main crops are corn, rice, yucca-manioc, kumanda or beans and joco (squash). Some households cultivate fruit trees such as banana, citrus and papaya. Hunting, fishing and gathering are important elements of their livelihood strategy. There are more than 135 species of plants used by the Isoseño and botanically described (Bourdy 2002). Bourdy describes the medicinal and non medicinal uses such as human food, animal feed, handicap, construction materials, firewood, toys, decoration, agricultural practices and veterinary medicine. According to Cuellar et al. (2004), 21 different species of mammals, 9 of birds and one reptile are the most frequently hunted animals by the Isoseños. Breeding domestic animals and their integration into the labor market are important complements to livelihood strategies. They raise goats, pigs, chickens and cattle. Many Isoseño are wage-workers such as

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5 According to Beneria-Surkin (1988) to replace the subsistence production the Isoseño must earn 17.46 Bs per work-hour.
peons in cattle ranches or *jornaleros* in the sugar cane harvest, school teachers, technicians in NGOs and governmental institutions.

**Guaraní-Isoseno Communities**

The present-day Guaraní Isoseño communities are not completely uniform. According to common kinship, history, ethnicity, etc., the communities can be grouped in six different “sub-zones” (Combes 1999), going from south to north, summarized as follows (Figure 3-1).  

**The Isoso frontier**

Coming from town of Charagua, which is located west of Isoso the first two communities are Isiporenda and Karapari (Figure 3-4). This is a fragile but fertile frontier. Fragile because the closeness to town of Charagua and the more constant contact with non- Guaraní people makes them susceptible to many different cultural influences, and fertile because the river’s water is available almost all the year allowing them a rich harvest. This is a transition between the *karai* and Guaraní worlds. The community is occupied, in addition to Isoseños, by Ava- Guaraní and Tapiete, and also many *karai*\(^6\) have had their ranches and homes in Isiporenda. They have developed a relation of mutual cooperation with the Mennonites neighbors (my observation). The Mennonites and Isiporenda inhabitants have exchanged of experiences and knowledge. In the summer of 2005, I observed that the Mennonites’ presence was crating incentive for agricultural market-oriented production in Isiporenda. The Guarani producers rent machinery and use technology from the Mennonites, who, in turn, rent land from Isiporenda. Interviewees talked about school children and teachers helping Mennonites harvest cotton as a part of

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\(^6\) *Karai* is the Guaraní term referring to *criollos*, *mestizos* and whites, all those groups that are not Guaraní or other indigenous people that they identify.
an unofficial agreement of cooperation between the Isiporenda community and the Mennonite community.

**The Alto Isoso**

Continuing to the north by the main road, one reaches Kopere Guasu, Kopere Montenegro, Kopere Brecha, Kopere Loma, Kapeatindi and Yapiroa. All these communities originated from the ancestral communities *Urundeiti* and *Samouti*. The four Koperes are almost like neighborhoods of one large community (Figure 3-4). In Kopere Guasu there are many Ava- Guaraní, whose predecessors came to work as peons in the ranches. Those communities conserve Guaraní traditions such as *Arete Guasu* (the main celebration of good harvest) and together they began negotiating for a legal communal title beginning in 1922. They received the official title in 1948.

**The Central Isoso**

Ivasiri, La Brecha and Tamachindi are included in the same communal title received in 1947 and reconfirmed in 1978. This zone of Isoso once was known as Guirayoasa. At the beginning of the 1900s only one community was located on the eastern bank of the Parapeti River (Figure 3-5). Experiencing severe problems with ranchers, people decided to move to the western bank where they founded three communities before the Chaco War. Today one of those communities, La Brecha, is the political center of Isoso.

**The Corazón Histórico del Isoso**

The historical heart of the Isoso is located on the eastern bank (Figure 3-5) and it is the place where the first Guaraní Isoseño arrived; guided by female leader, Kaa Poti, they established the first community known as Kovei. The present communities of Koropo,
Table 3-1. Population in the Communities of Isoso.

<table>
<thead>
<tr>
<th>Community</th>
<th>No of inhabitants</th>
<th>Male</th>
<th>Female</th>
<th>No. Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>ARAKAE</strong> 1999</td>
<td><strong>INE</strong> 2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Isoso Frontier</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Isiporenda</td>
<td>274</td>
<td>300</td>
<td>162</td>
<td>138</td>
</tr>
<tr>
<td>2 Karapari</td>
<td>85</td>
<td>149</td>
<td>80</td>
<td>69</td>
</tr>
<tr>
<td><strong>The Alto Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Kopere Guazu</td>
<td>124</td>
<td>125</td>
<td>64</td>
<td>61</td>
</tr>
<tr>
<td>4 Kopere Montenegro</td>
<td>108</td>
<td>79</td>
<td>35</td>
<td>44</td>
</tr>
<tr>
<td>5 Kopere Brecha</td>
<td>229</td>
<td>173</td>
<td>93</td>
<td>80</td>
</tr>
<tr>
<td>6 Kopere Loma</td>
<td>287</td>
<td>228</td>
<td>94</td>
<td>134</td>
</tr>
<tr>
<td>7 Kapeatindi</td>
<td>196</td>
<td>232</td>
<td>125</td>
<td>107</td>
</tr>
<tr>
<td>8 Yapiroa</td>
<td>780</td>
<td>555</td>
<td>294</td>
<td>261</td>
</tr>
<tr>
<td><strong>The Central Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Ivasiriri</td>
<td>463</td>
<td>364</td>
<td>173</td>
<td>191</td>
</tr>
<tr>
<td>10 La Brecha</td>
<td>SD</td>
<td>724</td>
<td>348</td>
<td>376</td>
</tr>
<tr>
<td>11 Tamachindi</td>
<td>525</td>
<td>380</td>
<td>172</td>
<td>208</td>
</tr>
<tr>
<td><strong>The Corazón histórico del Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Rancho Nuevo</td>
<td>870</td>
<td>493</td>
<td>222</td>
<td>271</td>
</tr>
<tr>
<td>13 Mini</td>
<td></td>
<td>31</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>14 Yuqui*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Rancho Viejo</td>
<td>378</td>
<td>217</td>
<td>108</td>
<td>109</td>
</tr>
<tr>
<td>16 Aguaraigua</td>
<td>379</td>
<td>277</td>
<td>122</td>
<td>155</td>
</tr>
<tr>
<td>17 Yovi</td>
<td>725</td>
<td>435</td>
<td>215</td>
<td>220</td>
</tr>
<tr>
<td>18 Koropo</td>
<td>370</td>
<td>314</td>
<td>147</td>
<td>167</td>
</tr>
<tr>
<td>19 Pikirenda*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Karai Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 San Silvestre</td>
<td>145</td>
<td>102</td>
<td>56</td>
<td>46</td>
</tr>
<tr>
<td>21 Paraboca</td>
<td>35</td>
<td>90</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td><strong>The Bajo Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Kuarirenda</td>
<td>728</td>
<td>586</td>
<td>307</td>
<td>279</td>
</tr>
<tr>
<td>23 Aguaraiti</td>
<td>376</td>
<td>338</td>
<td>179</td>
<td>159</td>
</tr>
<tr>
<td>24 Guandare*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Returning Isoso</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 Joseravi</td>
<td>158</td>
<td>101</td>
<td>57</td>
<td>28</td>
</tr>
<tr>
<td>26 Tetarembeí</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>7,077</td>
<td>6,363</td>
<td>3,166</td>
<td>3,197</td>
</tr>
</tbody>
</table>


Notes:
The Bolivian National Census of 2002 did not register the population of Yuqui, Pikirenda and Guandare, probably because
those communities are too small, dispersed and closely related to other communities. Their population may have been
included in the counts for other communities, (Yuqui could be included in Mini, Pikirenda in Koropo and Guandare in
Kuarirenda). Combes (1999) does not report population of Mini, Yuqui, Pikirenda, Guandare, Joseravi and Tetarembeí
because those communities were established after 1999, originally being cattle ranches (puestos ganaderos). Because the
communities frequently change location, as well as experiencing disintegration and the establishment of new communities, it
is not surprising that figures of the number of villages and population differ according to different sources. Today, it seems
that infrastructure such as schools and health services are factors that influence a more fixed location.
Aguaraigua, Yovi, Guairapembi (Rancho Viejo) and Yarumbairu (Rancho Nuevo) all originated from the first Guarani-Isoseno community of Kovei. According to Albo (1990) the first title for Yovi and Aguaraigua was received in 1927. And in 1947 Koropo was included. Koropo, Yovi and Aguaraigua always have worked together, and have shared Arete Guasu. Despite the same origin Guairapembi was left behind. Unfortunately it has been surrounded by ranches with which there were perpetual confrontations, issues that deeply affected them. Land tenure problems were growing, as well as problems of access to natural resources, and they could not title their land. The community was divided; some of them moved to the western river bank for a more peaceful life, and established Yarumbairu (Rancho Nuevo), later Mini and Yuki. In 1962 the titling process was initiated by the three communities together and when they received the title in 1969 it was for land located on the western bank. Guairapembi never got a title until it was included in the common TCO-Isoso title.

The Karai-Isoso

Many karai have lived in the Isoso since they first arrived in the mid-1800s. Some of them live far away on their ranches, but others live in the communities together with the Guarani-Isoseños. Those that live in the communities and take part in the communal life are considered members. Mixed communities as Koropo and Aguarati are examples of such communities. But three communities are inhabited almost only by karai: Paraboca, Tamane and San Silvestre (Figure 3-5). They were incorporated into the CABI organization in 1997. Then during the TCO titling process, Tamane negotiated to become private property, and they received one family title. Paraboca and San Silvestre officially decided to be part of CABI as communities.
The Bajo Isoso

Kuarirenda and Aguarati (Figure 3-6) are part of a history of moves. Because of the changes in the river (floods and drought) and the ranchers’ pressures, these communities have continually changed location. Kuarirenda received a title to its land in 1972, but the conflicts with cattle ranchers continued.

Returning to Isoso

A new Guaraní -Isoseño sub-zone is recently taking shape in the TCO-Isoso. The Isoseños that had lived outside the Isoso, including some that worked as peons on neighboring ranches, decided to establish two new communities - Joseravi and Tetarembei, both supported by CABI. These new communities are located north from Kuarirenda and their organization of production differs from the rest of Guaraní –Isoso. Land is divided into nuclear family plots which in many cases are clearly delimited by fences. Inside those areas are located the house, the farming plot and domestic animals. Each community has a communal “capitan” who maintains relationships with CABI leaders. The community members still have strong ties with the urban areas, for example most of the children are studying in urban schools (in Santa Cruz city) and only visit their parents during the holidays. Sometimes the mother lives with the children in the city during the school year.

Land Use in Guaraní Isoso

Land is considered to be common property that the ancestors have left for all members of the community (Beneria-Surkin 2003). Land tenure will be dealt in Chapter 4, but the history is summarized briefly below. Customary common property rights

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7 Observation made during my Tetarembei field trip 2004, when I was gathering information for a waste management program and visited several houses
characterized the Guaraní Isoseño Ñandereko. The cattle ranchers’ arrival forced the
Guaraní Isoseño people to seek a new way to defend the common access to land and
natural resources. After shifting from warriors to negotiators, they obtained seven
communal titles that included almost all communities 65,000 ha, (Figure 3-1).

The Territory is the central element in the struggle to subsist, around which the
indigenous peoples have tended to project an essential construction of identity. For this
reason and their immersion in land tenure dynamics, since the 1980s indigenous people in
the lowlands have mobilized to demand the titling of their lands and territories (Albo
1996). As a result, Bolivia, and other Latin American countries, has recognized some
indigenous land and territorial rights over the last few decades. The agrarian reform or
Ley INRA (Law no. 1725 of 1996) recognizes the indigenous people’s territorial demand
as Tierras Comunitarias de Origen (TCO) in accordance with the International Labor
Organization (ILO) Convention 169 (Romero 2003). During the elaboration of the Santa
Cruz Land Use Plan (Plan del Uso de Suelo de Santa Cruz, PLUS, from 1992 to 1995)
and the INRA Law (from 1994 to 1996) CABI actively participated, designing their own
proposal for indigenous territories. Together with other indigenous peoples, forming the
Central Indigenous Peoples of Eastern Bolivian (CIDOB), they argued for the legal
recognition of indigenous peoples’ territories or communal land of origin (TCO). The
Guaraní Isoseños officially presented their demand for TCO-Isoso, at the time the INRA
Law was approved in 1996, and CABI guaranteed the financial support to complete the
administrative title process (saneamiento SAN-TCO). Following the approval of INRA
Law (1996) CABI has been a key actor in the SAN-TCO process.

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8 The results of the process of TCO titling “saneamiento” in Bolivian lowland shows the next data: 55 TCO formally
demanded 25,794,177 hectares of them only 3,214,565 hectares were titled as TCO – only five TCO completely titled
The Guaraní Isoseño people can hunt and collect everywhere in their territory and each family or household can clear and farm the quantity of land that is needed to support their livelihood. Farming, hunting and gathering are part of the Guaraní Isoseños Ñandereko. The main use areas, to agriculture, cattle ranching, and village facilities including housing, were surveyed by FII-CABI technicians, at the end of 2004 and beginning of 2005\(^9\) (Table 3-2).

### Table 3-2. Main Land Use in Isoso, per Sub-zones.

<table>
<thead>
<tr>
<th>Sub-zone</th>
<th>CattleArea (ha)</th>
<th>AgriculArea (ha)</th>
<th>UrbanArea (ha)</th>
<th>Total Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Isoso Frontier</td>
<td>7,028</td>
<td>180</td>
<td>46</td>
<td>7,254</td>
</tr>
<tr>
<td>The Alto Isoso</td>
<td>28,817</td>
<td>896</td>
<td>108</td>
<td>29,821</td>
</tr>
<tr>
<td>Central Isoso</td>
<td>16,228</td>
<td>971</td>
<td>106</td>
<td>17,305</td>
</tr>
<tr>
<td>The Corazón histórico del Isoso</td>
<td>19,570</td>
<td>821</td>
<td>183</td>
<td>20,573</td>
</tr>
<tr>
<td>The Karai Isoso</td>
<td>30,549</td>
<td>5</td>
<td>47</td>
<td>30,601</td>
</tr>
<tr>
<td>The Bajo Isoso</td>
<td>28,160</td>
<td>454</td>
<td>137</td>
<td>28,751</td>
</tr>
<tr>
<td>Returning to Isoso</td>
<td>4,020</td>
<td>0</td>
<td>164</td>
<td>4,184</td>
</tr>
<tr>
<td><strong>TOTALS</strong> (ha)</td>
<td><strong>134,372</strong></td>
<td><strong>3,326</strong></td>
<td><strong>790</strong></td>
<td><strong>138,489</strong></td>
</tr>
</tbody>
</table>

Source: CABI Data Base 2005

Urban Area in Table 3-2 is the area where houses and village infrastructure are located. School buildings, health services and churches, as well as a soccer field are found in almost every community or village. The households are dispersed on both sides of the road. Beneria-Surkin (2003) provides a description of a typical Isoso household:

> Beyond on both sides of the road one can see typical one room Izoceño houses. The area immediately surrounding the house is cleared of any vegetation but nearby a few trees and vegetation is always left. Usually roofs are thatched with palm leaves but some houses have corrugated metal roofs and others are made of tiled roofs. Occasionally, one finds an isolated house, but it is more common to find

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\(^9\) In summer of 2005 I interviewed Zulema Barahona and Crecencio Arambiza (FII-CABI technicians responsible for the survey) and other peoples in the communities. I had access to CABI data base.
several houses near each other, each one belonging to one of the nuclear families that make up a household. [Beneria-Surkin 2003]

With respect to agricultural areas, all household farming plots are located together in the same area on the banks of the Parapeti River (Figure 3-4 and Figure 3-5 where the agricultural plots are represented by green polygons). Agricultural plots belong to the families, or households and, who have the right to use, but not to sell or rent the land to others. According to Beneria-Surkin (2003), the Isoseños believe “that one should not exaggerate” and should use only what is needed. Therefore, the farming plots vary from approximately 2.3 to 7 hectares (this size of familiar plot substantially differs from the peasant or small farmers and colonists who legally demand 50 ha plots). Some areas are planted and the rest of the plot is left fallow. The “Karai” and “Returning to Isoso” subzones present a notable difference in household structure and land use distribution in relation to the other Isoseño communities. In Tetarembei and Joseravi (“Returning to Isoso”) there is not a common agricultural area because each family has a rectangular plot where they have the house, animals and cultivated area, following the more typical Bolivian peasant land settler pattern. The Karai Isoso has the smallest farming area and the larger dedicated to cattle ranching.

The total areas used as cattle ranching are shown in Table 3-2. While cattle ranching characteristics in Isoso will be developed in Chapter 5. However, it is important to highlight that the area occupied by cattle ranching is considerably greater than that under other uses. According to the data, immense areas of the commonly held lands are used for herds of cattle.
Figure 3-4. Land Use in the Frontier and Alto Isoso (Sub-zone 1 & 2).

Figure 3-5. Land Use in the Central, Historic Heart and Kara and Bajo Isoso (Sub-zone 3, 4 and 5).
Other important land uses areas, such as hunting and gathering areas, are more difficult to identify. Some gathering and hunting areas have been identified by WCS technical staff which has researched hunting and collecting practices for several years. Those areas partially overlap with farming and cattle ranching areas, and are not included in this table.

**CABI, the Guarani Isoseño Political Organization**

The communal *Mburubicha* or captain is the customary authority in each Guarani Isoseño community. The main decisions affecting the Isoso are taking in the *Gran Asamblea* which is the meeting of all communal *Mburubicha* headed by the *Capitan Grande*, that is the Capitanía del Alto y Bajo Isoso (CABI). CABI is a strong grassroots organization that is key at local and regional levels. It has become a political actor adopting a practical strategy of negotiation (Beneria-Surkin 2003). CABI has achieved several successes with respect to participate in and control of natural resource management and development projects (Chapter 4).

**Other Stakeholders**

Other stakeholders in the TCO Isoso include several private properties are located within the TCO-Isoso. According to the INRA law, a process of land tenure regularization must be completed (*saneamiento* o SAN-TCO) to obtain a communal title. The *saneamiento* of the TCO Isoso is still in process; for technical and administrative purposes the area was divided into five polygons. The national and departmental governments are responsible for the legal process of SAN-TCO, beside the application of development and conservation policy. After the passing of the Popular Participation Law in 1994 the municipal government became the most important institution at the local level. The Municipality is charged with planning, implementing and supervising
environmental and development programs and projects. Various non governmental organizations (NGO) also are present in the TCO Isoso such as CIPCA, APCOB, WCS, as well the Catholic and Evangelical churches. Two gas pipelines run near the TCO borders (Figure 3-1). One runs from Santa Cruz to Argentina on the western limits of the TCO Isoso. The other runs from Santa Cruz to the Brazilian border to the north, inside of TCO Isoso. Therefore, the petroleum companies are important stakeholders in this area.

According to the SAN-TCO preliminary data the following kinds of private properties are located in the TCO-Isoso (Table 3-3).

Table 3-3. Private Stakeholders, Not-Isoseño Owners, in the Isoso.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Pol 1</th>
<th>Pol 3</th>
<th>Pol 4</th>
<th>Pol 5</th>
<th>Total TCO Isoso</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle ranchers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Owners</td>
<td>84</td>
<td>55</td>
<td>30</td>
<td>44</td>
<td>213</td>
</tr>
<tr>
<td>Hectares</td>
<td>166,223</td>
<td>164,558</td>
<td>116,103</td>
<td>269,378</td>
<td>716,262</td>
</tr>
<tr>
<td>Agro-industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Owners</td>
<td>24</td>
<td></td>
<td>24</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Mennonites Colony*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Owners</td>
<td>2</td>
<td>4</td>
<td></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Hectares</td>
<td>23,866</td>
<td>44,217</td>
<td></td>
<td></td>
<td>68,083</td>
</tr>
<tr>
<td>Peasant &quot;unions&quot; (&quot;sindicato campesinos&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Owners*</td>
<td>2</td>
<td>4</td>
<td></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Hectares</td>
<td>8,951</td>
<td>433</td>
<td></td>
<td></td>
<td>9,384</td>
</tr>
<tr>
<td>Total owners</td>
<td>112</td>
<td>63</td>
<td>30</td>
<td>44</td>
<td>249</td>
</tr>
<tr>
<td>Total hectares</td>
<td>315,379</td>
<td>209,208</td>
<td>116,103</td>
<td>269,378</td>
<td>910,068</td>
</tr>
</tbody>
</table>

Source preliminary data SAN-TCO 2006  O. Castillo
* Six Mennonite colonies include almost 1,460 families (Table 3-4). Six peasants unions involve several families.

**Cattle Ranches and Agro-Industry**

Cattle ranches in the Southern areas (polygons 3 and 5) are extensive. It is an activity with a low yield, complementing other livelihood strategies (Linzer 1998). In the north (Polygons 1 and 4) the cattle ranches are generally larger, varying in size between 2,000 hectares and 15,000 hectares and characterized by a high investment in machinery.
and infrastructure. Their administration and management are handled by full-time technicians as well as temporary personnel during the harvest season. The main crops are rice, sorghum, soybean, cotton, sunflower, and improved grass. Those ranches are influenced by agro-industrial activity and market oriented production, from the surrounding plain to Santa Cruz city and Pailon, and are linked with the credit system and main Bolivian markets. The agro industry, in the plains surrounding Santa Cruz city and Pailon, began in the 1970s with credit support from the World Bank and Inter-American Development Bank (Kay and Urioste 2005). The *Tierras Bajas* project, during the 1980s and 1990s, supported the fast-expanding agricultural frontier based on extension, through intensive production.

Cattle ranchers, of both zones, are organized in local and regional associations which offer them important political and technical support. At the local level the *Asociaciones de Ganaderos de Charagua, y de Cordillera* (AGACHARAGUA and AGACOR) and at the regional level the *Federacion de Ganaderos de Santa Cruz* (FEGASACRUZ) are strong civil institutions that have tended to exert decisive influence at regional and national levels in policy-making and implementation of official development programs.

**Mennonites**

In the southern part of the Isoseño territory between Isiporenda and Charagua (Polygon 3), four Mennonite colonies are located in the TCO-Isoso: Pinondy, Pinondy Itaguazurenda, Casa Grande and Durango. In addition two colonies are located in the northern (Polygon 1): La Milagrosa and Santa Clara. The members of these colonies
came from Canada, Mexico, Paraguay and some from different parts of Bolivia. The Mennonites who recently came from Canada have economic and technical support from their Canadian Mennonite-institutions, and they tend to be more flexible in their religious practices. The Mennonites who moved from Paraguay and other parts of Bolivia tend to be more orthodox and do not have technical support. The total Mennonite population is more than 10,000 peoples or 1,465 families (Table 3-4). They have one or several general titles for the entire colony (Table 3-3), but internally they divide the area into family plots. The nuclear family is the economic and reproductive unit, they have big families with an average of seven members. There is a strict gender and generational division of labor within the family and colony.

The Mennonites practice intensive agrarian entrepreneurship, presenting particular characteristics. Their production system is based on a stable social organization; they have common religion, customs, culture, education, values, etc. Colonies are established and organized under a chief administrator of each colony. Diversification of the productive system is an important Mennonite strategy. They grow different crops and livestock for domestic consumption and the market. Their industry of milk products (cheese and butter) is an important income to individual households. They practice mechanized agriculture and the livestock is a complementary activity. However, it is intensively-managed. Altogether Mennonites, in the TCO Isoso, have 17,092 head of cattle (CABI 2005; SAN TCO 2006 FII-CABI, Castillo pers comments 2006).

Mennonites use family labor and sometimes hire workers. Their population growth is high; consequently their increasing need for land is a main concern for them and for their

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10 The first Mennonites came to Bolivia in the 1950’s. Their actual population depends from the internal high population growth and their slowly but permanently immigration to Bolivia.
Table 3-4. Mennonite System in the-Isoso.

<table>
<thead>
<tr>
<th>Colony</th>
<th>Homes</th>
<th>Population</th>
<th>Area Total (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinondi</td>
<td>300</td>
<td>2,700</td>
<td>15,734</td>
</tr>
<tr>
<td>Pinondi Itaguazurenda</td>
<td>164</td>
<td>1,472</td>
<td>8,180</td>
</tr>
<tr>
<td>Durango</td>
<td>374</td>
<td>3,366</td>
<td>13,834</td>
</tr>
<tr>
<td>Casa Grande</td>
<td>109</td>
<td>981</td>
<td>6,469</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>947</strong></td>
<td><strong>8,519</strong></td>
<td><strong>44,217</strong></td>
</tr>
<tr>
<td>La Milagrosa</td>
<td>353</td>
<td>3,178</td>
<td>16,245</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>166</td>
<td>1,491</td>
<td>7,621</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>519</strong></td>
<td><strong>4,669</strong></td>
<td><strong>23,866</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,465</strong></td>
<td><strong>13,189</strong></td>
<td><strong>68,083</strong></td>
</tr>
</tbody>
</table>

Source: O. Castillo and Noss personal comments (CABI-WCS)
Preliminary data SAN-TCO-Isoso 2006

neighbors. After ten years of their presence in the areas they occupy shows the highest rate of deforestation and the most intensive agricultural use in the entire TCO Isoso.

**Peasants or Small Farmers**

The peasants, located in Polygon 1 and Polygon 3, are migrants or colonist from the western highlands and valleys. They arrived before the TCO-Isoso was “immobilized” (in 1996). They are organized in agrarian union (*sindicatos agrarios*), a typical strategy among the Bolivian peasants. Even though they have communal title in the name of the agrarian union the land is divided in family plots of 50 hectares; the nuclear family is the unit of production and reproduction. They produce crops for the market and domestic consumption, normally they raise small domestic animals (chickens, swine and ducks).

According to *saneamiento* data, six *sindicatos agrarios* occupy 9,384 ha. There is no information about how many families there are.

**Institutional Stakeholders**

Administratively the Isoso is a municipal district within the municipality of Charagua, in the province of Cordillera within the Santa Cruz department. Altogether the
representatives of those governmental institutions are important regional stakeholders and
CABI maintains a permanent relationship and coordination with them (Chapter 4).

Nongovernmental organizations (NGOs) such as the Wildlife Conservation Society
(WCS) or APCOB (“Apoyo y Promoción del Campesinado del Oriente Boliviano”) technically support CABI in the implementation of different activities. WCS has provided an important support in environmental and conservation programs as well as in the institutional strengthening process of CABI in arenas like negotiation with hydrocarbon companies, or with the national government on the arena of the NPK administration agreement. Other Bolivian NGO, like APCOB and CIPCA focus their support on productive projects.

The Franciscans and Jesuit Missionaries could not influence the Isoso during the colonial period as they did on a vast area of the Bolivian lowlands. However, during the 1970s and 1980s, the Catholic and later the Evangelical Church established presence in the area. The Catholic and Evangelical churches have promoted productive projects such as cattle ranching. According to Benaria-Surkin (2003) the Evangelical presence in Isoso is promoting cultural and socioeconomic changes among Guaraní Isoseños.

Two gas pipelines are located alongside the northern and the western borders of the TCO Isoso: Gasbol and Gasyrg. (Figure 1-1 and Figure 3-1). Since 1997, GasTransBoliviano (GTB), a consortium of oil companies¹¹ has been present in the area. GTB is the owner of the massive Bolivia-Brazil gas pipeline (Gasbol). Due to the international and national requirements the owners of the pipeline had to implement a

¹¹ GTB consortium includes the multinationals ENRON and Shell, the Bolivian partially state-owned Yacimientos Petrolíferos y Fiscales de Bolivia (YPFB), the Brazilian state-owned Petrobras and a other partners.
Plan de Manejo Ambiental (Environmental Management Plan, PMA) and a Plan de Desarrollo de los Pueblos Indígenas (Indigenous Peoples Development Plan, PDPI) in order to limit the socio-economic and ecological impacts of this pipeline.

Transierra\(^{12}\) now operates the Gasyrg pipeline which began its construction in 2002 and its operation in 2003. The Gasyrg extends from Yacuiba to Rio Grande (Figure 1-1 and Figure 3-1) and connects the southern Bolivian gas fields of San Alberto and San Antonio with the Gasbol pipeline. Transierra supports the Indigenous Peoples Development Planning Program (PA-PDI) and the PRAC (Programa de Relacionamiento y Apoyo Comunitario).

The Isoso area is a complex fabric of different stakeholders. Among them the Guarani Isoseños are key actors in planning and implementing development programs in their territory.

\(^{12}\) Transierra is a consortium integrated by Andina S.A., Repsol YPF S.A. Petrobras Bolivia S.A. and Total E&P Bolivie S.A.
CHAPTER 4
THE ISOSEÑO IVI IYAMBÆ AS COMMON PROPERTY

Current theory describes common property as an institution of self-governance that evolves when participants agree to impose limits on their individual claims. The survival of common property resources in Isoso implies a long-term history. Despite the current process of transformation and the uncertain future, the Guarani-Isoseños have consciously decided to preserve the Ivi-Iyambae — land without owner or communal ownership right and community tenure system as the keystone of their Mbayu — dream or vision as indigenous people. The Guaraní-Isoseño Mbayu embraces five central elements: Moañete — identity; Arakuá — knowledge; Mborerekua — union; Iyambae “without owner” or autonomy; and Yandeyarigui — the common origin related to grandmothers. All these components are closely tied together, and cannot be separated from the territory – land and natural resources. In other words: the Guaraní-Isoseño Mbayu is the vision to remain united as Guaraní-Isoseño people, having a common origin, strong identity and culture, respecting the traditional knowledge the Ñandereko or Guarani-Isoseño way to be. The Guaraní-Isoseño territory is the Mbayu’s space dimension including the land and natural resources. The political and administrative autonomy of their territory is a crucial objective.

The Mbayu was formally incorporated into CABI’s strategy planning by the asamblea of Mburuvicha — the main Guarani-Isoseño communal institution. The asamblea is a meeting where decisions are done by Guarani-Isoseño captains of all communities. In July 2005 I interviewed Oscar Castillo, who is a technician supporting
CABI, at his office in Santa Cruz. He explained how CABI developed their strategic plan with the purpose to maintain, support and develop self-governance in the Isoso. I understand that this planning is not a static formula, nor a theoretical one. The plan was elaborated by *Mburuvicha* asamblea on the basis on their vision or *Mbayu* to survive as Guaraní-Isoseño People. The *Mburuvucha* identified those customary institutions which have supported their subsistence as People. Consequently the strategic plan is supported by four pillars (Figure 4-1).

- Ñeemoai that refers to CABI as the Guarani Isoseño political organization and its relationship with the external institutions.
- Moa, referring to organization and use of the space and natural resources, the management of their territory.
- Tekoata that is the institutional and organizational strength.
- Mbaapo the self organization, productive alternatives, education and sustainable development.

More extensive explanation is developed in this chapter, which focuses on the cultural elements and institutions that shape and support the Guaraní Isoseño *Mbayu* as well as on the similarities and differences among the *Mbayu* and the Community Base (CBM) and Common Property (CPM) management frameworks.

**Ñandereko: Nature and Characteristics of the Group**

According to common property theory the membership of a communal group must be well defined. Size of the group, common knowledge, past successful experiences, trust and identity are other mentioned group characteristics needed to be successful in common resource management (Berkes 1989; Ostrom 1990; Agrawal 2001; Olsom, Folkes and Berkes 2003).
The Isoseños have a strong identity that allows them to resist and survive as indigenous peoples. The Ñandereko or Guarani Isoseño way of life is based on their communal life. According to Albo (1990) there are three aspects that reveal the Guaraní-Isoseño communal life:

- The celebration which involves the convite (to share). On different occasions members of the community share hunted prey, harvested corn, food, etc. with other members. The Arete Guasu or celebration of good harvest is a special occasion to share among communities.

- The group work is based on cooperation and reciprocity. The Isoseño as a group share generalized norms of reciprocity and trust that are part of their social capital. Therefore, the adult men are required to do communal work such as maintaining water channels and fence repair, cleaning farming areas, construction and maintenance of roads, serving in communal offices, etc. Women support bringing food and chicha.

- The asamblea are the decision-making space at communal and entire Isoso levels.
In day to day life each Isoseño belongs to a tēta or community or village. Communities are small enough for people to know each other. Therefore, membership is explicitly defined. Each Isoseño household is provided with exclusive rights to use a farming plot and forest resources inside the common property.

In the Isoseño communities, I observed that use rights to the communal forest were clearly defined by interviewees. The authority interviewed in Isiporenda indicated, for example, that a third party does not have the right to cut a tree inside the communal boundaries. The interviewees in Pikirenda mentioned one case, an issue concerning a neighboring karai or criolla-family who had gained a private title to a plot of property and who then was also trying to use communal lands to raise their herd. The members of this family are well known, and like other local karai, they took part in some communal activities, but once they obtained a private title the community no longer considered that those karai are no part of Isoseño community. Problems came when the family still wanted to claim communal advantages. In the same way Tamane, a Karai community, decided to title their land as private property. Once the Asamblea approved it, they lost the right to participate in communal programs and benefits.

Isoseños participate in different activities, organizing “work-groups” or/and associations that use the communal resource pool, for example a group of hunters, or the Cupesi-flour producers associations in Pikirenda and Ivasiriri. Those groups are generally voluntarily made up of neighbors or close kinship members who are well known to each other. Therefore, I observed that, the membership within those groups is well defined based on limited size, trust, common knowledge and past successful experiences.
Some cattle ranching associations have been formed by the Isoseño. In Isiporenda
the association takes care of a communal herd of cattle (Edda Parada informant).

The Isoseño membership is well defined by their Guarani Isoseño way of life or
Ñandereko and their common vision of themselves reflected on the Mbayu. The Guarani
Isoseño people have a common origin – Yandeyrigui, a strong union – Mborerekua and
they shared the traditional knowledge – Arakua all these are characteristics distinguishing
them from the others.

**Moa: Space and Natural Resources Use and Boundaries**

According to the common property theory, defined boundaries are one of the
most basic characteristics essential to effective common property institutions (Ostrom,
1990, 1999; Agrawal 2001). To Isoséños, the Moa - one of the strategic pillar of the
Mbayu - refers to the use of space and natural resources, as well as the definition of the
physical boundaries.

The Isoséños identify different types (levels) of boundaries within their territory
(1) the broader territorial boundaries, ancestral dominium and actual TCO in process of
titling; (2) the customary village’s boundaries; (3) the household use areas like family
farming plots; and (4) the boundaries introduced by projects and institutions for
productive activities or natural resource management.

According to Albo (1990) when the Guarani people arrived at the Parapeti bank
they were searching for the *Ivi Iyamba*, which means the land without owners. Once
they settled in Isoso and conquered the Chane people, they continued to struggle to
consolidate their territory. The concept of territory holistically includes the farming area,
the forest, rivers, flora and fauna that support the Isoseño’s livelihood and with “whom” they coexist (Albo 1990).

For the Isoseño these resources are accessible to all, they can collect fish and hunt in this common territory. According to Castillo (2006) between the 1700s and the beginnings of the 1900s the Isoseño “original dominion” was at least 3 million hectares. The boundaries have been defined to exclude others and to guarantee their right of access to their means of subsistence, and formally be recognized as People. The Isoseño fought physically to defend their territorial access to natural resources. First, they fought against other indigenous peoples like the Avas and Ayoreode, and later against the cattle ranchers, and the crown’s and Republican government’s military forces. After the Kuruyuki battle in 1894, the Isoseños shifted their strategy from defending their territory militarily to seeking legal recognition and requesting legal titling. The first communal title dates from 1932 and included two communities: Yovi and Aguaraigua. By the 1980s 65,000 ha. were titled and almost all communities were included in seven communal titles (Combès 1999; Winer 2003; Albo 1990; Castillo 2006). Despite the legal titles, problems with cattle ranchers continued. Moreover, the 1980s brought more complexes issues. The expansion of the Bolivian agricultural frontier supported by the Lowland Project (*Proyecto Tierras Bajas del Este*), an initiative of the World Bank and Bolivian government, threatened the Isoseño people’s survival.

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1 Throughout the 1970s and 80s, numerous other national development plans also focused on areas occupied by indigenous peoples, pushing them onto marginal lands. This situation and the democratic transition in the country inspired among indigenous peoples the resistance to new market forces that led to alliances, not only at the national but also at the international level. In 1982 the *Confederacion Indigena del Oriente de Bolivia* (CIDOB) was created congregating all indigenous groups of the Bolivian lowlands; and was an important forum permitting the definition of their own vision of development and resistance strategies. The struggle for their rights has led to a process of empowerment taking numerous forms such as mass mobilization and marches1, and day by day activities; winning seats in parliament and municipalities; and taking part in consultations at national and international level with multilateral bodies. From 1993 to 1997 was a period of constant reiteration of indigenous rights and Bolivia has redefined its relations with indigenous peoples by sanctioning new laws (Hirsch 2003).
Lo que ahí se necesita es un título común para todo el Isoso, desde Tatarenda (junto a San Antonio de Parapeti) hasta el último bañado. (What is necessary there is one title for all the Isoso, from Tatarenda [near to San Antonio de Parapeti] to the last swamp). [Testimony from Juan Feliciano Arandico, the communal captain of Rancho Viejo recovered by Albo 1990 pp 37]

Dn. Arandico referred to one title for all communities as a way to defend the Isoseño territory all together – Mborerekua against the cattle ranchers and agro industry encroachment. Because the Isoseño maintained the structure as indigenous people, combining concepts of territory, autonomy, and identity (Castillo 2006), they visualize their territory as a geographic space in the Chaco in which they can not only survive, but thrive, as an independent people in the “Ivi Iyambae” and sustain the Isoseño Mbayu and the Ñande reko.

As a result of Bolivian normative reform between 1993-1996, some approved Laws became key legal instrument to seek the consolidation of Isoseño territory and natural resources management. In their role of negotiators, the Isoseños supported the creation of the protected area in the Gran Chaco, the National Park Kaa Iya (NPK) in 1995. The environmental Law No. 1333 enacted in 1993 allowed CABI participation on the elaboration of the technical proposal to create the NPK. CABI worked together with WCS and the National Direction of Biodiversity Conservation to define the protected area boundaries as well as their participation in the NPK administration. The NPK encloses important areas of Isoseño’s traditional use and mystical. The creation of the NPK was viewed by the Isoseño as a way to define boundaries and to stop the aggressive advance of the agricultural frontier. Therefore, the Isoseño people protect their territory. Once the new agrarian reform law was approved, the INRA Law no 1725 in 1996, CABI requested the official recognition of Isoso’s boundaries as Tierra Comunitaria de Origen-Isoso (TCO - Isoso) to formalize their ownership right. The titling of the TCO- Isoso has
been in process since 1998. At present, more than 560,000 hectares are communally titled in CABI’s name (A. Noss and O. Castillo pers. comm.).

At the same time, internal boundaries separating different use areas are established inside the Isoso. Clear internal boundaries reduce conflict over limited resources. For example, the farming plots - limited to irrigated land in the Parapeti river banks – are distributed to each Isoseño family. The firewood collection areas are well distinguished among communities. Some hunting areas are exclusive to those who have “good relation with the Iyas” (Combes 1998; Noss and Painter 2004).

Members of each community are familiar with their village boundaries, excluding outsiders from using their communal resources. But not all Isoseños have a clear understanding of the TCO-Isoso boundaries. Before the titling process had begun, during the elaboration of NPK’s management plan in 1999, almost all old men could identify the boundaries of the TCO-Isoso and the historical attachment with their ancestors’ territory. But for young people and women - who almost never leave the community – the TCO boundaries were difficult to identify (Linzer and Villasenor 1999).

In the summer of 2005, during the communal meetings, the TCO-Isoso boundaries seem to be more appreciated among Isoseños. They are expanding their space-expectation.

During an interview in summer of 2005, the Mburuvicha of Rancho Nuevo narrated to me how they are fencing a new area far away from the village but inside the

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2 According to CABI’s register 564,000 hectares are titled to CABI as communal and 165,000 to private owners. According to press information in Bolpress.com published on October 2005 and the note of press there were titled 560,636 hectares in favor to CABI and 10 thousand Guaraní peoples families. In all the process of TCO Isoso it was titled 174,159 hectares to 71 properties. According to the last preliminary data (data facilitated by Castillo CABI-WCS).
TCO titled area. In Isiporenda, the communal Mburuvicha and his adviser complained about one individual who permanently tries to invade into the TCO titled land - the Isiporenda’s people recognize that area as theirs, being the traditional hunting area and source of wildlife to the community members.

The boundaries among Guarani Isoseño communities are not physically established and are relatively flexible among the Guarani Isoseño people (comments from interview and personal observation). Inside the boundaries characteristic social and ecological systems are present. The Moa together with the Ñandereko integrates the ecological and social systems existent in the TCO-Isoso and the Kaa Iya NP. These elements are central to develop the rules and institutions for natural resource management in Isoso.

**Tekoata and Mbaapo: Institutional Arrangements and Normative Regime**

The biggest challenge to CABI is to seek a better way of life for the Guarani–Isoseño people, respecting the Mbayu and the Ñande reko. Consequently, to guarantee appropriate management, it is necessary to develop institutional arrangements and rules. Cooperative decision making and implementation of activities are essential elements. The Tekoata and Mbaapo, CABI consciously has incorporated elements to improve self organization, education and training, to strength technical skill, negotiation capacity and decision making, and to develop natural resource management experiences.

**Rules**

Rules of use are essential for the management and access to common natural resources. The rules regarding appropriation of natural resources must be well defined and adapted to the particular natural and social common property context (Ostrom 1990). Johnson and Nelson (2004) suggest that collective arrangements must be perceived as fair by the communal members of the common property institution, and must be collectively
made to be responsive to all of the resource users and to changing ecological or social conditions, and be acceptable (Johnson and Nelson 2004). In addition there must be mechanisms of conflict resolution, correction and sanctions for departures from the rules (Berkers 1989; Agrawal 2001; Olsson et al. 2003).

Within the Isoseño well-known rules are established ascribing certain activities and use in the different areas. For example, all fishing and hunting areas are not the same: the access to remote sacred areas, such as the ponds of Yandeyari,\(^3\) or other areas in the forest near to the hills, are restricted to those with a respectful behavior (Combès 1988). Only those who know and have the approval of the Kaa Iya, or spirit guardian responsible for ensuring the forest, can gain access (Combès 1998; Noss and Painter 2004).

According to Combès (1998), Beneria-Surkin (2003) and Noss and Painter (2004) some cultural rules have weakened. Noss and Painter suggest that some traditional rules that contribute to sustainable use and conservation are being undermined by socioeconomic changes over the past decades, including new hunting technologies and changes in employment patterns; reduction of the areas accessible to Isoseño hunters by the installation of private properties and Mennonite colonies; and the growing population in the Isoso, among other changes.

**Monitoring and Sanctions Iyambae**

Monitoring common resource use ensures that a communal management system, defined by rules and boundaries, allows only the group members to carry out the intended activities. According to Ostrom (1990), monitoring and sanctions imposition should be applied by members of a communal entity or by persons accountable to the members of

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\(^3\) Yandeyari here is referring to the place.
the group. Monitoring and sanction of violations are necessary to rule enforcement within a common property institution.

Monitoring and sanctions of inappropriate activities are established among Isoseños. The *Mburuvicha* or captains are responsible for dealing with infractions of internal rules and for maintaining order within the community. At the same time the community is small enough that everyone generally knows what everyone else is doing, and therefore an unofficial monitoring is going on.

Despite monitoring every day activities is customary experience, the Isoseño have to adapt new rules to the present harsh socioeconomic and ecological changes. Attitudes towards wildlife are not severe they are continuously adapted to peoples experiences in a changing socioeconomic and ecological environment. There is some experience of self monitoring by hunters, combining and supporting scientific and local knowledge that supply elements to raise awareness of natural resources (wildlife) management at the communal and indigenous territory level (Noss, Cuellar and Cuellar 2001, 2004; Noss and Cuellar 2003; Noss and Painter 2004).

The *Cupesi*- associations in Pikirenda and Ivasiriri. In those communities a group of women have organized themselves in an association. Those associations are supported by CABI and their communal assemble to experimentally produce Cupesi flour for the market. In both communities, the interviewed identified administrative training as a key necessity. They are looking for support to develop skills such as bookkeeping to monitoring the administration of the cupesi production. In those cases the introduction of new productive activity involves new skills to monitoring it.
Collective Arrangement and Conflict Resolution

The communal asamblea is the place where communal decisions affecting the community are made jointly. It is the forum where all members of one community together to the communal Mburubicha make decisions and coordinate community activities such as reparation of water channels or communal infrastructure, and decide whether to participate or not in a project or program.

The Isoso “Gran Asamblea” is the place where all communal Mburuvichas or captains, the women-Mburuvicha, and the communal assistants make the major decisions affecting all Isoso. In general, Isoso has a well-established and functional means of ensuring collective decision-making and conflict resolution with the participation of community members according to the central principles of Mborerekua -unity and Iyambae – autonomy.

The decision-making process takes time. One asamblea is not enough. The analysis, discussion and joint decisions must be internalized. The asamblea has rules too: respect for elders gives them more authority than any one younger; shouting and verbal confrontations are not allowed (personal comment Angel Yandura). Albo (1990) describes the main role that the ňee ija, - literally elders “owners of the word” – play in the community life and asamblea.

There are some trend of communal cattle ranching organization and institutional development that can be identified. In a few communities, such as in Isiporenda and Yapiroa, a core of cooperative organization is found. Members of the cooperative take weekly turns taking care of the herd and the infrastructure. Decisions are made in the communal asamblea. In Aguarati and Ipapio (Tamachindi) cattle owners have formed associations to improve and implement cattle ranching practices, having invested in
infrastructure acquisition and maintenance. Mixed-management (private/communal): private cattle herds are allocated inside the communal fences, with the owners agreeing to contribute to the communal infrastructure’s maintenance. Some communities administer a monetary fund and owners pay monthly (Based on interviews: Zulema Barahona, Crecencio Arambiza, Eda Parada, Alejandro Arambiza, Andrew Noss).

Individually-owned free-grazing cattle—which sometimes invades agricultural plots, and always feeds on the riverine forest—still represents the main challenge to Guarani Isoseño institutions. The free-grazing herds comprise a majority of the cattle in the region (68% of total cattle of Guarani Isosenos owners) and it involves a large number of smallholders without investment capacity who consider their cattle a complementary form of sustenance. Different communities are taking specific decisions attempting to regulate the cattle’s presence. For example, in 2001 the cattle owners from Koropo were made to move further North and establish Pikirenda, a new cattle ranching community (From interview with the captain of Pikirenda). In this way, they solved the invasion to farming plots by free grazing cattle, but did not alleviate the pressure on the riverine forest. On the other hand, in Yapiroa the community reacted against the planned clearance of the riverine forest. The clearance was suggested by the technical people from the cattle-ranching projects, and the community decided to move the project away from the riverine forest to protect that valued ecosystem which brings them shadow, temperature regulation, wood, firewood, fruits, and flood protection.

**Ñeemoai: Relationships between the Group and External Forces**

Common property institutions are not isolated. Therefore the relationship between the community or group and the external forces and authorities are important elements to take into account. CABI refers to its relationship with the external institutions as the
Neemoai which includes their relationship with other grassroots indigenous organizations, the municipal government, the regional and national governments, the civil society and the private sector.

The relationship between the Isoso and external forces has been changing through time. The Guarani-Isoseños were essentially warriors and they defended their territory militarily against the cattle ranching expansion – “la conquista de la vaca” – during the colonial and early republican period (Albo 1992). The Spanish crown officially declared war against the Guaraní people who resisted until the beginning of the 1890s. After a military defeat, the Isoseno leaders shifted their struggle’s strategy from warriors to negotiators (Albo 1990; Beneria-Surkin 2003). Therefore, the Mburuvisha Casiano Barrientos in 1927 and later Bonifacio Barrientos in the 1940s were the first local authorities officially recognized as Capitan Grande del Alto y Bajo Isoso by the regional and national government. They traveled to Santa Cruz and La Paz to demand the legalization of their communal land as a strategy to be recognized as indigenous peoples with their own identity.

They [the Guaraní] demonstrate a renewed cultural energy, this time focused on inclusion rather than resistance, but with the crucial caveats that their culture and language be respected, via bilingual education, and their history rescued from official distortion. [Albo, 1990 cited by Beneria-Surkin 2003]

During the 1980s a Natural Resources Protection Plan for the department of Santa Cruz was designed and implemented. Then, a discussion process was stimulated among Isoseno about the scale and impact of Santa Cruz’s expanding agro-industries and about how they were to improve their own economic status without losing traditional social structures and values. Therefore, CABI established strategic alliances with other indigenous groups. CABI supported the formation of the Central de Pueblos Indigenas de
Santa Cruz in 1981 and ten years later the Confederacion Indigena del Oriente Bolivano (CIDOB).

CABI has achieved a strong capacity to negotiate at local, regional and national levels. They exercise their rights based on official and legal mechanisms. The following facts are the most important achievements on the natural resource management terrain:

- The co-management of the Gran Chaco-Kaa Iya National Park (KNP) (1995). In 1995, after the creation of the KNP an agreement of its co-administration was signed between CABI and the national government. With a surface of 3.4 million hectares this park is the largest in Latin America and the first co-administrate by an indigenous organization in Latin America.

- The governance of an indigenous municipal district, making CABI the legal political authority in Isoso. Under the Popular Participatory Law (1994), CABI is recognized as the first indigenous municipal district government in Bolivia.

- The coordination of development activities of NGOs working in Isoso. Agreement with APCOB, CIPCA,

- CABI also formed alliances with Wildlife Conservation Society (WCS) since the beginning of 1990s. WCS had begun a program in 1995, to both develop the Park and promote a sustainable rural development process. The alliance gave them access to USAID funding and other revenue generated from hydrocarbon activity within the Park and the TCO-Isoso.

- The co-administration of the Plan de Desarrollo de los Pueblos Indigenas 4 (PDPI) through an important agreement with the petroleum private companies (Chapter 3 Stakeholders) and the state (1997 to 2004). The PDPI sought to reduce or mitigate any negative social and economic impacts of the pipeline’s on the indigenous peoples living in the area affected by its construction. The PDPI is supported by a found of $3.7 million that included $1.5 million to support land titling for indigenous territorial claims by the Guaraní-Isoseños, the Chiquitanos and Ayoreodes.

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4 The Bolivia-Brazil Gas pipeline (Gasbol) carries gas from south of Santa Cruz to Porto Alegre- Brazil, crosses 250 kilometres of TCO-Isoso and KNP land. As a condition the World Bank and the Inter-American Development Bank required the pipeline owners to design and implement the PMA and the PDPI (Chapter 3). The PMA defined the actions to be taken during and after the construction of the pipeline to reduce any negative environmental impacts associated with the construction of the pipeline.
• The agreement between CABI and Transierra the petroleum consortium (2002-2006) to implement and monitoring the PRAC and PDI.

• Their territorial demand as TCO-Isoso is recognized by the Bolivian government and other international institutions such as the World Bank and USAID which are supporting their demarcation and natural resource management planning.

CABI entered those arrangement having as its main objective the defense of Guarani-Isoseño land rights as well as strength self governance. These successful achievements are unprecedented among lowland indigenous organization in Bolivia. National recognition as authority in the region enables CABI to prevent further incursions into their territory by ranchers and large-scale agriculturalists (Arambiza 1996 cited by Beneria-Surkin 2003).

There is no doubt that CABI is an important stakeholder that is officially recognized at local and national levels. Despite CABI’s political achievements it has not been strong enough to confront the influences exercised by the large cattle ranchers. Large cattle ranchers in the eastern lowland are well organized both locally and nationally. During three different presidential governments they have impeded the titling of TCO-Isoso through different mechanisms. The “carrying capacity” for cattle ranching is one of the most contradictory technical arguments used by the landlords and cattle ranchers to impede TCO land titling. On the other hand, cattle ranchers have taken advantage of the TCO titling process as many private owners received titles before TCO titles were signed and they did not pay the cost of the titling.

The current president, Evo Morales, during his inaugural speech used the words of a Guarani leader “tratenme como a una vaca” meaning “treat me as you would treat a cow” referring to 25 hectares for each cow used by cattle ranchers to justify the land concentration in the Chaco region (Ortiz 2006). The relationship between CABI and the
current government representation is difficult to predict. After the nationalization of the Bolivian hydrocarbons, the issue of land began to gain attention at the national level (La Razón 2006). The Bolivia’s turbulent political climate (Hylton 2006) is covering the hope of great advances. The current government does not clearly differentiate between highland and lowland Indigenous people and it seeks land to distribute among the highland peasants (La Razon 2006-2, 3). Consequently, the lowland indigenous territories are threatened and lowland Indigenous peoples are on the alert (La Razón 2006-2).

On the other hand, the cattle ranchers and private owners of the eastern lowlands do not have the national support that they had before, but they are part of the Santa Cruz departmental social movement at regional level. That gives them the power to have political and economic influence in the decision making process. Therefore, CABI’s political strategies to relate to external institutions has to be adapted to different contexts. A the present time CABI is playing in different local and national scenarios. For example the main Guarani Isoseño leader Bonifacio Barrientos capitán grande actually occupies a Congressman at national level and Marcelino Apurani is the provincial authority strengthening CABI’s regional relationships. The Guarani Isoseño are making progress in developing practical negotiation capacities.

**Contrasting the Common Property (CPR) and Community-Base Management (CBM) Framework to the Mbayu**

It is possible to find a close similarity between the theoretical CPR and CBM framework and the Guarani Isoseno strategically planning process based on the Mbayu (Figure 4-2). Nevertheless the Mbayu is not a fixed theoretical framework it is the result of practical experience with a long history. Its creators are their own protagonist. The Guarani Isoseño’s resolution to survive as indigenous peoples is the Mbayu’s main
objective. The *Ivi Iyambae* or land without owner or the “land without evil” has guided the Guarani through centuries. They fight to reach self governance in a territory shaped by different social and ecological systems. The elements of the *Mbayu* are tied to each other and they are part of the all spheres of Guarani Isoseño life. The *Mbayu* is also a political decision.

Contrasting the CPR & CBM framework to the CABI planning (?)

<table>
<thead>
<tr>
<th>Common Property Community Base Management Framework</th>
<th>Mbayu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance : Social and Ecological Systems</td>
<td>Moa</td>
</tr>
<tr>
<td>(Agrawal 2001; Berkes 1989; Ostrom 1990, 1992)</td>
<td>Mbaapo</td>
</tr>
<tr>
<td>Nandereko: Clearly defined membership</td>
<td>Tekoata</td>
</tr>
<tr>
<td>Past successful experiences</td>
<td>Neemoai</td>
</tr>
<tr>
<td>Leadership</td>
<td></td>
</tr>
<tr>
<td>Homogeneity of identities and interest</td>
<td></td>
</tr>
<tr>
<td>Local knowledge</td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td></td>
</tr>
<tr>
<td>Well defined boundaries and size</td>
<td></td>
</tr>
<tr>
<td>Self organization</td>
<td></td>
</tr>
<tr>
<td>Rules and norms</td>
<td></td>
</tr>
<tr>
<td>Conflict resolution</td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
</tr>
<tr>
<td>Enforcement and sanction</td>
<td></td>
</tr>
<tr>
<td>Accountability</td>
<td></td>
</tr>
<tr>
<td>External rules, policies and institutions</td>
<td></td>
</tr>
<tr>
<td>External support Nested organization</td>
<td></td>
</tr>
<tr>
<td>Level of Support &amp; enforcement</td>
<td></td>
</tr>
<tr>
<td>Relationship with the external institutions</td>
<td></td>
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<tr>
<td>Groups characteristics</td>
<td></td>
</tr>
<tr>
<td>Boundaries</td>
<td></td>
</tr>
<tr>
<td>Institutional arrangement &amp; normative regime</td>
<td></td>
</tr>
<tr>
<td>Territory: Common Land and Natural Resources</td>
<td></td>
</tr>
<tr>
<td><em>Mbaapo</em></td>
<td></td>
</tr>
<tr>
<td><em>Moa</em></td>
<td></td>
</tr>
<tr>
<td><em>Nandereko</em></td>
<td></td>
</tr>
<tr>
<td><em>Neemoai</em></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4-2.** Guarani Isoseño Strategically Planning Based on *Mbayu* Contrasting to Common Property and Community Base Management Theories.

CABI is a strong grassroots organization that decided to keep communal land as a central element in their subsistence as indigenous people. They do not deny improving the well being of their communities and therefore they have a vision of themselves as the *Mbayu*. The *Mbayu* incorporates the main principles to maintain social unity and allow live in comoono t the Guarani Isoseño as social unity and live in a common territory.
On the other hand I argue that the *Mbayu* is a vision that encompasses a political dimension and decision making mechanisms. The *Mbayu* is a conscientious political decision related to their subsistence as Guarani Isoseño people, it is a life project. The *Mbayu* is a practical and historical experience and the communities are the responsible stakeholders (Figure 4-3).

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**Figure 4-3. Contrasting the Garani Isoseño *Mbayu* and the Common Property and Community Base Management Framework.**

The Ñandereko is a social and ecological fabric embracing the main social principles in a specific landscape or territory which includes the land and ecosystems. The autonomy or self governance is a central element to the Guarani Isoseños and they are strengthening their traditional institutions in the changing context they seek for external co-responsible partnerships that support their *Mbayu*. 
CHAPTER 5
CATTLE RANCHING IN ISOSO

Cattle raising is the largest land use in the TCO-Isoso. The regional land use plan of Santa Cruz Department (PLUS) recommends extensive cattle ranching as the main productive activity on the Santa Cruz Chaco and farming and protection on the river banks of Parapeti river (PLUS 1995). According to Combès (1999) and Albó (1992), once livestock were introduced by the *karai* in the middle of the nineteenth century, this radically changed the life in Isoso. Since that point, the history of Isoso has been a history of conflicts between the Isoseños and the cattle ranchers. In spite of this, this one sees a growing number of cows belonging to Isoseño in the communities.

At present, cattle ranching activities are in the hands of two different social groups: 1) Guarani Isoseño cattle ranching characterized by the customary and legal communal land ownership; and 2) the private landholders characterized by individual private land ownership regime.

The Expansion of Cattle Ranching in Isoso

Three phases of cattle ranching expansion can be identified in Isoso:

- The conquest of original peoples’ territories (“la conquista de la vaca”). Since the colonial period with the implementation in the 1950’s of Bohan plan
- The “Bolivian agrarian modernization” - private livestock production nourished by the State and international cooperation. From the 1950’s to the beginning of the 1990’s
- The “big cattle ranching projects” characterized by the introduction of communal livestock projects founded by NGOs and churches in the Isoso.
A brief description of each of them helps to understand the present cattle ranching situation in Isoso.

**The Conquest of Original Peoples’ Territories “La Conquista de la Vaca”**

In Bolivia, cattle expansion has been associated with the extension of the conquerors’ power and then the Republican (Government) occupation of the original people’s territories. First the missionary, then the military and private interests introduced cattle as a way to “civilize” and conquer the aboriginal cultures. According to Saravia Toledo (n/d), cattle livestock were introduced in the Chaco forest after the mid-1700s by the Franciscan missions. After Bolivian independence (1825) the Chaco region of the country was designated for livestock production. As an incentive, the government offered one square *legua* (5.6 square kilometers or approximately 3.5 square miles) to whomever occupied the area. The deepest penetration was through the Parapeti and Pilcomayo rivers to the East. The Isoso is not an exception to this pattern, despite a long resistance which denied the religious missions access and repelled the colonial and Republican military. Finally during the 1840s or 1850s cattle were introduced by a Mr. Mercado, a *criollo* or “*karai*” (Combès 1999). According to testimony collected by Combès (1999), Mr. Mercado come to Isoso as a young person and lived among the Isoseño. As an adult, he introduced the first head of cattle and opened the Isoso to other cattle ranchers who came to Isoso with their cows and laborers. The cattle invaded Indigenous’ farming, gathering and hunting areas. The growth in number and extension of ranches limited the Isoseños’ access to land and natural resources that they previously had access to. And worst of all, ranchers came with the intention to reproduce the “*criollo*” hierarchical system within the Isoso, which the Isoseño had to continually resist. Combès (1999) relates how cattle
ranchers intended to impose themselves as captains in the communities, or tried to incorporate the Isoseño people as laborers in the hacienda system.

Modernization: Cattle Ranching Subsidized by the Bolivian State

Since 1960s under the banner of “modernization,” a gradual expansion toward the Chacoan plain was officially stimulated by the Bolivian government which granted the land and infrastructure for livestock production. For example, during this time the government built water reservoirs and wells to stimulate cattle ranching, particularly northwest of the actual TCO-Isoso (in the area knowing as Medanos Fociles or “Arenales de los Guanacos) (Saravia –Toledo 1996). During the military governments in the 1970s and 1980s land and monetary resources were distributed through a web of corruption. Close friends and family members of the military elite received vast expanses of land and credit (credit which never had to be repaid, and which led the “Banco Agricola” to bankruptcy). According to Romero (2005), almost seven million hectares were distributed during the Banzer military government (1971 to 1978). In the Chacoan province of Cordillera one individual could receive more than one “mega-parcel” of land, for example, the well known Gutierrez family received five parcels with a total of 96,874 hectares in the Santa Cruz Chacoan region (Romero 2005).

During my visits to Isoso, I had participated in the relaxed chatter that accompanied drinking tea at my host families. In Pikirenda several neighbors shared with me their stories about: “thousands of cows grazing on the neighboring plain” and great “feasts at Otto León ranch”. The men were peons at Mr. León’s ranch a close friend of that time President Banzer. Surrounding the community of Rancho Viejo, one can see the evidence of the ranchers’ “good times”: Otto León’s abandoned infrastructure, machinery, cleared land, and water channels. The community itself was completely surrounded by ranches
which limited access to natural resources and livelihood sources (Combes 1999; Albo 1990). Therefore, it is possible to understand why Rancho Viejo is the poorest community today (Beneria-Surkin 2003).

Over time many of the great private ranchers like Otto León have collapsed. Without subsidies from the *Banco Agricola*, and after overgrazing the pastures, they could not survive economically (personal comment of veterinarian Mr Eurlet). The “golden era” passed, but the peons and “cowboys” settled in the Isoso establishing the *Karai Isoso*, sharing their attachment to cattle ranching activities and poverty with the Isoseño.

More recently, since 1995, some Mennonite colonies have been established. The first Mennonite arrived in Bolivian territory between 1954 and 1962, together with other colonizers (colonies of Russians, Eastern Europeans, and Japanese were also set up). These foreign colonizers were seen as means to ensure the modernization of lowland agriculture. Therefore, they received several incentives to colonize new areas and clear the forest. Even though cattle raising is not a main productive activity for the Mennonite, they have significant herds. The Mennonite land management system is actually questioned by some because their agricultural practices are highly destructive of soil properties (Linzer 1998, CABI, FII and WCS 2001).

**Big Projects and the Cattle Raising Incentive Among Isoseños**

The “Big projects” (“*Los Grandes Proyectos*”) phase began in 1995 with the Kovei project which fenced 6,781 has for communal livestock production. Since 1995 nine big projects have been supported by different resources and implemented through NGOs working with community members. NGOs such as CIPCA and APCOB together with the Catholic and Evangelical churches are the most influential promoters of cattle
ranching within Isoseño. At present the government of the Autonomous Community of Valencia is a main sponsor of cattle ranching projects in Isoso, supporting projects in Kopere(s), San Silvestre and Yapiroa. The general outputs of those projects have been more fenced area, water wells, rustic water reservoirs and cowboys’ shelters, leading to the introduction of more herds of cattle. Projects have not yet achieved their objectives: communal production of commercial meat.

The “big projects” introduced cattle by different ways, but often by buying one or more bulls with project funds, while the community’s members contributed heifers. Barahona (2005) relates how dairy cows were introduced through 25 pregnant Holland cows. Each person who received one of those cows had in turn to give one pregnant cow to another community member and so on. As a result there are 45 Holland-cows in Isoso today (Barahona 2005).

The Isoseños Cattle Ranching

Many Isoseño have begun independently raising livestock as a complementary subsistence activity. Cattle is introduced by individual initiative among the Guarani-Isoseño people via different means: buying or receiving them as wages from neighboring ranchers; or as a pay for taking care of the cattle herd of family or communal neighbors, who live or work in the city (Barahona 2005). The 2004 cattle census registered the number of cattle per owner, as well as some management characteristics, which are summarized in Table 5-1. According to the data among the Isoseño three main cattle ownership regimes can be differentiated:

- Individual cattle ownership (under free grazing or fenced management systems)
- Communal cattle ownership (under free grazing or fenced management); and
- Family or group cattle ownership under fenced management.
Table 5-1. Number of Isoseños Owners and Number of Head of Cattle by Type of Property Regime by Community in Isoso.

<table>
<thead>
<tr>
<th>Community</th>
<th>Population</th>
<th>No. individual owners</th>
<th>Cattle individually owned</th>
<th>Cattle communally owned</th>
<th>Family owned cows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Owners Free Grazing cows Owners Using Big projects fences</td>
<td>Free Grazing cows Fenced cows</td>
<td>Free Grazing cows Fenced cows</td>
<td></td>
</tr>
<tr>
<td>Isiporenda</td>
<td>300</td>
<td>31</td>
<td>171</td>
<td>67</td>
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<tr>
<td>Karapari</td>
<td>149</td>
<td>4</td>
<td>48</td>
<td>10</td>
<td></td>
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<tr>
<td>Kopere Guazu</td>
<td>125</td>
<td>3</td>
<td>3</td>
<td>176</td>
<td>20</td>
</tr>
<tr>
<td>Kopere Montenegro</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kopere Brecha</td>
<td>173</td>
<td>8</td>
<td>6</td>
<td>31</td>
<td>50</td>
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<tr>
<td>Kopere Loma</td>
<td>228</td>
<td>7</td>
<td>96</td>
<td>15</td>
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<tr>
<td>Kapeatindi</td>
<td>232</td>
<td>17</td>
<td>87</td>
<td>48</td>
<td></td>
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<tr>
<td>Yapiroa*</td>
<td>555</td>
<td>30</td>
<td>703*</td>
<td></td>
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<tr>
<td>Ivasiriri</td>
<td>364</td>
<td>40</td>
<td>510</td>
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<td>La Brecha*</td>
<td>724</td>
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<td>529*</td>
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<tr>
<td>Tamachindi</td>
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<td>Pikirenda*</td>
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<td>18</td>
<td>94</td>
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<tr>
<td>Aguaraigua</td>
<td>217</td>
<td>10</td>
<td>121*</td>
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<tr>
<td>Rancho Viejo*</td>
<td>493</td>
<td>16</td>
<td>238</td>
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<tr>
<td>Rancho Nuevo</td>
<td>435</td>
<td>33</td>
<td>230</td>
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<tr>
<td>Yovi</td>
<td>315</td>
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<td>Yuqui*</td>
<td>315</td>
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<tr>
<td>Mini</td>
<td>102</td>
<td>40</td>
<td>635</td>
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<tr>
<td>San Silvestre</td>
<td>90</td>
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<td>Paraboca</td>
<td>586</td>
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<td>Kuarirenda</td>
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<tr>
<td>Guandare*</td>
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</tr>
<tr>
<td>Joseravi</td>
<td>13</td>
<td>9</td>
<td>320*</td>
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<tr>
<td>Tetarembeii</td>
<td>TOTAL</td>
<td>6,363</td>
<td>393</td>
<td>104</td>
<td>5,695</td>
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</tbody>
</table>

Total owners 497 Total head of cattle 8,314

Source CABI data base June 2005; Barahona 2005

a. Data of Yapiroa, La Brecha, Rancho Viejo and Tetarembeii were uncompleted, having the name of owners but not the number of cattle. I understand that data were introduced latter, and Barahona 2005 includes the general number of cattle heads for those communities. I used her general data, in bold italics in this table.

The Individual Cattle Ownership Regime

The majority (76% of the total) of the Isoseño herd is individually owned.

According to my interviews, cattle are assigned to different members within the
household as a means to secure an effective source of cash for each person. I take into account a total of 300 owners registered in the CABI database\(^1\) (Table 5-2) to calculate the median and the mode of herd of cattle per person. The median is seven head of cattle per owner, and the mode two head of cattle per owner. The maximum number of cows belonging to one individual is 263 head (in Guandare).

**Table 5-2. Distribution of Individual Cattle Ownership.**

<table>
<thead>
<tr>
<th>Number of head of Cattle per owner</th>
<th>Number of owners</th>
<th>Percent of owners</th>
<th>Total cattle</th>
<th>Percent of total cattle herd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>127</td>
<td>42%</td>
<td>373</td>
<td>9%</td>
</tr>
<tr>
<td>6-10</td>
<td>73</td>
<td>24%</td>
<td>591</td>
<td>14%</td>
</tr>
<tr>
<td>11-15</td>
<td>43</td>
<td>14%</td>
<td>573</td>
<td>14%</td>
</tr>
<tr>
<td>16-20</td>
<td>17</td>
<td>6%</td>
<td>325</td>
<td>8%</td>
</tr>
<tr>
<td>21-50</td>
<td>24</td>
<td>8%</td>
<td>725</td>
<td>17%</td>
</tr>
<tr>
<td>51-75</td>
<td>8</td>
<td>3%</td>
<td>561</td>
<td>13%</td>
</tr>
<tr>
<td>76-100</td>
<td>3</td>
<td>1%</td>
<td>237</td>
<td>6%</td>
</tr>
<tr>
<td>101≤</td>
<td>5</td>
<td>2%</td>
<td>798</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td><strong>100%</strong></td>
<td><strong>4,183</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: CABI data base June 2005

It is important to notice that 66% of owners have between one and ten head of cattle. 6% of the owners have more than 50 head of cattle. There is an indicator of possible wealth accumulation. The social impacts resulting from this situation must be studied. There are differences among individuals and communities but, in general, herd management is almost absent. The largest part of those herds (89%) is freely grazing on the communal land, invading the farming plots, river banks and household areas (field observation). This situation should be regulated because so many free grazing cows are overgrazing the communal forest and grasslands. This is a challenge to the Guarani institutions that should regulate it. On the other hand individually owned herd (11% of

---

\(^1\) I do not take in account data of Yapiroa, La Brecha and Rancho Viejo because I did not have access to the detailed data of those communities. I use the data of Barahona 2005 to complete table 5.1
individual ownership cows) is located inside the communal fences (Table 5-1). Free grazing herds can be grouped only during the dry season when the cows seek water and then the communal water-reservoirs are the only source for the cattle (Saravia Toledo personal comment, Barahona 2005 and field observation).

Therefore, cattle are individually or privately owned but their management depends on communal resources such as communal water-reservoirs, communal fences and communal grassland and forest.

The Semi Private-family System

Some Isoseño families or groups of families are able to invest in cattle and fences. With the approval of the community, the herds are located on communal land, and cattle-owners do not have ownership rights to the land but have usufruct rights to natural resources: wild fruit, forage, pasture and water. According to the CABI data base (June 2005) and cattle census (2004) there are 18,824 hectares fenced under this management system. Around 10 % (798 cows) of the total Isoseños’ herd belong to seven family groups (Table 5-1 and Table 5-3). I did not collect information about the technical management (sanitary, feed, and reproductive). However, according to the calculated mean of 23 hectares per cattle head as animal this is an exceedingly extensive managed system.

The Isoseño Cattle Communal Ownership System

The communal property system is directly related to the big projects “Los Grandes Proyectos”. Barahona (2005) includes a description and background of each one of the nine projects established in Isoso. Two main trends can be differentiated. On the one hand, the herd belongs to the whole community and it is placed in the fenced area of the communal land (Table 5-1 and Table 5-4). A total of 43,851 hectares were fenced by the
Table 5-3. Family System in Isoso.

<table>
<thead>
<tr>
<th>Name</th>
<th>Community</th>
<th>Owners</th>
<th>No head of cattle</th>
<th>Fenced area (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propieda Karapiti</td>
<td>Kapeatindi</td>
<td>Group of families</td>
<td>—</td>
<td>494.2</td>
</tr>
<tr>
<td>Familia Sacarias Montenegro</td>
<td>San Silvestre</td>
<td>Sacarias Montenegro</td>
<td>99</td>
<td>3,528.4</td>
</tr>
<tr>
<td>Propiedad Ipapiao</td>
<td>Tamachindi</td>
<td>D. Garcia, Nolberta and Maquiades Castro</td>
<td>346</td>
<td>1,708.4</td>
</tr>
<tr>
<td>Campo Grande</td>
<td>San Silvestre/Koropo</td>
<td>Family Sánchez</td>
<td>—</td>
<td>8,162.7</td>
</tr>
<tr>
<td>Fortaleza</td>
<td>Kuarirenda</td>
<td>Francisco Sánchez</td>
<td>172</td>
<td>4,930.5</td>
</tr>
<tr>
<td>Chunka</td>
<td>Kuarirenda</td>
<td></td>
<td>181</td>
<td>—</td>
</tr>
<tr>
<td>Guandare</td>
<td>Aguarati</td>
<td>Group of families</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>798</strong></td>
<td><strong>18,824.1</strong></td>
</tr>
</tbody>
</table>

Source: CABI data base June 2005

big projects; within this area a total of 928 head of cattle are owned and managed communally. As was mentioned before, these fences, infrastructure and head of cattle were sponsored by NGOs: CIPCA 16%, APCOB 35% and the government of Valencia sponsoring the 49% of total fenced areas. The second trend refers to those cows in communal ownership that are freely grazing (Table 5-1). Those herds belong to 17 different communities and 70% of them were acquired though the PRAC program (CABI database 2005).

The “Big Projects” have generally had the same strategy: to build the infrastructure - including fences, water wells, and other facilities and to introduce “reproductive bulls.” The life time of project implementation and technical support is two years on average. After the NGO’s support finished few communities find their own way to organize the cattle ranching production. Frequently the projects are almost abandoned.

In Isisporenda the Yaitarenda project left 20 heifers and one bull (stallion) today they have 67 head of cattle. Yaitarenda project in Isiporenda has an animal charge of
### Table 5-4. Cattle Ranching Projects.

<table>
<thead>
<tr>
<th>Project-name</th>
<th>Community</th>
<th>Sponsor</th>
<th>Situation</th>
<th>Cattle Head Communal</th>
<th>Cattle Head Private</th>
<th>Total cattle</th>
<th>Fenced area (hectars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaripaku</td>
<td>Kopere (4)</td>
<td>GV</td>
<td></td>
<td>378</td>
<td>20</td>
<td>398</td>
<td>10,596.64</td>
</tr>
<tr>
<td>Kovei</td>
<td>Koropo, Yovi, Aguarai</td>
<td>APCOB</td>
<td></td>
<td>150</td>
<td>300</td>
<td>450</td>
<td>6,781.15</td>
</tr>
<tr>
<td>Karumbei</td>
<td>Kuarirenda</td>
<td>APCOB</td>
<td></td>
<td>140</td>
<td>60</td>
<td>200</td>
<td>1,186.97</td>
</tr>
<tr>
<td>Comunidad Guaricusari</td>
<td>Kopere (4)</td>
<td>CIPCA/PDPI</td>
<td></td>
<td>188</td>
<td>50</td>
<td>238</td>
<td>2,830.84</td>
</tr>
<tr>
<td>Aguarati</td>
<td>Aguarati</td>
<td>APCOB</td>
<td></td>
<td>5</td>
<td>180</td>
<td>185</td>
<td>7,486.95</td>
</tr>
<tr>
<td>Yateirenda</td>
<td>Isiporenda</td>
<td>CIPCA</td>
<td></td>
<td>67</td>
<td>67</td>
<td>4,279.78</td>
<td>4,279.78</td>
</tr>
<tr>
<td>Yapiroa</td>
<td>Yapiroa</td>
<td>GV</td>
<td></td>
<td></td>
<td></td>
<td>637.5</td>
<td>637.5</td>
</tr>
<tr>
<td>Propiedad SanSilvestre</td>
<td>San Silvestre</td>
<td>GV</td>
<td></td>
<td></td>
<td></td>
<td>9,833.73</td>
<td>9,833.73</td>
</tr>
<tr>
<td>Rancho Nuevo</td>
<td>Rancho Nuevo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>159.68</td>
<td></td>
</tr>
<tr>
<td>Rancho Nuevo2</td>
<td>Rancho Nuevo</td>
<td>GV</td>
<td></td>
<td></td>
<td></td>
<td>28.72</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>928</td>
<td>610</td>
<td>1538</td>
<td>43,821.96</td>
</tr>
</tbody>
</table>

Source: CABI data base 2005
111.7 hectares per head of cattle and Guaripaku project in Kopere has an animal charge of 26.6 hectares per head of cattle. These high numbers are related to poor management.

**Land Use by Cattle Ranching Ownership Regime and Management System**

Table 5-5 shows that free grazing individual cattle are the most numerous, as well as using the most extensive area, without control over where the animals forage, when they give birth, etc. Owners expend the minimum effort, time and resources on their herd.

Among the main problems of big projects are (1) the implementation of cattle ranching technology without observation of the Chaco ecological conditions, (2) the short term support that do not allow develop local institutions, and (3) absence of commercialization strategy. Despite that, the Isoseños accept big projects because they bring more heads of cattle and infrastructure such as fences and water well which are high valued by the communities.

Table 5-5. Number of Head of Cattle and Land Use by Ownership Regime and Management System in the Guaraní-Isoso.

<table>
<thead>
<tr>
<th>Cattle Ownership Regime / Management system</th>
<th>Individual Cattle Ownership</th>
<th>Communal Cattle Ownership</th>
<th>Family Cattle Ownership</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Head of Cattle</td>
<td>Free grazing</td>
<td>Fenced (1)</td>
<td>Fenced (1)</td>
<td>8,314</td>
</tr>
<tr>
<td>Land Use (hectares)</td>
<td>5,695</td>
<td>610</td>
<td>283</td>
<td></td>
</tr>
<tr>
<td>Hectares/head of cattle</td>
<td>68,340</td>
<td>3,396</td>
<td>43,851</td>
<td>134,411</td>
</tr>
<tr>
<td>Note (1) the individual cattle fenced is located inside of the communal ownership fenced area. (Source: CABI data base June 2005).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The individual herds inside communal fences, 610 head of cattle which belong to 104 owners (Barahona 2005 and CABI data base, June 2005) seems to be an interesting trend. According to Barahona (2005) and Arambiza (interviewed in summer 2005), some
communities are establishing norms to use communal fences. For example, in Kovei the Isoseño’s private cattle use the fenced area and their owners pay monthly per head to the communal administration.

**The Private Landholders in the Isoso**

Cattle ranching by private landholders is the most extensive activity overall in TCO-Isoso. A complete private landholder’s register should result from the SAN-TCO process. The partial information was available through FII technical office and is summarized in Table 5-6.

<table>
<thead>
<tr>
<th>Polygon/ category</th>
<th>Number of owner</th>
<th>Total Area (ha)</th>
<th>Head of cattle</th>
<th>Agriculture (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYGON 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agroindustry Cattle ranching</td>
<td>11</td>
<td>64,677</td>
<td>6,333</td>
<td>12,117</td>
</tr>
<tr>
<td>Mennonite Colony</td>
<td>2</td>
<td>23,866</td>
<td>3,700</td>
<td>8,000</td>
</tr>
<tr>
<td>Privates Cattle ranching</td>
<td>40</td>
<td>106,706</td>
<td>12,542</td>
<td>1,183</td>
</tr>
<tr>
<td>Mixed</td>
<td>6</td>
<td>19,081</td>
<td>2,390</td>
<td>1,183</td>
</tr>
<tr>
<td>Subtotal</td>
<td>53</td>
<td>195,249</td>
<td>22,575</td>
<td>21,300</td>
</tr>
<tr>
<td>POLYGON 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mennonite Colonies</td>
<td>4</td>
<td>44,217</td>
<td>13,392</td>
<td>8,000</td>
</tr>
<tr>
<td>Privates Cattle ranching</td>
<td>26</td>
<td>115,561</td>
<td>11,804</td>
<td>336</td>
</tr>
<tr>
<td>Peasant-Agriculture</td>
<td>4</td>
<td>433</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>34</td>
<td>160,211</td>
<td>25,196</td>
<td>8,336</td>
</tr>
<tr>
<td>POLYGON 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>1</td>
<td>11,918</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Privates Cattle ranching</td>
<td>29</td>
<td>104,185</td>
<td>16,294</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>30</td>
<td>116,103</td>
<td>16,494</td>
<td>100</td>
</tr>
<tr>
<td>POLYGON 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Cattle ranching</td>
<td>44</td>
<td>269,378</td>
<td>36,555</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>44</td>
<td>269,378</td>
<td>36,555</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>161</td>
<td>740,941</td>
<td>100,820</td>
<td>29,736</td>
</tr>
</tbody>
</table>

Source preliminary data Saneamiento TCO Isoso  
FII-CABI
Data reveal that there are two main types of private cattle ownership systems. On one hand, there is the individual cattle ranching system that includes the extensive traditional cattle ranches, the mixed-ranches with agricultural forage as food supplement and the agro-industry. On the other hand, there is the Mennonite cattle ranching System differentiated by the collective organization of production and strong social fabric inside the colonies.

**Individual Cattle Ranching System**

According to Linzer (1998) as well as the preliminary data of TCO-Isoso titling process (SAN-TCO-Isoso) the cattle ranches with extensive management are located on the Southern area of the TCO-Isoso (polygons 3 and 5) while the “mixed ranches” and agro-industry are generally located on the Northern part (polygons 1 and 4). Different ecological and socioeconomic factors influence this pattern. Firstly, ecological factors such as the annual rainfall regime that varies from SE to NW from 475 mm to 1000 mm annual rainfall. Rainfall patterns are associated with different natural forage availability. Secondly, the distance and access to the main cities influence the commercialization opportunities. The northern area is closer to Pailon and Santa Cruz which are most important agro-industrial developed areas in Bolivia. The southern areas are more isolated and the access is too difficult on the rain season.

Cattle ranches in the Southern areas practice more extensive cattle ranching, an activity with low yield complementing other livelihood strategies (Linzer 1998). The herd is frequently free-ranging with poor management, without control over livestock movements or genetic selection. The *criollo* race predominates because it resists the extended dry season (CABI 2001). The cattle is sold year round but principally in the dry
season. The cattle is transported on the hoof by truck to the commercial areas of Santa Cruz and Chuquisaca (cattle ranchers comments).

Concordant with south-north ecological transition, cattle ranching systems tend to shift from extensive to mixed cattle ranching. Mixed cattle ranching in this area is characterized by cultivated grass, fenced areas, application of breeding, health and feed technologies. This activity is influenced by the agro-industry located in the northern areas of the TCO-Isoso (Polygons 1 and 4), which is characterized by the high investment in machinery and infrastructure. The private properties in those areas are generally large, between 2,000 hectares and 15,000 hectares. The administration and management are handled by full-time technicians as well as temporary personnel during the harvest season. The market oriented production is linked with the credit system and main markets in Santa Cruz and Pailon.

The Mennonite System

Mennonites have been established in two areas of the TCO Isoso (Table 3-4 and Table 5-6). In the South between the Isoseño communities of Isiporenda and the town of Charagua (Polygon 3), four Mennonite colonies were established in 1995: Pinondy, Pinondy Itaguazurenda, Casa Grande and Durango. Two other colonies, La Milagrosa, and Santa Clara, were established later in the Northern part of the TCO Isoso (polygon1). The population of all together is approximately 10,000 peoples. Commercial agriculture is their main activity and livestock is a complement, however, it is intensively-managed. Altogether, the Mennonites have 17,092 head of cattle (database CABI May 2006 and personal comment Castillo).
Table 5-7. Demographic and Productive Characteristics of Mennonite Colonies in the Isoso.

<table>
<thead>
<tr>
<th>Colonia</th>
<th>Homes (c)</th>
<th>Population (c)</th>
<th>AreaCattle (ha) (b)</th>
<th>AreaAgric (ha) (a)</th>
<th>Cattle (a)</th>
<th>AreaTotal (ha) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poligon 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinondi</td>
<td>300</td>
<td>2,700</td>
<td>9,800</td>
<td>2,800</td>
<td>4,500</td>
<td>15,800</td>
</tr>
<tr>
<td>Pinondi Itaguazurenda</td>
<td>164</td>
<td>1,472</td>
<td>6,500</td>
<td>1,800</td>
<td>2,600</td>
<td>8,000</td>
</tr>
<tr>
<td>Durango</td>
<td>374</td>
<td>3,366</td>
<td>11,480</td>
<td>2,400</td>
<td>4,195</td>
<td>13,980</td>
</tr>
<tr>
<td>Casa Grande</td>
<td>109</td>
<td>981</td>
<td>5,437</td>
<td>1,000</td>
<td>2,097</td>
<td>6,437</td>
</tr>
<tr>
<td>Sub total</td>
<td>947</td>
<td>8,519</td>
<td>33,217</td>
<td>8,000</td>
<td>13,392</td>
<td>44,217</td>
</tr>
<tr>
<td>Poligon 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>La Milagrosa</td>
<td>353</td>
<td>3,278</td>
<td>6,400</td>
<td>8,000</td>
<td>1,200</td>
<td>16,245</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>166</td>
<td>1,491</td>
<td>6,035</td>
<td>¿..¿</td>
<td>2,500</td>
<td>7,621</td>
</tr>
<tr>
<td>Sub total</td>
<td>519</td>
<td>4,769</td>
<td>12,435</td>
<td>8,000</td>
<td>3,700</td>
<td>23,866</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,466</td>
<td>13,288</td>
<td>45,652</td>
<td>16,000</td>
<td>17,092</td>
<td>68,083</td>
</tr>
</tbody>
</table>

Sources: (a) preliminary data SAN-TCO. (b) CABI-FII Oscar Castillo comments. (c) INE national census 2002

Mennonites raise dairy cattle for auto consume, butter and cheese industry. Among Mennonites women are responsible for the herd of cattle. Strong cultural believes limit men’s participation in cattle raising activities. Despite that fact, there is evidence that some Mennonites are shifting to more cattle ranching activities in the northern part of the TCO Isoso (field visit 2003). One Mennonite was interviewed and he identified the subsequent poor harvest and dry season as major motivation to shift from agricultural production to more cattle ranching production. Many Mennonites have preferred selling their land before adopting more cattle ranching activities because this shift implies significant cultural changes. Those Mennonites who are raising more cattle are buying more land to expand the cattle ranching activity. Consequently, those Mennonite-ranchers are increasing their plot size and becoming more individual owners.
**Ecological and Socioeconomic Effects**

There is evidence of overgrazing and soil erosion caused by the herd of cattle in the Isoso (Leon 2003; Winer 2003; Navarro 1998, 2002; Guerrero 2002). The Isoseño’s free grazing cattle contribute to the overgrazing in more extensive area using 71,736 hectares. Two main elements contribute to the overgrazing in Isoso, the first is directly related to the management system and the second is related to the natural condition of the dry Chaco.

On one hand, the livestock in Isoso has been characterized as “unmanaged” (Linzer, 1998; Saravia Toledo1996, personal comments2002). “Unmanaged” means that livestock have been generally under-rotated, temporally or locally overstocked, without sanitary and reproductive control. On the other hand, the rainy season in the Chaco is concentrated at the end of spring and summer (September to February), and is characterized by a high variability inter-annually, seasonally, and monthly. That means a high fluctuation of grass production from year to year. Therefore, variability and unpredictability are part of the Chaco climate.

The forage-resources in the Chaco are numerous and belong to different strata: arboreal, shrub and herbaceous (Saravia Toledo 1994; Avila 2002). Saravia-Toledo (1994) indicates that in “El Salvador” - an experimental cattle ranch in the Bolivian Chaco – it was observed that cattle consume foliage, fruits, twigs or entire plants of 11 arboreal species, 20 shrubs, 66 herbaceous non-grasses and 50 grasses. Despite of that variability and that the Isoseño herds occupy extensive woodlands and grassland areas, the herds in Isoso tend to congregate in some areas because, as other herbivore-ungulates, they forage selectively (Saravia Toledo 1994; Gordon 2004) and because they seek water sources which are scarce in the Chaco dry forest (Adamoli 1972; Saravia Toledo 1994...
personal comment 2002; Linzer 1998). In others words, the cattle concentrate in some areas where the grass is more palatable and where water is available. Consequently those areas become overgrazed.

According to Saravia Toledo (1996), Navarro and Avila (in Guerrero 2002), Leon (2002) the major effects related to overgrazing are: Soil-compaction, degradation and loss of forage resources, transformation of the landscape due to the invasion of woody elements in the grassland, changes in the vegetation composition and habitat degradation for the wild animals and change in vegetation composition due the alteration of vegetation regeneration, the limited natural re-growth of palatable species, favoring the non-palatable.

The riverine forest is one of the ecosystems more pressured by the free Isoseño cattle. For example, an evaluation of that forest resource shows that the natural re-growth of mesquite (*Prosopis chilensis*) is threatened by the cattle grazing, and to find specimens under 30 years of age in some areas of Isoso is almost impossible today (Leon, 2003). The new community of Tetarembai was established in the area of the Bañados del Isoso (wetland). Their cattle ranching development is a threat for this important ecosystem.

In the social terrain, data reveals that few individuals only 3% of the owners are accumulating individual wealth in form of cattle and they are using considerable area in the communal land. There is not information about social consequences from this fact even though it is possible expect differences in power relations. In the other hand cattle is an important livelihood in general the Isoseño are expecting to raise more cattle they are seeking for more cattle ranching projects.
Despite the fact that cattle is individually owned within the household, the women are only 29% of the total owners. In general among the Isoseños cattle ownership is linked to a cash economy. For example, the women’s association of cupesi producers in Ivasiriri decided to buy cattle with their profit. Those facts tell us that the low women ownership is a result of the less women connection with the cash money economy but this a issue to be explored.

Well-defined boundaries in the case of cattle ranch activities can be a positive asset for better management and limited the area of ecological damage. But on the other hand, extensive fenced areas limit access to natural resources and exclude part of the Isoseño population from common property resources.

The Mennonite agricultural and livestock activity is highly intensive. Their herd of cattle are concentrated in a small areas consequently they feed them with high quality products are maintained in good health and sanitary care. This investment has its returns: milk and cheese production are quite high. However, the Mennonite's higher rates of deforestation, soil erosion and water consumption are the main problems associated with their activity in the Isoso. Additionally, Mennonites do not have enough land to support their population growth’s necessities. Today they are leasing communal land in Isiporenda for their agricultural production. Therefore they represent one of the most immediate ecological and socioeconomic threats in the TCO Isoso.
CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

Having examined the Guaraní-Isoseño institutions based on their *Mbayu* vision within the CP and CBC framework, I argue that the Isoseño communities can face cattle ranching expansion challenges successfully on the strength of their internal institutions. As long as the *Mbayu* continues to be the prevailing institutional arrangement, the Isoseño communities will find the design of the organizational structure to manage the expansion of cattle at social, economic and ecological levels (Figure 6-1).

Figure 6-1 illustrates how the *Mbayu* is a holistic approach that allows Isoseño to take advantage of economic opportunities and integrate them into their own social ecological approaches. The main organizational structures are in place and are operative, including in the *Te koata* and the *Ñeemoa*. These, particularly the *asambleas* and the strong inter-institutional links between CABI and the external world, allow them to adapt and incorporate changes into cattle initiatives that will achieve social equity and environmental sustainability.

Worldwide, and the Isoso is no an exception, pressure on land and water resources from livestock production will increase (Upton 2004; Fairfield 2004; Kaimowitz 1996; Naylor et al. 2005). So will the threat from poorly managed operations. The extent of these pressures highlights the need to support traditional institutions so that they are capable of making adequate management decisions, elaborating proper goals, promoting technological changes and monitoring their implementation. This will ensure that livestock contribute to broad development goals, minimizing the potential damage to
social and environmental sustainability: to keep the ecosystem functionality and access to healthy natural resources and to achieve wellbeing for the Guarani Isoseño people.

Figure 6-1. A Cattle Ranching Strategy based on the Guarani Isoseño Mbayu.

The Guarani Isoseño institutions have shown to be resilient. Despite having experienced different shocks, from the conquest to market penetration, the Guarani-Isoseño institutions have retained essentially the same function and structure based on their identity or Ñandereko. At present, the Isoseño people are discussing the cattle ranching problems in the communities with the support of the CABI -Ivy Iyambae Foundation- which gathered information (CABI/FII 2005; CABI/FII 2006) and organized a set of workshops in the communities (Barahona 2005; field observation). People understand that their survival and autonomy as people is connected to the way they will
maintain the Ńandereko and the Mbayu. Different communities are taking specific decisions attempting to regulate the cattle’s presence. The examples of Coropo-Pikirenda, and Yapiroa (Chapter 4) demonstrate that if the Guaraní Isoseño institutions have adequate information, they are able to take decisions favoring CP resources and their access by community members. Their vision and their practice, emphasizing self-organization, support an adaptive management strategy and collaborative learning. The support of technical and scientific information is helping make decisions in a changing context. Therefore, collaboration of institutions and advisers plays an important role. The Mbaapo and Ńeemoa in Figure 6-1 are the strategically elements of the Mbayu that deal with these issues.

Cattle, insofar as it may complement the Isoseño household income, may play a positive part in their economy, but it also represents a threat to important ecosystems such as the riverine forests that provide firewood, wild fruits, wood, temperature regulation and protection from floods. Frequently, individual own free-grazing herds destroy fences on farming plots and invade them. In this way cattle can “compete” against the communities’ stability and can become a source of conflict. This reinforces the present conclusion about the importance of management of the herd, of availability of cattle ranching technology and the development of regulations among Guarani Isoseño cattle owners. In the Ńandereko, the individual approach coexists with communal institutions. Hence the challenge is to reconcile the individual cattle ranching with the community base management according to the Mbayu because it provides a framework for establishment of an adequate regulation. It can also provide a basis for the
introduction of newer management strategies. Internal institutions ruling communal life are responding to these challenges.

Among the CABI’s main concerns are to build up alternatives and models of sustainable development and strength the internal capacities and institutions to afford the changing context. Cattle-raising will continue to play a part in the Isoso because it complements the livelihood of the communities, providing protein and income. Cattle ranching can also contribute to socioeconomic development, and, if the management is sustainable, it can also support a biodiversity conservation strategy in the TCO-Isoso. As opposed to industrial agriculture with its concomitant deforestation, cattle-ranching can be a less threatening activity, and for this reason it is included as a central element in the CABI and Isoseño’s development strategy. But it must direct management toward sustainable practices, combining development with conservation.

Cattle ranching is, a productive activity only relatively recently adopted by the Isoseños. Consequently, it is necessary to adapt local institutions and norms, and establish monitoring systems in order obtain socio-economic benefits while maintaining the ecological integrity of the most important and representative Chaco ecosystems. The role of scientific and technical information is essentially to develop the specific management rules and regimes. CABI must play an important role in seeking financial and technical support to strengthen institutions and promote technologies that will increase productivity, fulfillment with standards and market access by Isoseño herds of cattle. This initiative must begin at local level, and it may be as pilot experience. It will be essential to include other stakeholders such cattle ranching associations, Mennonites, development agencies and non-governmental organizations in the elaboration and
implementation of a local strategy for cattle ranching. CABI development strategy based on the Mbayu must maintain both dimensions conservation and development, because both objectives are interdependent.

The local strategy for cattle ranching must be contemplated as part of the TCO zoning on the basis of its ecological characteristics, taking into account not only the desirable integrity and functionality of the ecosystems, but also the way the communities are prepared to establish best practices for its exploitation by cattle. This has deep ecological and social implications that will certainly affect the kinds of institutions: individual, cooperative, association or communal, that the communities will eventually choose to employ. Other subsistence and economic opportunities must be contemplated: farming as the main resource to feed themselves; hunting as an important source of meat, gathering and harvesting fruits, honey and plants collection areas, sources of wildlife areas, for example. Private initiatives of conservation must be included. Those areas could be biodiversity corridors, wildlife source areas, or extensive-use areas for recreation or ecotourism, for example.

WCS, CABI and the communities should expect to develop proposals regarding the conservation of the Chaco ecosystem, while accepting, at certain levels, cattle production systems. The possible scenarios vary according to how to face cattle expansion; whether by accepting an increase in individually owned herds in fenced parcels, or to promote the expansion by means of well-regulated communal herds grazing in communal lands, or more probably a combination of those. Such a course of action requires accurate information about the ecosystem, in the form of ecological data of local forage potential, soil and vegetation fragility and interactions between cattle and wildlife. The above are
all ecological and they should be studied with a double purpose: knowledge for conservation and possible cattle management implications.

At another level, CABI must strengthen their capacity to negotiate to maintain local regional, national (and international) relationships — Ñeemoi (Figure 6-1). CABI has to attempt firstly to consolidate and secure TCO-Isoso land tenure rights in order to negotiate with authorities and prevent the immigration, expansion, or occupation by other stakeholders. The main objective is to maintain the control over the territory and resources. Secondly CABI has to attempt to support pro-poor policies that deliberately promote the potential for poverty reduction. Therefore, the Isoseño communities and small producers are not likely to be excluded from the benefits of cattle market.

In other words, an effective Isoso cattle-ranching strategy must cover different fronts. All fronts are important and are complementary: the technical and productive spheres; the natural resources base and functionality, the internal institutions of self governance and social learning; the political sphere (that is, the relationships with external institutions); and the economic front. CABI should adopt an adaptive focus in their planning process. They should play attention to what is happening in the context of local, regional and international environment. Respond to new situation or environmental, social and economic signals adjusting the actions by innovation - through local experimentation based on local and scientific knowledge and practical application. Adjusting management practices according to what is happening on the ground and face of non-linear dynamics and uncertainty.
And concordant with Brogden’s (2003) suggestion, other international-stakeholders together to Isoseños are responsible for worldwide events to maintain the global system under collective watch.
APPENDIX
FIELD QUESTIONNAIRE

Interview: “Natural resources and land access in the TCO-Isoso, Bolivia”.

Community __________ Date __________
| Location ____________ Interviewee position(s) ________________

I. NATURAL RESOURCES TENURE AND ACCESS.
A. Cupesi uses and access.

i. If some body wants to harvest cupesi fruits can they do so anywhere within the communal land? For subsistence only, or also for commercialization?

iii. Is permission needed? Whom?

iv. Is harvesting conducted as an individual or group economic activity?

v. If the trees are harvested within one’s parcel how benefit are distributed?

vi. Is there a limit on how many trees can be harvested to commercialization?

vii. If the crops are harvested and sold. What is the product selling? Is there additional work (transportation, transformation, conservation, storage)? Who does the additional work?

viii. How are benefits distributed?

ix. Is trees harvest a common or individual action?

x. Does much harvest occur in the community (for subsistence and for commercialization)?

xi. Who does the work? Do the men and women equally participate in harvesting?

xii. Who buys the product? Where? What price?

xiii. Do only the people who do the work get money, or is it shared with other community members (or in communal necessities)?

xiv. How much time are the members of a family involved in the project?

xv. Is the family/community perceived benefits from the project?

xvi. Are there changes about decision making?

xvii. Why people decide participate or not?

xviii. Do people abide by the communal rules on harvesting activity, and if not, what measures are taken?

B. Cattle ranching

i. How long has the cattle ranching project existed for? Who is the institutional sponsor?
ii. How does the community select the place for cattle ranching project? Who decide? Does the community participate in the decision?

iii. Who is the cattle owner? Is an individual, group or community ownership?

iv. Who does the work in the project? Is individual, group or communal activity?

iii. How many members participate?

iv. How are distributed the benefits?

v. Are there an administrative structure and the decision making inside cattle ranching project? Explain

vi. Is there cattle extra project in the community? Is there a limit on how many cattle can be owned by each communal member? How are the characteristics of the individual cattle management?

vii. Is there a limit of how many cattle can be per surface?

viii. Do people abide by communal and management rules on cattle ranching?

ix. Why people chose to participate or not?

dx. How much time are the members of a family involved in the project?

xi. Is the family/community perceived benefits from the project?

xii. Are there changes about decision making?

xiii. What the men do in the project? What the women do?

II. LAND AND NATURAL RESOURCES CONFLICTS

A. External conflicts: Land

i. Have there been or are there currently any conflicts over land with outsiders?

ii. What is/was the nature of the conflict? (e.g., land invasion..)

iii. What is/was the role of external government (State, regional, or local) or NGOs?

iv. What is/was the role of technology (e.g., land titles, maps, GPS, etc.)?

B. External conflicts: Natural Resources

i. Have there been or are there currently any conflicts with outsiders over natural resources?

ii. What is/was the nature of the conflict? (e.g., illegal logging, hunt, extraction)

C. Internal conflicts: Land

i. Have there been or are there currently any conflicts over land within the community or between communities?

ii. What is/was the nature of the conflict? (e.g., boundary disputes, conflicting claims)

iii. What is/was the role of local and external government (State, regional, or local) or NGOs?

iv. What is/was the role of the internal government?

v. What is/was the role of technology (e.g., land titles, maps, GPS, etc.)
D. Internal conflicts: Natural Resources

i. Have there been or are there currently any conflicts over natural resources within the polygon?

ii. What is/was the nature of the conflict? (e.g., different uses, ore different users to the cuperzi trees or cattle ranching surface…)

iii. What is/was the role of internal and external government (Local government, State or regional) or NGOs?

iv. What is/was the role of the internal government?

v. What is/was the role of technology (e.g., land titles, maps, GPS)

Take note about informant gender and age.
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BIOGRAPHICAL SKETCH

Veronica Villasenor was born in Mexico City. She received her Bachelor of Science in biology from the Karkov State University, Ukraine. She was a member of the technical team implementing the Bolivian Biodiversity Conservation Project (PCBB) 1994 to 1997 responsible for the implement of the Bolivian National Protected Areas System. As a PCBB member she participated in the supervision of three management plans and the organization of national rangers’ system.

From 1998 to 2000, Veronica technically supported the KAA-IYA project (joint project of the Capitanía de Alto y Bajo Isoso and the Wildlife Conservation Society). She was responsible for coordinating the preparation of the management plan for the Kaa Iya del Gran Chaco National Park (KINP), using an integrated, multidisciplinary and participatory focus.

From 2001 to 2004, she coordinated other studies that could provide information to the management plan for the Tierra Comunitaria de Origen (TCO) Isoso. She also supported the implementation of the management plan strategy and promoted the bi-national coordination between Bolivian and Paraguayan conservation initiatives.