1 Struggling 'Ontological Communities': The Transformation of Conservationists' and Peasants' Discourses in the Tunari National Park in Bolivia

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Abstract

The Tunari National Park is located to the north of the city of Cochabamba, and has been settled by over 380 Quechua peasant communities since pre-colonial times. Though the state authorities have only enforced the Law of the Park on 1% of its territory, the communities are in open conflict with them, since the Park restrains their traditional activities. Discourse analysis of the main actors involved in the conflict shows fundamental differences not only in claims of access to resources, but also in the claim of basic principles governing the relationship between society and nature. In this sense, the groups of actors in conflict can be conceived of as different 'ontological communities' sharing a group of basic presuppositions on 'social and natural' reality. These differences state the need for an ontological dialogue among the actors which has, until now, been hindered by the mainstream 'modern-Western ontological community', and its traditional marginalisation of the 'Andean ontological community'. However, recent changes in the Bolivian national scene have opened up the possibility for the state to create a space of communicative action, offering new options for the interaction of the actors involved.

Keywords: protected areas, governance, ontological communities, conflicts, social movements, communicative action.

1.1 Introduction

The Tunari National Park (TNP), the second oldest protected area (PA) in Bolivia, holds a particular position among Bolivian protected areas. It is the only protected area in close proximity to a big city, Cochabamba (Macchi 2002) that also has an important rural indigenous population within its limits. Created in 1962, the Park was expanded in 1991 with the enactment of a very restrictive law that hindered traditional pastoralism, cultivation and agroforestry activities. The governments involved applied highly vertical political processes without consulting the local population or informing them. The Law has only been implemented in the area of the Park established in 1962, near the city (Province of Cercado). This area corresponds to 1% of the total Park area. The government has not yet begun enforcing the Law within the expanded area (Provinces of Quillacollo, Chapare, Ayopaya and Tapacari). To do so would not only mean confronting the over 380 indigenous peasant communities living within the area, but would also require resources and capacities which the state does not possess. In spite of its limited enforcement, the TNP is one of the protected areas that have generated the greatest amount of conflicts in Bolivia. The conflicts not only occur within the area of enforcement, but also within the area of expansion, where the rural population considers the TNP a serious threat to their livelihood and their material, social and symbolic foundations.

These threats to the livelihood strategies of peasant communities contrast sharply with the opening up of the territory to national and international urban financial capital. This expansion was accompanied by the illegal division and sale of land – to which the competent authorities turned a blind eye – and the granting of licences for fishing activities, ecotourism and industrial activities (brewery, hydroelectricity, mining and oil drilling). This situation confronts local actors with a twofold threat to their socio-territorial sovereignty: on the one hand, there was the TNP Law, and on the other, the exploitation of natural resources through investment of financial capital in their territory from national and international urban spheres. Thus a conflict already present in other national park areas arose here. Consequently, local actors started to perceive legislation on natural resources and on protected areas as a strategy of the state to marginalise them from their central role in the territorial management (Orozco et al 2006).

These conflicts are related to a deep crisis of legitimacy in the Bolivian State (Delgado 2002) that arose because the government authorities were

supported by a mestizo-urban national elite, while the rural communities of predominantly indigenous origin were being marginalised. This crisis generated a powerful social movement, which led to the recent election of Evo Morales, the first indigenous president in America. This movement not only questioned the neo-liberal economic policy of the Bolivian government introduced in 1985, but also the organisation of the state, which is currently being reformulated into a constitutional assembly.

The case of the TNP shows how national policies can have serious implications in the management of natural resources within peasant communities, by creating a conflictive social interface. The government, supported by the urban elite, intended to impose a territorial management based exclusively on hydrological-ecological and economic criteria. This is in stark opposition to the affected peasant population, who reject the Park, as it would force them to cease their multidimensional 'traditional' management of natural resources, which is based on their specific perception of the nature–society relationship.

The results of the research carried out within the framework of the NCCR North-South (4 PhD theses and 2 supporting Partnership Action for Mitigating Syndromes [PAMS] pilot actions) show that the conflicts between the actors involved must be understood as conflicts between different ontologies (or basic presuppositions about the constitution of the 'real' world). Against this background, it is evident that any analysis seeking to help balance the positive and negative effects of specific human activities must take into account that different world visions (ontologies) also constitute different value systems or normative bases. These determine the priorities and content of value-oriented indicators for natural resources encompassed by the TNP. Therefore, the conflicts can only be transformed if spaces for negotiation and learning are open enough for the actors involved to establish a dialogue based on their practical, normative and interpretative knowledge. Policies or incentives that ignore this inter-ontological dimension tend to deepen current conflicts instead of solving them.

1.2   Context of the protected area (PA)

The main area of the Tunari National Park (Figure 1) is occupied by the Tunari Cordillera, or Cochabamba Cordillera, a massif in the eastern mountain range of the Bolivian Andes formed by Ordovician sedimentary rocks
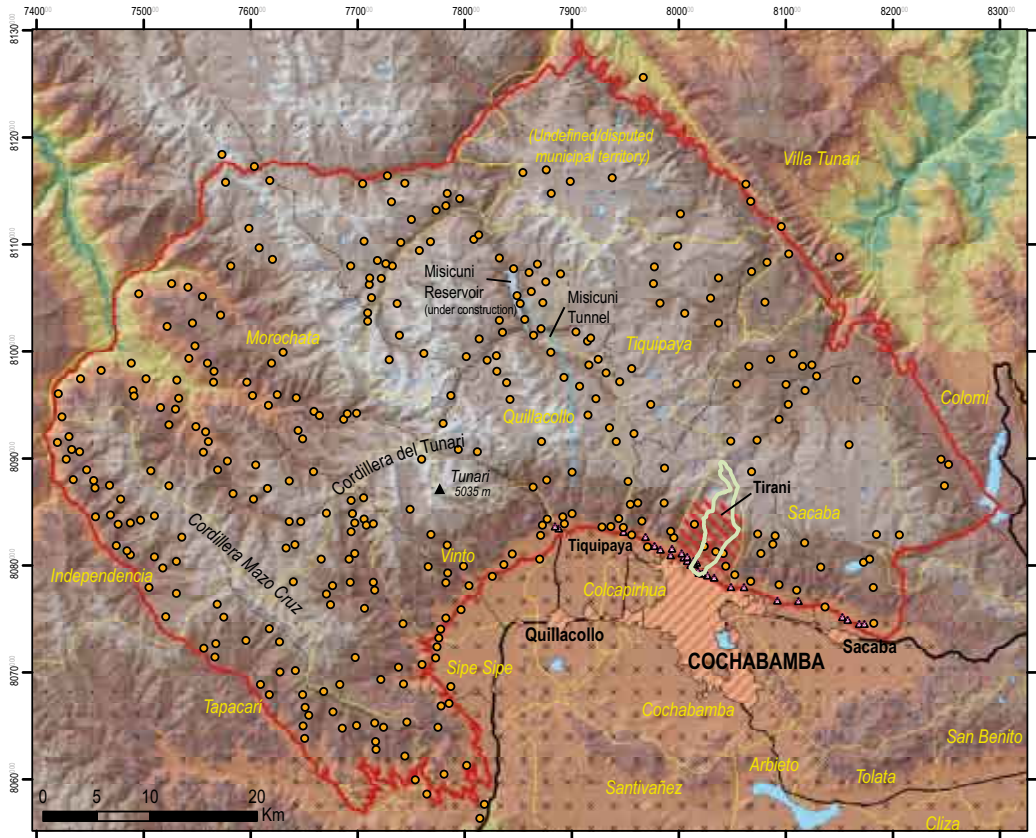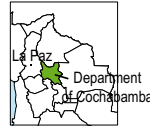
Tunari National Park

Fig. 1
General map of the Tunari National Park.

Source:
Boillat (2007, p 119)

Legend:

- Park limit
- Park law implementation
- Municipality border
- Rural community
- Urban settlement
- Urbanised area
- National road
- Secondary road
- Track
- Lake

Ecological Regions
- Andean *puna*
- Dry valleys
- Subhumid *yungas*
- Hyperhumid *yungas*

Elevation
- 1000-1500 m
- 1500-2000 m
- 2000-2500 m
- 2500-3000 m
- 3000-3500 m
- 3500-4000 m
- 4000-4500 m
- 4500-5000 m
- 5000-5500 m

(Claure 1995), with plateaus and lakes of glacial origin. The Park ranges from the foot of the mountain range, at an altitude of 2,750 m, to the Tunari Peak, at an altitude of 5,035 m. The area has three ecological stages: the *dry valleys* below 3,200 m, the *pre-Puna*, between 3,200 and 4,000 m, and the Puna, above 4,000 m. Although *dry valleys* and *pre-Puna* have potential native forest cover, these have been reduced to isolated spots by cultivation, logging and grazing activities during pre-colonial and colonial times (Fjeldsa and Kessler 1996; De la Barra 1998).

The initial idea of creating a protected area in the Tunari Cordillera stemmed from a small group of highly educated members of the elite of Cochabamba. The objective for the area was to counteract the environmental problems relating to the expansion of the city of Cochabamba's northern limit towards the foot of the mountain range, by preserving the valley countryside, by protecting the city from mountain flood streams with forestation, and by promoting tourism. The disastrous floods of 1958, caused by mountain streams, convinced the city and government authorities to create the Tunari National Park through a decree in 1962. Back then, the Park covered an area of approximately 240 km^2, and was restricted to the mountain range area located above the city. The Park Law's enforcement began in 1968, with plantations of pines and eucalyptus, under the successive responsibility of diverse state institutions entrusted with Park management. The tree plantation activities were supported by German and Swiss development agencies. However, the city's encroachment on the mountain range could not be stopped, and was accelerated by the migration of populations from other regions of the country, following the closing of the mines in 1985. Ironically, some state institutions granted lands from the Park to their officials (Nina 2005; Aguilar 2006).

In 1988, a proposal to expand the area to the entire Tunari Mountain Range was published, motivated by increasing urbanisation in the satellite cities of Quillacollo and Sacaba (Pereira 2002). The expansion was enacted in 1991, under the current Law "No. 1262", which governs the Tunari National Park. The TNP reached its current extension of 3,000 km^2, distributed among 5 provinces and 10 municipalities. The Law prohibits, or strongly restricts, the traditional use of resources, and was established without previously consulting the population living in the area.

The expansion of the TNP coincided with the creation of a set of new protected areas throughout the country, each with the specific objective of biodiversity

conservation. However, at the same time, the decentralisation process had begun in Bolivia, granting decision-making competence to the intermediate government level (municipalities). It was during this process – which began in 1996, with the enactment of the Law of Municipalities – that the peasant communities in the Tunari Cordillera were informed that they now lived within a protected area (AGRUCO 2002). Their opposition to the Park was clear from the beginning, and the conflict was aggravated when studies and proposals to zone the Park (CLAS 2001) were carried out. These studies were requested by the prefectural government, and were based exclusively on technical information. An extreme proposition of the departmental government, with the goal of forcing the 7 peasant communities within the implementation zone to relocate out of the Park (Los Tiempos 1999), worsened the conflict. Fortunately, this plan was not carried out due to governmental changes after the social movement in 2003.

The conflicts in the area are rooted in legal, administrative and technical problems (AGRUCO 2002). In creating and expanding the Park, the rural and urban property in its actual territory was not considered. Moreover, the competences assigned by the process of decentralisation were cancelled by the National Park authority, and the central government was given custody of the Park's territory, which covers up to 70% of the area of some municipalities. Although the administration of the area would legally lie within the competence of the central government, it has been transferred to the Prefecture of the Department of Cochabamba. The Prefecture not only lacks the resources and capacities to manage the area, but also has drafted management proposals that do not recognise the management capacities of the local communities. The category of "National Park", the most restrictive one in Bolivia, generates technical problems, because it does not correspond to the ecological characteristics of the area, and has not been established on the basis of biodiversity studies. This technical flaw is even recognised by the Servicio Nacional de Áreas Protegidas (SERNAP), and is expressed in inadequate management of exotic tree (pines and eucalyptus) plantations, managed by the Park's administration as if they were natural forests.

The marginality of the rural indigenous population and unequal power relations are a characteristic of the Andean highlands (Milbert et al 2004). This situation is rooted in social and racial discrimination, which makes intercultural comprehension between actors impossible. It hinders the integration of rural communities in the decision-making process related to the management of natural resources, and is one of the causes of the problems related

to the Park. Other causes are the incoherence of public policies and the lack of response to social demands, as well as conflicts over centralisation and decentralisation, which, in turn, cause governance problems for the area, as well as a decrease in the territorial responsibility of state institutions. Finally, the globalisation process, with its tendency towards privatisation and the free market, has negative effects on the economy of the rural population, furthering the process of reduction in the size of landholdings, overexploitation of natural resources, and conflicts related to their access.

According to the census of 2001, the TNP has a permanent population of 84,000 people, including 73,000 rural and 11,000 urban inhabitants within its limits (Aguilar 2006). The vast majority of all rural inhabitants are Quechua peasants, who live mainly in dispersed habitats and organise themselves in "peasant communities", usually between 100 and 1,000 people. The peasants practise traditional cultivation and pastoralism activities destined mainly for self-consumption and sale in local markets. They distribute these activities according to the three ecological belts in the area, which they call *Ura* (lower part) for Dry Valleys, *Chawpi* (middle part) for Pre-Puna, and *Pata* (upper part) for the Puna (Camacho 1993; Delgadillo 2004). The urban inhabitants who live within the TNP are recent settlers located at the southern limit of the Park, who practise economic activities linked to the urban centre of Cochabamba.

1.3 Effect of the Park: the case of Tirani

Peasants living close to the city have seen their lifestyles transformed since the establishment of the Park and the growth of the city of Cochabamba. Within the context of the AGRUCO–NCCR North-South research project, a case study was carried out in the community of Tirani located in this zone. The community borders directly on the city of Cochabamba, and can be accessed by public transport. It is located at an altitude of 2,700-4,500 m and has a population of approximately 1,200 inhabitants. With an area of 19 km^2, the community represents approximately 50% of the total territory in which the Law of the Park has been enforced. The Tirani territory corresponds to the former property of a large landowner, and was granted to the peasants by the Agrarian Reform of 1952. Back then, the land was distributed among the 58 members of the Agrarian Syndicate, which currently constitutes the community's basic social organisation. While some lands were distributed as private property to the members of the syndicate, others were declared

the collective property of the entire community. Both types of property have supporting legal documents.

Prior to the implementation of the Park, the families used to settle all over the community's territory, engaging in cultivation and herding livestock for self-consumption and commercial purposes; these were important to keep the Cochabamba market supplied with goods. Production was organised according to the three ecological stages mentioned above: the *Pata* zone, above 4,000 m, was covered by grasslands which used to be burned to facilitate grazing by llamas. The *Chawpi* zone, between 3,000 and 4,000 m, consists of a mosaic of crop and fallow plots, scrubland, grassland and small spots of native *Polylepis* forests. In the *Ura* zone, below 3,000 m, irrigated cultivation was practised, as well as extensive grazing on land without access to water. The Agrarian Reform provided each family with 5 ha of land in the *Chawpi* zone, 1-2 ha in the *Ura* zone, and communal access to the *Pata* grasslands. Figure 2 shows the distribution of land access in the community of Tirani.

With the establishment of the Park, the *Chawpi* zone has been progressively planted with exotic forest species of pine and eucalyptus, eliminating the original landscape and causing a general decrease in native vegetation (Crespo 1989). The objectives of the plantations were to avoid erosion, to obtain environmental benefits from the plant cover, and to bring economic benefits to peasant families through the sustainable use of timber (PROFOR 1995). The prospect of a supplementary crop in the form of timber motivated the families of Tirani, who set aside not only their collective land but also their private lands to establish timber plantations, and worked arduously on them. They also received training in forestry, which included plantation management, tree nurseries, and also a carpentry workshop for wood processing.

Nevertheless, when the plantations had grown enough to be felled, they could not be used, since, according to the argument established by the Park Law and the transfer of the Park's management to the Prefecture, the extraction of timber and firewood was strictly prohibited. The families who owned the lands in question received no indemnity. The Law also prohibited the management of the plantations, which would necessitate the thinning and pruning of the trees. This caused a dense cover of exotic trees, and a total absence of vegetation cover in the pine groves. The community expressed a strong concern for this loss of vegetation, underlining the negative effects on local fauna, grazing resources, erosion and risk of fire owing to the

**Access to Land
Community of Tirani**

Legend

- Collective grazing land
- Collective grazing land, some cultivation
- Private land for rainfed cultivation
- Private land for irrigated cultivation
- Lake
- Tree plantation
- Urbanized area
- Road or track

Data: WGS 1984, Projection UTM Zone 19S

Elaborated by: Community of Tirani,
S. Boillat, E.Serrano
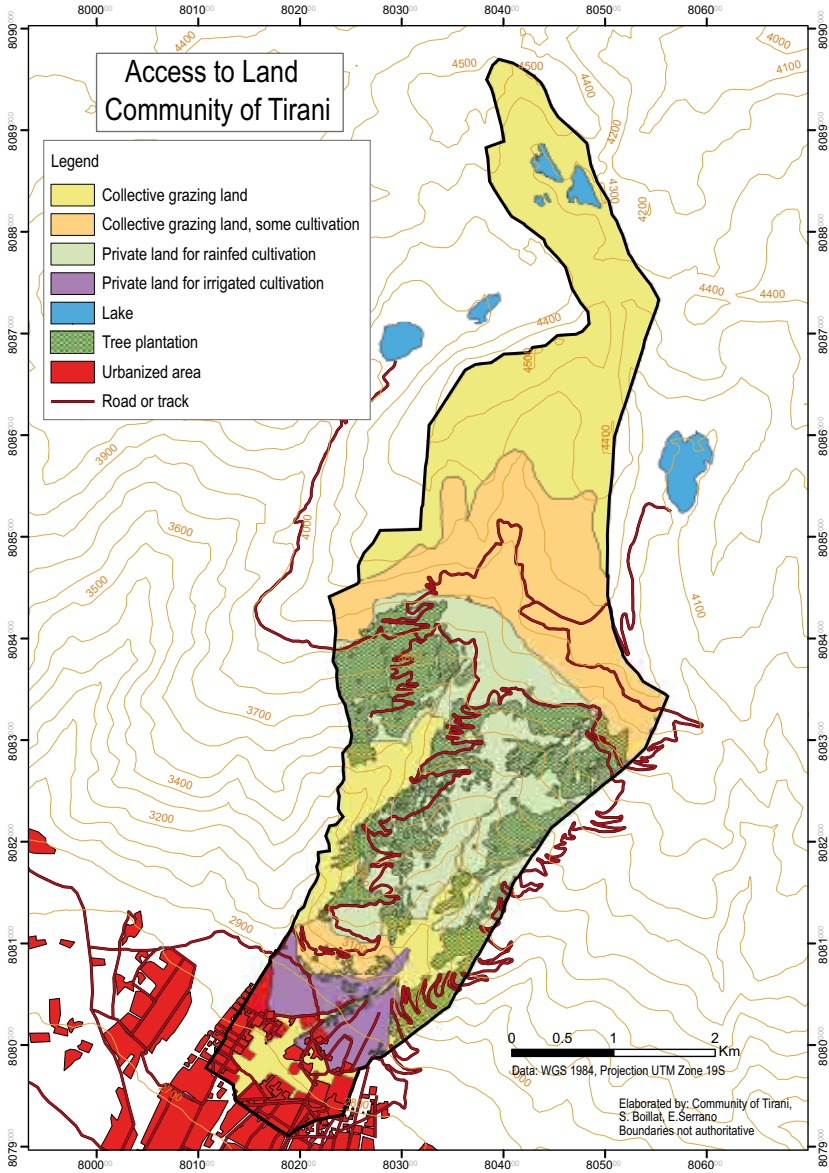Boundaries not authoritative

Fig. 2
Access to land in
the community of
Tirani. (Adapted
from Boillat
2007, p 488)

accumulation of dry wood. For these reasons, the community decided to suspend all tree plantation activities.

The implementation of the plantations and the Park Law also brought about the abandonment of pastoralism: the ovine livestock population was reduced to 5% of the population of 1952. In the *Chawpi* zone, cultivation was reduced to a few arable plots that had not been planted with trees. These restrictions forced the population's displacement to a smaller sector in the lower part of the community (*Ura* zone), which has an irrigation system and borders on the city. By now, the young families have lost their relationship to the rest of the territory and ignore the rationale with which it used to be managed before the plantations. However, in the lower zone, 75% of the families continue to carry out agricultural activities, which complement other activities linked to the city. The concentration of the population has caused an intensification of cultivation and the disappearance of fallow land. The main

Table 1

Land use and economic activities in the community of Tirani before and after the implementation of the TNP.

Altitude (m a.s.l.)	Zone	1962 Before implementation of the Park	2005 After implementation of the Park
4400	PATA	Llama and sheep herding, grassland burning, collective property	Reduced llama and sheep herding, grassland burning, collective property
4200 4000	PATA	Shifting agriculture, potato, *chuño* making, llama herding Collective property, some private lands	Agriculture reduced to a few plots, grasslands with reduced herding Collective property, some private lands
3800	CHAWPI	Rainfed agriculture; potato, oca, papalisa, wheat, barley Sheep grazing, grassland burning Private property, some collective lands	Tree plantations protected by the Park, without management or use Few crop plots Private property, some collective lands
3200	URA	Rainfed agriculture, sheep and goat herding Collective property	Rainfed agriculture, reduced herding of cattle Collective property
3000	URA	Irrigated agriculture; corn, vegetables, fruits Houses Private property	Intensive irrigated agriculture; floriculture; fruticulture; corn, vegetables Houses Private property
2800	URA	Sheep and goat herding Collective property	Urban expansion, conflicts, collective property, private property foreign to the community

Source: Adapted from Boillat 2007, p 173.

agricultural activity is market-oriented floriculture; the rest of the crops are for self-consumption, still allowing a high level of cultivated biodiversity. The scarcity of manure, as a result of livestock reduction, forces the families to bear the high costs related to agricultural production, such as the purchase of fertiliser, and has led to a greater use of chemical fertilisers. Furthermore, the increasing concentration and growth of the population has caused problems by reducing the size of landholdings and making water more scarce.

The city's growth also caused the community to lose control over the lowest portion of their territory. The community planned to use this former grazing area to build houses for its own growing population. However, closeness to the urban centre has generated a land market system, which led to the establishment of many settlements foreign to the community. Though the Park forbids urban construction in the area, corrupt land dealers forged signatures and land approval stamps, with the assistance of some corrupt community leaders at the time. The land dealers quickly acquired wealth by selling plots of land at attractive prices, and tricked people with low incomes who were unaware of the illegality of the construction. Urban settlements were formed with people from Cochabamba, relocated people from the mines, or migrants from rural zones. Some also possess legal property rights, because they settled before the southern limits of the Park were established (Quinteros 2003). Table 1 offers an overview of the effects of the Park described above.

1.4 Configuration of social actors around the community of Tirani

The actors in the Tirani social territorial space represent a 'microcosm' of representative social actors in the rest of the TNP. Figure 3 shows the relations between the actors around the Tirani community for the 2002-2003 period (Serrano 2004). The community has good relations with its representatives such as the Federation of Peasant Syndicates of Cochabamba (FSUTCC), and with development non-government organisations (NGOs). Relations with the university vary according to the different institutes. As in the rest of the Park, relations between the community and the Bolivian State and SERNAP are highly conflictive. The legitimacy of the "Management Committee", which is in charge of representing the different actors related to the Park, was questioned, and the committee was dissolved. The relationship between the Tirani community and the Cochabamba Prefecture reached open confrontation when a "Technical Park Management Committee" was
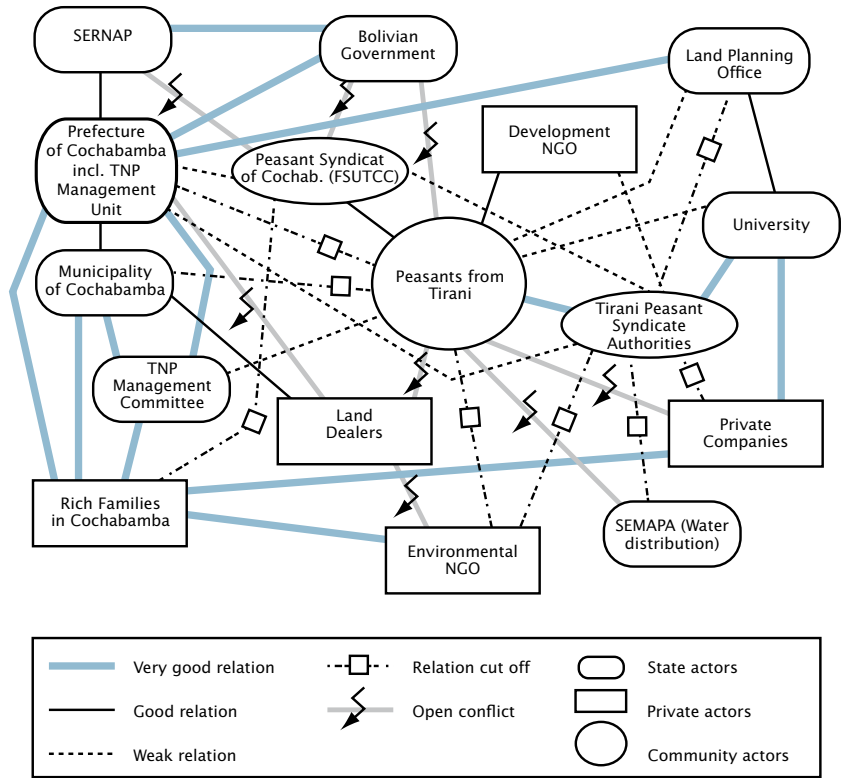
Fig. 3
Typology of relations between actors around the community of Tirani and its territory between 2002 and 2003. (Adapted from Boillat 2007 and Serrano 2004)

created with unilateral representation of authorities from the public sector, and peasants' requests were directed to a secretariat and not taken seriously. For similar reasons, relations with the Municipality of Cochabamba were also cut. Relations with private enterprises (beer company and tourist-spa complex) in Tirani are also conflictive. The companies established corrupt relationships with the community, buying collective land from their ex-leaders and exerting influence on the Park authorities, who then instructed the community leaders to make decisions beneficial to the companies. Relations with the Cochabamba Water Distribution Company, SEMAPA, are also a source of conflict, due to litigation over the use of water. The community is also in conflict with illegal land dealers and inhabitants of the urban settlements whom they refuse to acknowledge. On the other hand, the government initiated actions to tear down illegal houses, resulting in violent confrontations with urban settlers. The conflicts related to the illegal land deals receive high media coverage. The environmental NGO present in the

Park used to report tree felling by peasants to the Park's authorities, and is in conflict with the community. The NGO is related to the wealthy families of the city, and sustains good relations with the state organisations in charge of applying the Park Law.

1.5 Influential factors in natural resources management in the PA

Despite the Agrarian Reform of 1952, Bolivian economic policies were oriented towards the development of industry and the capitalist agrarian sector, which had much higher growth than the peasant agriculture sector (Maletta 1988). The effect of these policies – executed under the sponsorship of the International Monetary Fund (IMF) since 1957 – was a reduction in the terms of trade for peasant products in relation to other consumer goods (Zimmerer 1993). The New Economic Policy based on the neo-liberal model, decreed in 1985 by the government of Victor Paz Estensoro, accentuated this "scissors effect" (Morales 1990). To face these unfavourable economic conditions, the peasant population of the highlands of Cochabamba expanded first cropland area and then herd size. However, when extensive growth was no longer possible, the farmers began to diversify their economy, which led to an increase in temporary migration towards off-farm labour (Zimmerer 1993). This strategy has been based on the complementary interests of traditional activities oriented mainly towards self-consumption, non cash-accumulative schemes, and temporary migration oriented towards earning sufficient income to cover basic needs. However, in most cases this strategy has not allowed the farmers to access basic services: more than 90% of the population of the Tunari Cordillera live below the poverty line (INE 2001).

Consideration of environmental changes has a long-standing tradition in the communities of the cordillera, where high intra and inter-annual variability in precipitation linked to natural cyclical phenomena characterises the climate. Peasants use strategies for climate prediction and risk management based on local knowledge. Observation of botanical, zoological, atmospheric and astronomical indicators allows peasants to sow plots located in areas with ecological characteristics better suited to the forecasted weather conditions, and to leave other plots fallow (Ponce 2003; Serrano 2003). In the communities where Park Law is not applied, this variability in cultivation is made possible with a more or less even repartition of the plots throughout the territory. However, in Tirani, this flexibility is limited due to the con-

centration of the population in a small part of the territory and to the loss of local knowledge by the younger generation (Chirveches 2006). In this sense, one cannot speak of environmental changes influencing the management of natural resources in the TNP, but rather of a lesser diversification of the ecological space, linked to diverse external factors which expose peasant activities to greater climatic risks.

The existing infrastructure in the Tunari Cordillera is linked mainly to the supply of water from the highlands to the valley. Water management is a very conflictive theme in Cochabamba, as the famous "Water War" of April 2000 showed (Hoffmann et al 2006). There is a lot of small irrigation infrastructure managed by traditional organisations that receive external support. The expansion of these irrigation systems causes sporadic conflicts between highland and valley communities. There are also over 80 small lakes within the TNP, most of which are artificial and are used for traditional irrigation, fish breeding, industrial beer-making, provision of water for urban centres, and hydroelectric energy (Corani Lake). Private concessions for the lakes and litigation regarding the use of water have also caused conflicts between companies and communities. A 120-metre high dam is currently under construction in the TNP area, and will supply drinking water, hydro-electric energy and irrigation to the valley of Cochabamba through a 19.4 km tunnel. The project, known as "Misicuni Multiple Project", was a national election issue and has generated great expectations among the population of Cochabamba. In order to carry out construction, many peasant communities located in the flood areas of the dam have been evicted. This too has been cause for discontent.

1.6   Formal laws and regulations

The TNP is regulated by the restrictive Law "No. 1262", which was enacted on 13 September 1991. Besides the expansion of the Park's limits (Art. 1), it states the "public utility of the expropriation of the lands comprised within the area", with the exception of the cultivated lands and those which have industrial installations (Art. 2). The Law institutionalises a "Park Management Unit" comprised exclusively of state organisations, destined to carry out tree plantation activities in the Park area. Important traditional activities are forbidden: "The extraction of construction material as well as livestock breeding are strictly forbidden within the area of the Park" (Art. 7). However, exploitation of wood is allowed and foreseen as a source of funding for

the Park, on condition that only the Management Unit should carry it out and cut only trees which have "ended their vital cycle" (Art. 9). An agreement between the communities and the Management Unit has recently been concluded to extract trees in order to thin out the plantations, but the activity was stopped because the authorisation required from the Forestry Superintendence was not delivered.

When the TNP Law was enacted, Bolivian formal regulation related to environment and biodiversity was very weak, and had only 4 legal provisions. This changed rapidly after the signing of the Convention on Biological Diversity (CDB) in 1992. During the 1990s, 20 formal regulations relating to environment and biodiversity were enacted (Ponce 2004). These included the Environmental Law [*Ley de Medio Ambiente*] (1992), the Forestry Law [*Ley Forestal*] (1996) and regulations for protected areas and their management [*Reglamento General de Áreas Protegidas y Reglamento del Servicio de Áreas Protegidas*] (1997), as well as 6 new protected areas of national importance. The governments that enacted these laws represented the traditional political parties ('megacoalition'), linked with the mestizo-urban elite of the country, which was strongly influenced by international organisations, excluding the rural and indigenous population. As a consequence, the formal regulations are frequently rejected by civil society; they also contradict each other and exhibit many legal disparities.

In the formal aspects relating to protected areas in Bolivia, the following problems were identified:

(1) There is no legal basis for participation with real decision-making power. The regulations of 1997 on PAs allow for a "Management Committee", comprised of indigenous peoples, local communities, municipalities and other public and civic entities. It is, however, basically powerless to make decisions without the approval of the National Service of Protected Areas (SERNAP), which, in turn, depends directly on the Ministry for Sustainable Development and Planning (MDSP). This is one of the reasons why, in the case of the TNP, the Management Committee was not acknowledged by the local organisations.

(2) There is a legal gap regarding the distribution of benefits derived from the use of natural resources in protected areas (Inturias 1998), and a subordination of environmental laws to extractive laws. Although the Environmental Law of 1992 recognises the existence of local communities

within protected areas, it does not specify the way in which their own economic activities, and those of private companies located within the areas, are regulated. Also, the Environmental Law allows the use of natural resources in PAs when national or public interests are at stake. Moreover, the 1996 Hydrocarbons Law[6] [*Ley de Hidrocarburos*] and the 1991 Mining Code [*Código Minero*] precisely declare extractive activities as being of public interest and do not acknowledge PAs. Thus, industrial extractive activities, with strong negative environmental impacts in PAs, are often allowed, while the peasant communities' productive activities can be restricted, due to the fact that they are not considered as being of "public interest". As a matter of fact, the Misicuni Company was never questioned for operating within the TNP. In other PAs, many mining and oil concessions have been granted and there are even industrials companies operating (Orellana 2004; Ortiz 2004). These facts fuel mistrust on the part of local organisations towards public policies, and damage the credibility of environmental regulations (FSUTCC 2003).

(3) There is a strong contradiction between the legal framework of the protected areas and the process of decentralisation begun in Bolivia during the 1990s. The Law of Popular Participation [*Ley de Participación Popular*] (1993), the Law for Administrative Decentralisation [*Ley de Descentralización Administrativa*] (1995) and the Law of Municipalities [*Ley de Municipalidades*] (1999) provide important competence and access to economic resources at the intermediate and local levels. They acknowledge the promotion of environmental management and preservation actions at the departmental, municipal and local levels. However, though the SERNAP regulation states the promotion of departmental and municipal protected areas, there is no legal basis for their implementation. Furthermore, since the national protected areas are under the management of SERNAP, the legal framework withdraws competence from the municipalities on environmental issues. Due to these inconsistencies in legislation, the municipalities cannot identify their role with respect to protected areas. This makes their participation in the enforcement processes of these public policies ambiguous (Ponce 2004). On the other hand, there are also territorial litigations between municipalities that can cover great areas and constitute an additional hindrance to the implementation of any public policy (Aguilar 2006).

1.7 Impact of the international debate on the area

The formal regulations enacted during the 1990s were, undoubtedly, a consequence of the signing of the CDB in 1992 and its ratification in 1994. These regulations were also complemented with new state organisations, such as the Ministry for Sustainable Development and Planning [*Ministerio de Desarrollo Sostenible y Planificación*] (MDSP), the General Board for Biodiversity [*Dirección General de Biodiversidad*] (DGB) and the regional Environmental Boards and Environmental Units in the municipalities. In 2001, a "National Strategy for Biodiversity Conservation and Action Plan" (ENCB) was also drafted through the MDSP (2001) and DGB, which refers directly to protected areas. Though the development of the national Action Plan was based on a wide and systematic process of participation of the actors present at the local, regional and national levels, failure to implement it led to further frustration.

To a large degree, PAs depend financially on international organisations: in 2003, only 3% of the funds for protected areas came from the Bolivian State (La Prensa 2005). Further, some PAs are administered directly by international conservationist NGOs. In the case of the TNP, the impact of the international debate on conservation is felt in the area where the Law has been implemented. In the rest of the area, international economic policies have greater importance. Specifically, the reduction in the terms of trade of the peasant population mentioned above was strongly linked to the impact of the international economic policies implemented by the Bolivian government to ensure the country's access to international credits (Fernández 2003). These 'structural adjustment' reforms, introduced with greater force since 1985, ended with the abolition of protectionism, reduction and privatisation of the public sector, and with a process of decentralisation that led to the creation of rural municipalities. Though the model implemented had the intention of integrating multiple social actors at a local level into state structures, the social actors managed to invert this process and strengthened their organisational capacities, to significantly increase their negotiating powers at the national and regional levels (Rist et al 2005).

The only direct economic incentive of the Park is the hiring of park rangers with fixed salaries and social benefits limited to the area of implementation. Before 2004, the rangers were designated on political grounds and chosen from amongst the urban population. The peasant organisations protested against this, and their request that 100% of the rangers be young people from

the communities was granted. Currently, 19 rangers are hired from the Tirani community. However, this incentive falls far short of compensating the negative economic effects of the Park, such as the loss of croplands, the possibility of breeding livestock and producing natural fertilisers, and the drying up of natural streams caused by eucalyptus plantations, which are difficult to quantify. The concentration of the community's population in the lower part of their territory, combined with the possibility to sell land illegally, led to a great increase in the value of land in this area. Furthermore, the Park failed to put a complete halt to urbanisation in the area. This generated a high-risk illegal land market, which benefited some ex-community leaders and caused internal conflicts. On the other hand, however, the Tirani community benefited from the selling of water to the new urban settlements.

1.8   Governance of the protected area

The governance of the area is characterised by the dichotomy between the formal norms produced by state institutions and the informal norms in force within the peasant communities. In the expansion area, where the Park Law is not applied, the formal norms have little influence on the local governance of natural resources, biodiversity and land use, which is predominantly ruled by the informal peasant norms. The municipal governments, which must at the same time comply with state regulations and respond to local organisations and demands, thus face many difficulties implementing coherent activities (Ponce 2004). In the implementation area, the Law of the Park has had a significant influence on local social organisation, confirming a conflictive interface.

1.8.1   Changes in social organisation related to implementation of the PA

The social organisation of the peasants in the Tunari Cordillera is based mainly on 'agrarian syndicates' resulting from the 1952 Agrarian Reform, which is sometimes complemented by traditional organisation with pre-colonial characteristics (Bebbington 1996). The specific set of the different forms of organisation is the 'community', characterised by self-government (as long as the external and internal conditions allow it). The tangible expression of the principle of community self-determination is the collective property of the community's territory and its familiar use; the intangible expression of the community is rooted in the collective identity, directly related to the historical struggles against attempts of external determination (Rist et al 2005).

In concrete terms, authority is exerted by a set of 8-12 rotating community positions [*cargos*] – which a family undertakes in the course of its history, beginning with minor responsibilities, such as being 'secretary of sports' or spokesperson, up to 'general secretary', the maximum level of authority. All of the community members assume progressive positions, until they reach the highest position of general secretary in the case of the syndicate, or 'field mayor' [*alcalde de campo*] in the case of the traditional organisation. All of the positions, including those of the highest authority, are elected by the community assembly for a period of one year. In most of the communities, the positions are not assumed by a man or woman, but by the whole family, and it is necessary to be married in order to exercise authority. Due to strong social control, authority is considered as a service to the community, not as a way of exerting power (Serrano 2002). Authority is also related to spiritual aspects, as in the case of the *alcalde de campo*, who is in charge of performing rituals to avoid natural disasters.

In the community of Tirani, the only basis for social organisation is the syndicate, which is complemented by neighbourhood committees, irrigation committees, mothers' associations and producers' and religious groups' associations. The agrarian syndicate began to relate to public institutions in charge of implementing the Park when these institutions hired local workers for tree plantation in the 1970s. The community's highest positions were often held by community members working for the Park, who then began to defend their interests as workers from the agrarian syndicate. The community organisation followed the recommendations of the support organisations and of their community representatives. At this time, the Park provided support to the "Tunari National Park Sub Central", a syndicate association which includes Tirani and six neighbouring communities.

However, this relationship changed when the management of the TNP was handed over to the Prefecture in 1997. The Prefecture was under the direct influence of political parties related to the city elite. They implemented a clientelistic relationship with the syndicate authorities, who in turn lost legitimacy within the community. In 2003, a new syndicate board was created, which decided to question the concept of the TNP, and changed its name to "North Cochabamba Farmers' Sub Central". However, the organisation remains unstable, due to internal struggles for syndicate power under the influence of political parties, and to the questioning of traditional norms and principles in the shaping of authorities.

Within the implementation as well as the expansion areas of the TNP, the decentralisation process brought important changes in the structure of state organisation at the intermediate level, such as the municipalities. Before decentralisation, the peasant communities had little influence on municipal governments dominated by the local mestizo elite from the villages and cities. Currently, all the municipalities affected by the Park (except the city of Cochabamba) have a majority peasant population who support the political instrument of several social movements (*Movimiento al Socialismo*, MAS), which currently forms the Bolivian government. While municipal authorities from the highland area dominate the strictly rural municipalities, the municipalities with a populated centre in the valley are dominated by authorities from the valley area, who are linked to the irrigation committees (Crespo and Antezana 2006). The relationship between highland and valley communities is characterised by differences in interests in the use of water; which can lead to conflicts. In the municipalities with a wide rural area and a small populated centre in the valley, there are struggles for municipal power between highland and valley people. In the urban municipality of Cochabamba, the situation is different because the peasant communities are a minority; thus the municipal space remains occupied by urban representatives.

1.8.2   Formal and informal norms

The formal and informal norms on environment and biodiversity management in force in the area of the TNP also reflect the already mentioned dichotomy between public actors and peasant communities. While the communities are formally recognised under the form of 'agrarian syndicates', this is not so with the community institutions that regulate the management of natural resources. From the peasants' point of view, this represents a grave incoherence and is perceived as an affront to the integrity of their social organisation. Therefore, the relevance of the formal norms, as well as their legitimacy, is very low. Many times the public norms and policies are not even accepted by the actors who are in charge of enforcing them. Furthermore, public institutions in Bolivia are greatly destabilised by the practice of 'position moving' [*removido de cargos*], which consists in the systematic redistribution of all administrative positions to members of the political parties that won the elections or benefited from alliances (Ponce 2004). This practice exists at every level, and fosters the prevalence of personal positions in the public sphere, instead of establishing continuity in institutional positions and actions (Macchi 2002). Positions are often handed over to people who lack an adequate professional background and who are thus unaware of established norms and procedures as well as policies in force.

Ideals of reciprocity, complementarity and solidarity guide the fundamental norms of social organisation in the peasant communities of the Tunari Cordillera. In principle, these norms do not try to cancel out particular differences between individuals, but seek to articulate these differences in terms of an organisational structure that offers a greater degree of convergence of particular interests. Norm formalisation is practically absent, since the organisational logic, expressed in the rotating and mandatory system of *cargos*, is oriented towards the successive internalisation – instead of formalisation – of fundamental norms by the families in the community. There are also sanctions, sometimes very severe, for those who do not respect the norms. However, here again the emphasis is on internalisation rather than formalisation. Thus, social organisation gives priority to the continuous formation of all of its components. This creates a collective creative capacity that allows for reacting, resisting and rejecting continuous attempts at external determination by means of highly flexible and specific strategies. For the community governance system, the legitimacy of its authorities is much more important than its legality.

The community rationale of organisation stands in clear contrast to that of the state and other civil society actors. While the state gives clear priority to the norms and sanctions formalised through due processes (constitution, laws, regulations, etc.), civil actors, such as businessmen or some conservationist organisations, usually evade legal norms by misusing their financial status to suit their own interests. The aspect of internalisation of norms and sanctions is delegated from the personal sphere to a diffuse public sphere with an elevated degree of legality, but with low legitimacy in the eyes of most actors.

In the peasant communities of the Tunari Cordillera, the governance of natural resources and biodiversity is characterised by the distribution of land as collective property and as familiar 'private' property called 'peasant home plot' [*solar campesino*]. In the case of Tirani, community norms have been affected by the implementation of the Park, as well as by the city's proximity. Currently, access to land and water is regulated by the community according to the rights of the heirs of the initial 58 members of the syndicate in the Agrarian Reform, instead of according to each family's needs. The use of water for irrigation is regulated by shifts, in the same manner as in other communities. This means that a family 'earns' access to water according to the degree of participation in the work associated with maintaining the irrigation system. The distribution of land has a formal basis founded on a blueprint which dates back to the Agrarian Reform, and that summarily indi-

cates each family's parcels. On the collective lands, the community dwellers that do not have much land have the right to establish cultivation plots, but only temporarily.

In forestry, the community organisation of Tirani has been planning to autonomously norm the use of plantations with criteria for sustainability, distribution of benefits, and community work for technical management and replacement of the trees. However, these claims have been blocked by the Park regulations. The community has also expressed its desire to norm gathering of non-forest resources (mushrooms, wild flowers) for the benefit of the families in greatest need. The syndicate's organisation is similar to that of other communities in that it is mandatory to attend the meetings, but there are internal conflicts about adopting new organisational principles from outside. For example, there are disagreements about the manner of electing authorities – either the traditional way in an assembly, or by secret vote.

1.8.3   Relations between local people and the state; bottom-up experiences

The marginalisation of the rural-indigenous population is rooted in the colonial model and has great consequences for current relations between the state and civil society. According to the experience of the indigenous peasant groups, the state has always been an instrument of power of the elite, in rural as well as urban areas. Thus relations with the formal public sphere have been strictly instrumental, using rejection, resistance and opposition. The social and political pressure exerted to force the state into giving up material and political benefits in the short-term perspective has become a very important pattern of relating to the state.

In peasants' daily lives, this is expressed in the still fresh memories of the years prior to 1952, when today's grandfathers were discriminated against and tricked by the authorities because they were illiterate. Thus they now perceive public actors as engaging in a double discourse, serving only interests that are foreign to those of the country in exchange for personal benefit. Peasants are suspicious of every activity proposed by the government, suspecting hidden intentions – for example, favouring the establishment of companies as is the case in protected areas. Thus the confidence of local actors in the state, especially in rural communities, was minimal up until 2005. Seeing the state as an entity lacking legitimacy is important, since this is not born of theoretical analysis of the current historical situation, but is based on personal and social daily life.

Fig. 4
Peasants watching the city of Cochabamba from the Tunari Park area. (Photo by S. Boillat)

At the local level, community organisations tend to gain strength, thanks to the decentralisation process, due to increased access to education and growing support on the part of external institutions that increasingly recognise the importance of local organisations for the implementation of projects. This process also motivates communities to reflect on their management of natural resources, for example, the use of native forests (Mariscal and Rist 1999), or on the need to manage forest plantations.

At the municipal level, peasant representatives had access for the first time to municipal power spaces. Being conscious of their low level of education, and lack of knowledge of legal and state organisations, the new authorities instigated increased training opportunities, supported not only by the municipality itself, but also by external organisations, NGOs and the university, including the PAMS pilot actions supported by the NCCR North-South. This training process had the effect of an increasing critical appropriation of the state discourse by social movements linked to peasant organisations and the construction of more elaborate alternative proposals. The peasant representatives acknowledged the fact that decisions related to protected areas we are taken at the national and international levels, and they recognised that having a majority at the municipal level was not sufficient to be able to influence the relevant policies. Therefore, the social developed a political programme in which obtaining maximum influence at the national level was a main objective.

By following this programme, indigenous peasant communities that live in protected areas of Bolivia organised the "First National Encounter of Communities Living within Protected Areas" in May 2003 (FSUTCC 2003). They drafted a proposal titled "For the Defence of Nature and the Environment", which opposed the government's draft of a Law of Protected Areas. They denounced the toleration of companies within PAs, and proposed the management and conservation of biodiversity by peasant and indigenous communities. Recently, these organisations created the National Native Indigenous Council of Protected Areas in Bolivia [*Consejo Indígena Originario Nacional de las Áreas Protegidas de Bolivia, CIONAP*] and obtained the support of the new government of Evo Morales to place a Yuracare indigenous representative at the head of SERNAP (El Diario 2006). The new government is also promoting the 'Nationalisation of Protected Areas', in the hope of recovering sovereignty over PA management (FOBOMADE 2006).

1.9 Discourses and narratives

The discourse of the actors involved shows clear opposition of 'public actors' (state organisations) and 'community actors' (peasant communities and their organisations). This opposition is expressed not only in the different perceptions of the TNP's specific problematic, but also in different conceptions of the relationship between society and nature in general.

1.9.1 Discourse of public actors

Local public actors, such as the Prefecture and the Municipality of Cochabamba, use an explicative discourse, justifying the TNP implementation process. They emphasise the environmental services provided by the highlands located within the Park. They stress the view that protection of the city against floods and landslides, the supply of water, CO_2 absorption by plantations, and recreation areas are of more importance. The Prefecture and the Municipality support the idea of 'parks without people' and restrictive legislation, as shown by the following testimony of a representative of the Directorate for the Environment of the Municipality of Cochabamba:

> *In other parts of the world, (…) there are protected areas that are truly reserves, where there are no people who live there, right? Those are really protected areas. In Bolivia, there are people living inside the protected areas. We are misinterpreting what protected areas really are.* (Testimony gathered by Macchi [2002])

The representatives of a local environmental NGO also share the idea of parks without people, and both groups show the strong influence of international debate. The persons interviewed often regretted that parks were not respected in Bolivia, alleging that this was the case in the rest of the world. They thought that it was necessary for Bolivia to make efforts to enforce these international policies in practice (Macchi 2002).

Specialists in the conservation of biodiversity from the public and private spheres, including MDSP, SERNAP, the General Board of Biodiversity, the biodiversity experts from the university and representatives from international NGOs, acknowledge the existence of communities in the protected areas and the need to create benefits for them once the area is implemented. However, they also give priority to the conservation of biodiversity in the PAs, and stress the need to restrict peasant activities as well as keeping some ecosystems free from human disturbance. Despite this, they find it difficult to apply their principles in practice, as is shown by the testimony of a representative of the MDSP:

> *Thus, in order to really make a sustainable area, you have to work with the populations in the buffer zone as well as those within the area, and all that. You must implement high intensity development programmes. (…) [If] we protect, protect and protect (…) sometimes we don't work with the opportunities for the people. Then we will always have some kind of problem.* (Testimony gathered by Macchi [2002])

In the specific case of the TNP, however, SERNAP, as well as biologists from the university, acknowledge the inadequacy of the category of National Park for the TNP. They particularly value the biodiversity of native forests, and criticise the exotic plantations promoted by the Park for their negative ecological effects (Quinteros et al 2007). In general, this group of actors gives priority to the conservation of biodiversity in the area, based on biological studies that define the degree of desired protection, and promote further research.

Despite their differences, both groups of local and specialist public actors, together with private conservationists, represent a dual concept of the relationship between society and nature. Spaces dominated by nature (parks) are created as a balance to spaces dominated by society (urban). There is an intention to plan the landscape based on technical criteria[7] and to conciliate conservation of the environment and economic growth through the imple-

mentation of incentives for the local population. In this sense, they point towards integrating the needs of nature into development, based on the sustainable, restricted use of available natural resources.

1.9.2   Discourse of community actors

The peasant communities and their organisations use a critical discourse in relation to the Park and its implementation process, without questioning the need to take account of biodiversity and reverse unsustainable processes. The Federation of Peasant Syndicates of Cochabamba (FSUTCC) calls for abolishment of the TNP. It emphasises the lack of legitimacy of the TNP and other PAs created by the state without consulting native populations, and mistrusts the government's intention to conserve nature, since it tolerates concessions to mining, oil, hydroelectric energy or tourist companies that also have negative environmental impacts within the areas (FSUTCC 2003). This position is shared by the representatives of the peasant communities located in the area in which the Park Law is not applied, as the testimony of the leader of the peasant organisations of Tapacari Province demonstrates:

> *We are not against keeping the forests, as a matter of fact, we even want to plant more forests, but there is a mistake here. (…) We cannot accept the parks if the communities are not going to manage them. We do not trust the government or the prefecture, because, for example, a protected area appears and then a mining or an oil company gets in. (…) We know that it is necessary to conserve (…) [but] we need help and advice, without needing parks we can take care of nature ourselves.* (Testimony gathered by Delgado and Mariscal [2004])

In the Cercado area, which comprises Tirani and where the Park Law is applied, the communities support the idea of a protected area, since it allows them to defend their territory against the expansion of the city. They propose changing the category to an "Integrated Management Area", which would allow them to carry out traditional activities.

Though at first glance these are two contradictory positions, both community groups tend to define their positions in terms of the ideals of self-governance and territorial sovereignty at the community level; further, their political-social alliance is strong in spite of the apparent contradictions. In the context of deliberations between both these groups, which were supported by the

PAMS, one can see the emergence of a possible consensus that could sat-isfy these common basic ideals, rejecting the Park in its current category and creating an "Integrated Management Area" whose limits would also be redefined. This would allow for the sustainable use of natural resources and for preserving the legal barriers to resist advances from the urban area.

Beyond the specific problematic of the TNP, the community actors express a different perception of the relationship between society and nature from that of the public actors. This is expressed not only in their discourse in public events, but also in their daily lives. A general interpretation of all testimo-nies we gathered in communities from the expansion zone as well as from the implementation zone of the Park shows that peasants do not make a fun-damental distinction between society and nature. They rather conceive of humans and other organisms, including their environment, as an organic unit related to dynamics and transformations of the cultural-symbolic-spiritual basis, which is specific to the Andean worldview.

Places with little human intervention, such as high mountains, dense forests and deep ravines, are not conceived of as 'wild' nature, but as places occu-pied by spiritual entities with mythical references to humans of the past: ancestors, spirits, Incas or saints. In this sense, the concept of space is always related to the concept of time, which follows a cyclic rationale (Estermann 1998; Rocha 1999). In practice, this is expressed in the dynamics of rotating crops and fallow and the transhumance circuits carried out at different scales in space, and in ideas that current uncultivated land was in fact cultivated during the time of the Incas, and thus will some day be cultivated again. In this sense, peasants interpret natural spaces as places located in opposing phases regarding current human activity, within a cyclic space-time scale.

On the other hand, community actors do not propose a difference between what is inert and what is living; further, they do not see humans as the only entities able to reason or possessing a will. Every entity is a being similar to humans, with the capacity to feel and give information: stones *breathe*, trees *talk*, birds *warn*, and all are observed by humans to predict climatic events. Because everything is alive, the elements of the landscape, such as lakes, hills, rivers, stones, animals and plants, are considered as male or female (Serrano et al 2006). In these relationships, matter and mind also interact. Looking at a plant or counting animals which is perceived to be a spiritual activity – can affect their growth and reproduction.

The position of humans as part of an interdependent set of social, material and spiritual spheres of life configures a relationship between society and nature, where one 'speaks' with the other as a basis of a 'development', which is perceived as the result of co-evolution. The set of these three spheres of life is intimately related to a greater entity, the *Pachamama* or 'Earth's Mother' (Rist 2002). The ideal of sustaining a positive relationship with the *Pachamama* is fundamental in families' and communities' quest for wellbeing. This view is also expressed in the construction of knowledge: natural phenomena with negative impact, such as hail, or human illness are interpreted as the anger of the *Pachamama*, provoked by violent action or bad behaviour on the part of humans, which must be resolved through rituals (Rist and Dahdouh-Guebas 2006). As an example, these relations with the *Pachamama* are expressed by the wife of the Tirani leader in the following manner:

> *When hail falls it is said to be somebody's fault. It is a punishment and I think it must be so (…) Sometimes the children climb up trees and fall and get sick. Then we burn the* q'oa *incense [a ritual offering] we call the animus, we invite the* Pachamama *to heal them. No* q'oa *is made in those places, which is why the children fall sick there, so we have to go there to make a* q'oa *to heal the child. (…) Everybody thinks that, since no* q'oa *was burnt, the* Pachamama *is angry, that is what they think.* (Testimony gathered by Salvatierra [2005])

The characterisation of the landscape also reflects these principles. While the public actors divide the landscape according to different zones of human intervention, peasants plan their activities, dividing the landscape into places to which they assign a proper name. The toponyms thus created can reach great density and precision (Martínez 1989), and are not defined according to predefined parameters, but rather holistically by their most outstanding traits. This bring out the unity of the 'place', such as the topography, vegetation, historical, social or spiritual aspects (Boillat 2007). Only after that is resource-related information – such as soil or species present – added. Further, the unit conformed by a toponym has the quality of spiritual and sacred entity with a personality of its own to which one can relate, and it also possesses a sex (Paulson 2003; Serrano et al 2006). In Tirani, as in other communities of the area, we observe ritual patterns, beginning with a 'call' of toponyms, where the 'places' are symbolically provided with food and drink in exchange for their help for good crop production.

These considerations demonstrate that both groups of actors' discourse contents differ not only in their practical dimensions, but also in the basic suppositions that govern the relationship between society and nature. In this sense, it is pertinent to speak of different '*ontological communities*'[8] which concern the actors' groups that share a set of basic presuppositions on what 'social and natural reality' is, independent of the presence of an observer and relations between these two realities (Rist and Dahdouh-Guebas 2006). This concept expands upon Haas' (1992) '*epistemic communities*'[9] which share a belief in a common set of cause-and-effect relationships and common values.

The community and public actors hold different worldviews. While one advocates a diachronic final causal explanation (public actors), the other (the peasant communities) advocates a synchronic vision which emphasises integral and eternal interconnectivity among the spheres of social, material and spiritual life (San Martín 1997; Rist 2002; Serrano et al 2006). The latter goes beyond understanding reality based merely on causal logic. Then there is the need to consider these differences in both actor groups as an expression of different '*ontological communities*'.

1.9.3   Actors' visions of institutional design

The vision of institutional design in the TNP is conditioned by ethical values guided by the ontological principles underlying actors' discourse. Besides the conflicts caused by restrictions on the use of resources in the area, there is a confrontation between a dual vision that separates humans and nature, and a relational vision that integrates them. Public actors insist on the priority of conserving nature by limiting human intervention. They give priority to the economic aspects of the negative consequences of reducing activities, and propose compensatory economic incentives for the communities, such as ecotourism, the sale of environmental services, or bio-trade. They seek to solve ecological problems, integrating them into a free market logic of services compatible with the conservation of the environment.

On the other hand, the community actors state the importance of human intervention for the management of the area, within the framework of principles and ethical values that, in their perception, express good development of the material, social and spiritual relations with the entities in nature. These principles are, for example, respect and reciprocity, which mean that good and respectful behaviour of humans towards an entity is rewarded, for example, with a good crop; likewise, an attitude of disrespect provokes

anger and punishment. Powerful entities such as the *Pachamama* also perceive the relations amongst humans, that must be respectful and should provide basic sustenance to every member of the community. This is the foundation for principles such as redistribution and the sense of community, which are expressed in a coexistence of private/family and collective/community ownership of the land and that allow each family to have access to cultivation plots in different ecological zones (Serrano 2003). These principles, however, do not imply a strictly equal distribution of the resources, but rather a distribution that allows everyone's subsistence with access to differentiated resources. The need for sustenance is the criterion that provides access to resources within the framework of reciprocal relations with natural entities: one can open a plot for cultivation, fell a tree or kill an animal when the corresponding ritual has been adhered to. However, abusive or commercially oriented exploitation of resources is not allowed. Diversity of access to resources allows minimisation of material risks and also, from a spiritual aspect, establishing reciprocal relations with a maximum of entities. For peasants, this implies that agricultural activities have to be distributed over the community's territory to concretise these relations.

As stated above, the case of Tirani showed that the implementation of the Park, as well as urbanisation, had the result that, on the one hand, economic activities became concentrated in a small intensive cultivation zone, thus undermining the traditional model of land use. On the other hand, conflicts in social organisation arose. However, peasants' discourse still refers strongly to the interdependence between the social, material and spiritual spheres of life, belief in the *Pachamama*, and the use of the same cognitive categories as used by the communities in the expansion area. This shows that although the institutional design has been affected in its normative and practical dimensions, the community of Tirani still affirms its membership in the 'Andean ontological community', and tends to reinterpret the new configuration in light of its principles (Boillat 2007). For example, the villagers of Tirani expressed a will to manage tree plantations not only for economic purposes but also because the plantations "request" human intervention, and the trees "need to be educated".

In conclusion, the fundamental logic guiding external urban as well as peasant indigenous actors is revealed. The peasant communities design institutions on the basis of a permanent dialogue between humans and nature – to which they belong – whereas external actors design institutions to achieve more efficient domination, which is more lucrative for society.

1.9.4   **Transformation of the discourses and perspectives**

In the period between 2002 and 2006, in which our research was carried out, the discourse of actors changed significantly. This was due in part to the political changes that occurred in the country. Firstly, the departmental authorities which previously were in a position of confrontation with the communities now express the need to build consensus, participation and equity, and recognise the inadequacy of the Park category, as well as of the current legal framework. The discourse of environmental NGOs has changed towards critical discourse, referring to the lack of regulation and political will from previous authorities to implement conservation in practical terms. They also express the principle of equity, emphasising the unsatisfied needs of the highland population, which lacks access to basic services.

The peasant organisations from Cercado, where the Park Law is applied, have changed from a critical discourse based on the impacts of the Park towards a discourse that claims rights and Andean traditions. In particular, the manner in which they handle the information they have accessed through PAMS indicates legal contradictions and anti-constitutionality in the imple-mentation of the Park. The principles made explicit in these groups showed that the new discourse is related to social justice, equity, respect, solidarity and the conservation of biological and cultural diversity. The discourse of the peasant organisations in the rest of the area, where the Park Law is not applied, has changed from a total distrust towards an expression of greater trust in the state, stemming from the change in government. Though they still reject the Park, some communities are now willing to initiate greater actions aimed at conservation of soils and biodiversity, including forest plantations. They express explicitly that distrust in the state was the reason for not carrying out these actions before.

1.10   **Conclusions**

The most important conclusion of the present study is that the problematic of the Tunari National Park cannot be understood by considering only the logic of its creation. The Park was founded from a disciplinary perspective, separating the legal, technical, social, economic and ecological dimensions, on the basis of a dualistic vision of the relationship between society and nature. The reaction of the peasant communities affected by the TNP caused this dualistic rationale of 'planned intervention', to configure a conflictive

social interface with local actors, who defend a non-dual, holistic and integrating vision of ecosystem management that underlies their daily lives.

To achieve a better analysis of the conflict and determine mitigation strategies, it was necessary to integrate the ontological and epistemological dimensions of the actors' discourses. These dimensions sustain the imperatives, principles and ethical values that govern the way actors perceive the relationship between society and nature, and thus play a key role in the problematic. Consequently, it was necessary to understand the partial implementation of the TNP as a social interface where different 'ontological communities' meet and differ. This is particularly important, because it is on this basis that peasant, public or private actors can define the discourses that justify their specific interests concerning access to distribution and management of the natural resources within the TNP.

The peasant population in the TNP clearly subscribe to an 'Andean ontological community', where an integral and holistic perception of a sacred nature that includes the human being prevails. They try to solve ecological, social and cultural problems through a 'dialogue between man and nature': natural phenomena are understood and studied from the perspective of an interdependent community of intangible beings which, according to the case, are associated with the social, natural or spiritual spheres of life. This configures a relationship which, in its ideal expression, gives fundamental importance to the principles of respect, reciprocity and complementary management of the different characteristics of the environment. Thus 'nature' is perceived as an active entity in co-evolution with the human community, based on the specific historical background of the Andean sphere. This co-evolution does not follow a preordained finality, but exhibits a great degree of self-organisation, guided by human efforts to read the 'signs of nature' in the perspective of a collective learning process. In this sense, peasants seek to integrate human as well as non-human actors by transforming strategic action – which according to Habermas (1984) is egocentric and materialist – into a communicative pattern of action, where relationships within the human community are coordinated with those established in natural and spiritual life. Thus, social interaction is based on common comprehension of the current situation of all the implied actors and goes beyond the mere allegedly fixed 'maximisation of utilities'.

The research carried out on the relationship between traditional ecological knowledge and the diversity of ecosystems demonstrates that the Andean

ontological principles, in their ethical, normative and practical dimensions, privilege an integral use of the territory, a rational distribution of resources, and an attitude of respect towards natural entities. In the areas traditionally managed, this leads to highly diversified land use with different co-existing intensities of cultivation, grazing and forest management which create a mosaic-like landscape that harbours a high diversity of ecosystems (Boillat 2004; 2007). As a result, 'Andean ontology' is not only an essential factor in understanding the cognitive basis of the 'traditional' management of natural resources and territory, but also constitutes a fundamental potential for mitigating unsustainable processes. Improving the conditions for applying normative principles stemming from Andean ontology opens a space for revitalisation and innovation of traditional ecological knowledge, which can contribute to sustainable development from an endogenous perspective.

By contrast, the public actors in charge of implementing the Park subscribe to a 'modern-Western ontological community', which places emphasis on the separation between man and nature, and seeks to solve ecological problems through sectoral measures and techniques. This leads to defining restrictions on the use of natural resources, ideally compensated by economic measures. These differences are also expressed in other topics such as education, health and social organisation.

An important limitation is that the opposing actors perceive only partially and implicitly that their opinions rest on a structured basis, composed of normative, epistemological and ontological orientations. Therefore, as long as the search for conflict solution does not integrate a level of dialogue and mutual understanding in relation to these fundamental dimensions, it is difficult to find a common ground that may serve as a platform for collective action and a cooperative design of solutions. Moreover, the strong distrust of the rural communities towards the state accentuates conflict. Power is unevenly distributed: not only have the peasants been subordinate in political, economic, social and cultural-symbolic terms, but they have also been excluded from public decision-making. Finally, this opposition is concretised in the geographical space, where the peasant communities are located in the highlands, and the other actors are located in the valley, conforming to a highland–lowland syndrome context.

Another limitation is the legal framework of the TNP that lacks clarity and reflects the application of international policies which do not reflect local reality or have not been understood by the corresponding authorities. The

area was not studied prior to defining the Park, and the category of National Park is not adequate for a highly populated area with a strong historical background in the use of natural resources and biodiversity. Furthermore, the strict protection of exotic tree plantations as if they were natural forests does not correspond to ecological or technical criteria, even those proposed by international conservationist organisations. If we add to this equation institutional instability and the lack of resources in state organisations, it is no surprise that the Park has only been implemented in a very limited way and in a very conflictive context. This situation generates a lack of responsibility for environmental issues among the communities, the public and private actors alike, who are more inclined to interact in consideration of their material interests and in the short term.

Understanding the conflict as a social interface of different ontological communities has allowed the definition of an interdisciplinary framework wide enough to capture the complexity of the emerging dynamics. This also reveals that, besides the specific configurations within the ontological communities (relationship between practices, norms and interpretative patterns), there are important power asymmetries between them, which are based on institutional hierarchies representing different ontological positions.

Consideration of the ontological dimensions also allows an understanding that researchers themselves have ontological positions that were generally invisible in the context of the ideal of 'objective research'. This understanding has the effect of erasing the limits between the research object and the research itself, and the research becomes part of a dialogue process between different ontological communities. This element contributed crucially to the search for mitigation strategies, because it led all ontological communities to clarify and understand the bases of their actions. In general terms, this opens up a new public space, where none of the ontological communities has a pre-defined predominance. Each must look within itself to create the basis for a dialogue with other ontological communities. Thus the search for solutions becomes an emerging dynamic based on deliberation and cooperation on an intra- and inter-ontological level.

The recent political changes in Bolivia, with the inversion of power relations between the urban-mestizo and rural-indigenous spheres, open up opportunities for the recovery of sovereignty over natural resources on a national scale, and their management based on the local level. In this sense, there is a possible inversion of the ontological frame of reference: the previous

subordination of the Andean ontological community to that represented by the alliance of the public administration, conservationists and businessmen has been inverted. Thus, the proposals emerging from the communities, which seek reconciliation between use and conservation by strengthening their own forms of social organisation, force the opposing actors to include a social and cultural component in the debate on the future of the TNP. In such a debate the dialogue between actors could expand into a wider and more open ontological dimension, offering new options for the interaction between the actors involved.

However, endogenous proposals do not necessarily mean that all 'traditional' practices are sustainable. There are also unsustainable processes in the communities, such as soil erosion, overgrazing, or urbanisation of arable lands. Peasants usually acknowledge these phenomena as unsustainable, but use qualitative rather than quantitative criteria. Furthermore, although they wish to do it, the farmers have little time to initiate actions to counteract these processes, such as soil conservation, because they need to merge into the market through temporary migration (Zimmerer 1993). On the other hand, the introduction of foreign technologies and species during colonial times was coupled with an abandonment of traditional soil conservation and tree planting, thus breaking the process of local nature–culture co-evolution.

Another limitation is that extreme decentralisation of environmental management is a factor that forces local authorities to take important decisions without possessing a complete vision of the problem or the means to access the information. Thus, they are more vulnerable to the pressures of external actors with higher levels of information and power who can influence local leaders and authorities in order to control the resources (FOBOMADE 2006), as seen in the case of Tirani with the land dealers.

These considerations show that proposing sustainable development from the endogenous potential of 'Andean ontology' need not necessarily imply a static continuity or 'business as usual' regarding practices in use within the communities. On the contrary, the interactions of the communities with the outer world should become elements in self-reflexive processes that lead towards more sustainable practices. This can only be carried out when a space for communicative action is created between the communities and the external actors, where both have the capacity to take into account the other's needs. The new government, which enjoys the trust of the rural population, offers great potential to become a key actor in the creation of this space.

Within this framework, the state could articulate a space for definition of the relationship between biodiversity conservationist specialists, who represent the global interest in the conservation of biodiversity (or general natural potential according to Wiesmann [1998]), and rural communities, who represent the interest of securing local sustainable livelihoods (or specific natural potential). At the intermediate level, the state could play a supporting role in the implementation of more sustainable endogenous practices, such as soil conservation, watershed and forest management, by re-conceptualising them. In the case of Cochabamba, it is crucial to create interface spaces between the highlanders and the valley populations, who would benefit greatly from this type of action in the highland area. In spite of the current alliance between the valley and highland organisations in supporting the government, the highland communities are still at a disadvantage when taking into account access to basic services, education and economy. However, the highlanders express with greater clarity their membership in the Andean ontological community, and have a greater potential to manage a high diversity of ecosystems, as stated above. In order to carry out the actions mentioned above, it will be necessary for the valley population to provide greater support and recognition of the role of highland communities. The administrative geography of the area, which gives each municipality access to highland and valley lands – a legacy of pre-colonial organisation – turns the municipality into the adequate space where the relationship between these two geographical spaces can reach consensus.

In order for the state to create a space of communicative action for the sustainable management of biodiversity and natural resources, the following key conditions must be taken into account:

(1) The state must have sufficient freedom to make decisions and should not be in a position of dependency, but of creative responsibility towards international agreements, which would allow it to interpret them in its own way. Sufficient access to the information generated at the international level is required to enable state authorities to develop their vision of global issues, and to revise the current legal framework on environment and biodiversity towards a framework adapted to Bolivian reality.

(2) The still very fragile relations of trust between the communities and the state have to be strengthened. In some cases, municipal authorities of peasant origin have lost contact with the local organisations. This causes suspicion among the population (Crespo and Antezana 2006). The possi-

ble persistence of client-based bias and corruption practices within state organisations constitutes a great risk for the construction of this relationship, and is also a great challenge for the new state.

(3) The state will have to clearly define the role of private actors and the space in which they could evolve. Currently, there are important risks arising from the opposition of actors who are predominantly private, and who have strong international support. The state will have to create a consensus between spaces with ecological and cultural functions and sustainability priorities, and spaces with capital, and devise production priorities which may include large-scale private actors.

1.11   Main lessons learned in this case study

The transformation of the conflicts observed during the research and PAMS activities demonstrated that the actors involved learned how to transform their actions aiming at material and short-term interests to communicative actions, based on the search for a common comprehension of the situation in which all actors are involved.

This is made possible when greater space for deliberation and shared reflection is created, as for example during the multi-stakeholder meeting organised by AGRUCO with the support of the NCCR North-South in February of 2004. Thanks to this meeting, the state actors showed a clear willingness to reformulate the problematic, while peasant organisations showed a greater predisposition to interact with external institutions. Greater acknowledgement of the positions of the other actors allowed them to expand their interaction towards reciprocal acknowledgement of the relationship between concrete positions and their ontological conditioning. The political change that occurred in the country was clearly a key condition that enabled this space, because it led to a more equitable repartition of power.

In this sense, strengthening the weakest actors as a basis for opening spaces of communicative action is a crucial issue. In the research project, this was done with the complementary support of pilot actions (PAMS), which had a first phase aiming at strengthening peasant actors, and a second phase aiming at opening spaces for communicative action. The first phase concentrated on capacity building directed at peasant organisations. This favoured the formation of new peasant leaders who began to assume public positions

at municipal, departmental and even national levels. The second phase concentrated on building agreements for management of the TNP, providing support to the new authorities, gathering proposals from local communities, consolidating an institutional vision of the area, and including the problematic of the TNP in the agenda of the social and political changes at a national level. Nonetheless, PAMS met limitations in training oriented solely towards the community representatives who have rotating positions. Many times, the entire rural population manifested its will to receive training, which was not possible, owing to the extension of the area, its large population, and the limited resources. The research activities also had an important role in furthering reflection and dialogue in the communities and municipalities where case studies were carried out.

In conclusion, a combination of transdisciplinary research and support pilot actions has allowed the identification of entry points for conflict mitigation based on the co-production of knowledge, in order to work jointly towards sustainable development. By inscribing these mitigation strategies in the framework of communicative action, the levels of formal participation of the excluded actors are raised while enhancing change in the balance of power relations. Communicative action is not only about power: it is, above all, the best argument to guide the process of deliberation.

The university, which in its ideal-typical institutional structure is also compromised by communicative action, was able to play an important catalysing role in promoting the collective learning process whose final goal is the co-production of public knowledge for sustainable development. A fundamental role was to show the actors involved precisely that their positions and behaviour patterns rest on different ontological bases which have never been made explicit, excluding these fundamental dimensions from the processes of negotiation and collective learning. When this aspect was included in the social dynamics, rather than providing 'scientifically validated' content, the role of the researchers was to contribute to making social interaction more reflexive, as a fundamental contribution to a collective and public co-production of knowledge. Instead of being oriented towards an 'absolute truth', interaction is based on the inter-subjective validation of all actors who participate.

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[6] This Law was recently abrogated and replaced with a new one after the social movements of 2003.

[7] For example, they lean on geophysical studies (CLAS 2001) to establish a zoning of allowed and restricted activities in the area.

[8] An excellent review of the differences between epistemic and ontological aspects can be found in Packer and Goicoechea (2000).

[9] Haas' (1992, p 4) concept of "epistemic community" is directed at a "network of professionals" who share (1) a set of normative and principled beliefs, (2) causal beliefs, (3) notions of validity, (4) a common policy enterprise. Here, the concept is extended from expert groups to the whole of society structured in social actors who rely on different forms of knowledge.

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