IMPACT OF THE IMPLEMENTATION OF A PROTECTED AREA ON THE WELL-BEING OF A RURAL COMMUNITY IN BAJA CALIFORNIA SUR

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Abstract. The discussion about the biodiversity conservation and human wellbeing is currently intense and, quite often, revenue coming from tourism had been assumed enough to marry together the development of local communities with the protection of natural capital. However, the debate is far from been solved. This research is based in three key features aimed to capture the complexity of the phenomena: data is taken in three different periods, focus is on relationship between biodiversity protection and poverty alleviation and, finally a context sensitive approach was adopted. Results shows that i) improvement in wellbeing has not to do with endogenous development, ii) the impact of the park in poverty alleviation is negligible and iii) tourism is not a solution per se.

Key Words: Well-being, Vulnerability, Rural Community, Sustainable Livelihood, Tourism, Protected Areas

1. Introduction

The problem of matching natural Protected Areas (PAs) with human needs (inside and outside of the PA) is one of the world´s major challenges (Turner et al. 2012) and is far from being solved (Andam et al, 2010). In fact, while marine and terrestrial biodiversity is continuously decreasing (Secretariat of the Convention on Biological Diversity, 2010) human population keeps on growing, this condition can increase not only the extent of anthropogenic stressors, but the difficulty in successfully enforcing PAs (Adams & Hutton, 2007; Mora & Sale, 2011). Additional factors, as the intention of developing countries of expanding and strengthening protected area systems under international agreements to reduce carbon emissions from deforestation and degradation, should also be mentioned (Gullison et al., 2007; Miles & Kapos, 2008). The issue is particularly relevant in the tropics, where biodiversity is concentrated, as is

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the case of the Biosphere Reserve de la Laguna (REBISLA), located in Baja California Sur, México.

The discussion about the biodiversity conservation and human wellbeing is currently intense (Adams & Hutton, 2007; Mascia & Claus. 2009; Andam et al., 2012) and references therein) and, in many cases, revenue coming from tourism had been assumed enough to marry together the development of local communities with the protection of natural capital. However, available evidence has contradictory results, while some studies show diverse benefits for local communities (Andam et al., 2010; Sallet et al., 2011; Turner et al., 2012), others show from zero to negative impacts (Wilkie and Carpenter, 1999; Pauldel, 2006; Adams & Hutton, 2007) or even a low level of each output when they want to achieve both, conservation and poverty relief (Ferraro & Hanauer, 2011).

This contentious debate has to do with differences in how poverty and biodiversity are understood (Agrawal and Redford, 2006), which derives in different methods, different dimensions (incidence, intensity, equality or volatility) and aspects (income, health, literacy, longevity, disempowerment, etc) considered, diverging focus and geographic scope and also different results. The question is not simple, as Jentoff (2007) stated, healthy systems require healthy communities; however it is difficult to clarify the multiple aspects that this relationship involves, from the impact of and the steps in the processes; actions include from protection measures in local communities, to the efficiency of developing stewardship.

Wilkie et al. (2006) have shown that diverse problems can be associated with the attempt to married these conflicting objectives, given its social implications. In relation to poverty alleviation, two arguments have taken special relevance: i) that PAs can take away the property and rights of local people and can be an unfair drag on present and future well-being of community members (Ghimire & Pimbert, 1997; Colchester, 2004; Oil-watch and the World Rainforest Movement, 2004); ii) that even if PAs, such as some national parks can generate economic value and resources protection, the distribution of the benefits is so skewed against poor rural people that the role of parks in local development is negligible and neither compensate for property lost and rights nor contribute to poverty alleviation (Brockington, 2003; MacShane, 2003).

In order to delimitate the focus and contribute to the debate, several gaps in the current literature have been identified The relevance of PAs have been placed more on the conservation goals, less effort has been directed to assess the impact of terrestrial protected areas on local people. These assessments have been undertaken either ex ante predictions of social impacts or post facto measures of wellbeing with no baseline information on local householders and their context before the establishment of the PA (Wilkie et al, 2006; Agrawal and Redford, 2006). In many cases, PAs are often established in the most remote regions within countries where resources may be less abundant or productive and where households rarely have access to markets, such a way that the PAs become a last resource to be provided with social services (Wilkie et al, 2006).

Meanwhile Agrawal and Redford (2006) add some limits of current research, as is the case of limited attention to contextual particularities of empirical interventions, which means that existing empirical studies are poor guides to policy and systematic theoretical insight into the conditions under which poverty alleviation and biodiversity

conservation may be compatible goals. Likewise, available evidence provides relatively little systematic knowledge about the nature of the relationship between biodiversity conservation and poverty alleviation. In this context, the Rebisla satisfy several elements of interest for the debate: i) It´s not located in a remote region, on the contrary, is part of a well known touristic area, with several important cities in its surroundings (Cabo San Lucas, La Paz, etc); ii) a baseline is defined, accessing to information in three different periods, iii) a context-sensitive approach was adopted and iv) relationship between biodiversity protection and wellbeing is addressed.

In short, this study aims to expose the impact of the enactment of the PA in the livelihood of rural communities that have for long time been depending on natural resources, now regulated under a management plan of a PA. To do so, a systematic framework was used for the analysis, accounting for the community's wellbeing conditions, based on natural resources and the challenge of resource conservation. The insertion of tourism as an alternative livelihood in the area under these conditions is also discussed.

2. The theoretical framework: Wellbeing, vulnerability and livelihood

The concepts of wellbeing and poverty and are subjective, as envisioned differently by different authors (Sen, 1991; Rodríguez & Bracamonte, 2008) and complex as comprises a wide range of aspects. Since the 1970s approaches to defining poverty have included, in addition to income-related variables, the identification of non-income dimensions such as longevity, literacy or health. More recently, a new set of factors including vulnerability, lack of access to opportunities, exposure to risk, powerlessness and lack of voice have also became part of the definition of poverty (Agrawal and Redford, 2006). Ultimately, poverty refers to the many ways in which people can experience poverty. This can be in terms of, for example, 'money-metric' or material indicators (low income, expenditure, consumption, physical assets); 'human capital' indicators (poor nutrition, health, education status); or 'socio-political' indicators (lack of access to services, common property or social networks; powerlessness, marginalization, stigma (CPRC, 2004).

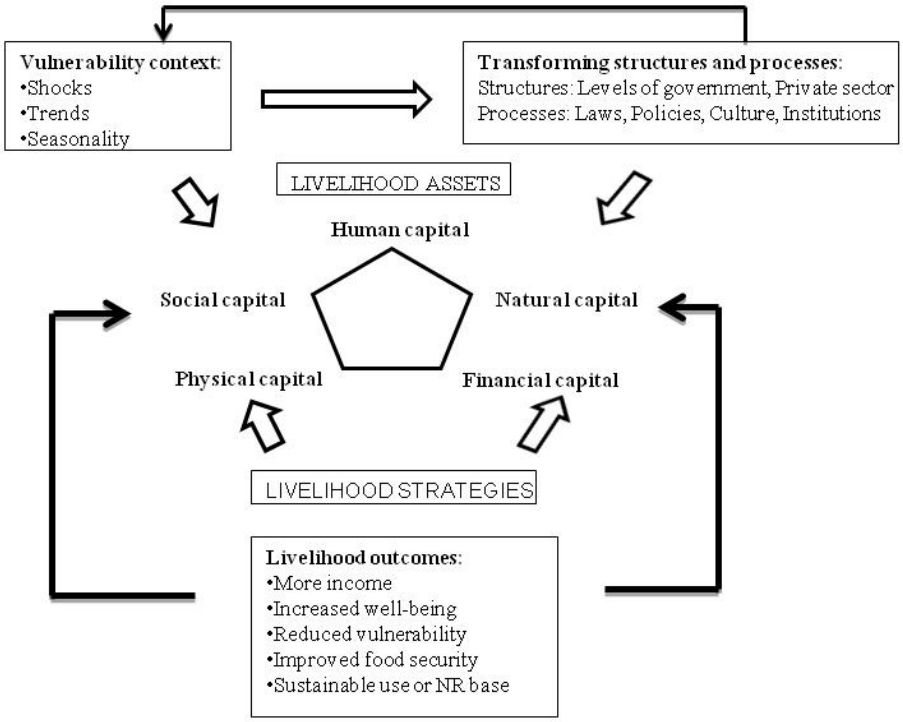
Under these conditions two key questions have been stressed in the literature. First of all, that poverty means multidimensional deprivation: hunger, undernutrition, dirty drinking water, illiteracy, having no access to health services, social isolation and exploitation (CPRC, 2004). Second, that the application of such indicators should be context sensitive (Agrawal and Redford, 2006), that is to say, they are not simple "correct" or "incorrect" but capturing concrete circumstances and complexity of poverty and vulnerability (Renshaw and Wray, 2004).

In this study, it was not adopted the concept of poverty but instead the issue of wellbeing as perceived by people living in the PA, enquiring to conditions that can promote such state. It was assumed that this condition could play a role on the decision for people to remain or not in the region after the establishment of the PA. Within this context, it also were explored the factors that could contribute to increase a sense of vulnerability for people. In this case the concept of Chambers (1989) was adopted.

A variety of related issues to wellbeing (and vulnerability) have being in discussion in the academic arena (Swift, 1989; Macfadyen & Corcoran, 2002; MacShane, 2003; Gallopin 2006; Adams & Hutton, 2007). Chambers (1989), stats vulnerability is a condition in which people feel helpless, insecure and expose to risky conditions,

identification of the factors that generate such condition becomes relevant, as this can be multidimensional and different strategies may be needed to face them. People can feel vulnerable regarding their assets (human, physical, economic, social) and the available options they have to pursuit outcomes. Vulnerability resides in the sensitivity and resilience of a system experiencing hazards (perturbations and stresses); its understanding requires knowledge about the factors that generate such condition and the capacity of response of the system (or people) who receives that treat. People, can also perceive these conditions differently, according to their culture, history, experiences as well as to environmental conditions (Salas et al, 2011). There is a nuance that is important to note, Macfadyen & Corcoran (2002) and Salas et al. (2011) stress the need to make a distinction between vulnerability and poverty. They claim that a program that aims to reduce poverty won´t necessarily reduce vulnerability, although the opposite could hold some times. So there are two major goals to be achieved: on one hand, to capture de multidimensional aspects of poverty/wellbeing with context-sensitive methods and, on the other hand, to address the relations between wellbeing and PAs enactment. To the best of our knowledge this conditions are effectively covered by the sustainable livelihoods approach.

Figure 1: Framework employed for the analysis undertaken in this research, the sustainable livelihood approach (adapted from Ellis, 2000 and Salas et al. 2011).



Several works have contributed to the definition and application of this framework, addressing issues related to poverty, well being and vulnerability (Ellis, 2000; Allison & Ellis, 2001; Salas et al., 2011, etc.). In this study the framework suggested by Allison & Horemans (2006) was adopted (Figure 2 in the Annex).

The livelihood framework brings together assets and activities that illustrate the interactions among physical, financial, natural, human and social capital (Allison & Horemans, 2006; Salleh et al., 2010; Salas et al 2011). Local communities develop strategies to face challenges and they use their assets to generate some form of income; in the case of rural communities that involves the use of natural resources. Access to different assets and economic activities enable people and institutions to develop adaptive capacity while facing changing environments. Living in a protected area could increase uncertainty for those who live in the area and for the managers of the PA, hence trade-offs are needed on the search of a balance between resource conservation and maintenance of the wellbeing of communities.

It is necessary to understand the differential capabilities of rural families in coping with crises or changes on their ways of life. This study focuses its attention on the assets of rural people, and how different patterns of hold assets (land, stock, food stores, savings etc.) can make big differences in the ability of families to withstand the implementation of a PA that restricts the use of the resources (Swift, 1989).

This set of concerns also links to the concept of vulnerability; defined as a high degree of exposure to risk, shocks and stress and proneness to food insecurity (Chambers, 1989; Davis,1996). Vulnerability has the dual aspect to external threats to livelihood security due to such risk factors like a climate, markets, or sudden disasters; and internal coping capability determined by assets, food stores, support from kin or community, or government safety net policies.

3.The protected area: Reserva de la Biosfera Sierra la Laguna (REBISLA)

The REBISLA is located in the state of Baja California Sur (BCS), Mexico. In order to facilitate a proper contextualization of this area some key figures at regional and national level are presented in Table 1. Generally speaking, at those levels there are no relevant differences. Is in the local level, given the geographic and economic insertion of the REBISLA, where the social gap appears demanding for a close approach.

Table 1. Socioeconomic features of Baja California Sur and Mexico. 2005.

	BCS	**Mexico**
Total population	512 170	103 263 388
Per capita gross domestic product (US$)*	6 962.16	6 953.44
Economically active population (occupied)	220 089	42 274 306
Population whit health services (IMSS)	216 938	13 061 565
Illiterate population of 15 years of more (Percentage compared to the total)	3.62	8.37
Average of inhabited per occupied dwelling	3.74	4.4
Marginalization grade	Very low	High
Housing with some level of overcrowding (Percentage compared to the total)	35.16	40.64
Occupied population with income of up two salaries (Percentage compared to the total)	24.07	45.30
Development social index	0.753 (high)	0.687 (medium)

IMSS: Mexican social security Institute. * At 2003 prices (Exchange rate: 1 USA dólar X 11.2353 mexican pesos, BANXICO). Source: Estimates from The national Population council based on the II population and housing count 2005 and the National occupation and employment survey 2005 (IV quarter), National Institute of Statistic and Geography (INEGI).

Given its geological and geographical location, BCS, is home to a rich variety of endemic species (flora and fauna), beautiful landscapes, complex topography and heterogeneity of soils and climates, (Arriaga y Ortega, 1988). Agreed to its richness this state includes a wide range of areas promoted as protected areas, yet little is known about the interactions of people within those environments. In this context REBISLA contributes to the genetic richness of natural resources in the country, being hence defined as a key area for conservation in Baja California and a representative area of Mexican biodiversity (Ramírez, 2001:1; SEMARNAT, 2003:3).

REBISLA (Figure 2 in the Annex) is located at the southern of BCS, between La Paz County and Los Cabos County with an extension of 112,437 has (SEMARNAT, 2003:5). The area was stated as a Biosphere Reserve, on June 6th, 1994 with a core area of 32,519 has and two buffer zones of 79,317 and 600 has respectively (SEMARNAT, 2003:10).

The REBISLA comprises 15 sub-basins and is the only PA with conifer forest, rainforest, palm tree, shrub, and pine-oak forest on the peninsula of Baja California; it is the best conserved area on the Mexican Pacific (SEMARNAT, 2003: 3). Particularly, in the north western region it has its own unique ecosystems and it is important as a place for aquifers recharge (SEMARNAT, 2003). The area is not only important for its biodiversity, but also is inhabited by communities that undertake a variety of activities in interaction with those ecosystems, being highly dependent on them (Ortega-Rubio et al, 1992).

The communities in the area are organized into "ejidos" (ranches that are used as common public land). "Ejidos" were defined by law as a shared area that can be productive under the management of a rural community. This allocation right scheme has been an important support for peasants farming in Mexico. This study focuses on the common public land, "Ejido" San Jorge (ESJ). This community is located in the core and buffer zones of REBISLA. This site is located between 109° 47'20" W and 23° 28'12" N (CEI, 2002); it has a surface of 3,579 has and a perimeter of 39.8 km (SEMARNAT, 2003). The area under study includes only the area where there are human settlements. Within REBISLA, like in the case of ESJ, the most important social organization of the ranches is the family, which is in charge of fulfil the basic needs for the sustainability of their own ranch. The ranches are modest, and are found in plains and riverbeds (SEMARNAT, 2003). The farmer space is subjected to scarcity and dispersion of their resources, and along with the culture factors make the farmers habitat dispersed and scarce (Castorena y Breceda, 2003).

Ultimately, the life in a ranch as in ESJ has been based on self-reliance and the exploitation of the natural resources found in the region and the benefits that they generate for the community, defining furthermore the wellbeing of community members (Castorena y Breceda, 2003:23). However, knowledge about how introduced changes in the management of the territory have affected the objective and subjective conditions of life of the communities since the enactment of the PA is still scarce.

The ESJ comprises mainly small producers that depend mostly on family labor. Their survival strategy is based on diversification of their economic activities inherited from their ancestors, some of which go directly to the use of the natural resources in a disorganized manner; for instance, livestock, saddler, setting and wrought iron, extensive farming, and canning (SEMARNAT, 2003). Through time, under the need of

increasing revenues people started to undertake diverse types of jobs in the area of Santiago and Los Cabos, touristic areas nearby (Olmos-Martínez, 2009). Other activities include workers, farming, forestry, mining, handcrafts, and ecotourism (SEMARNAT, 2003).

In the REBISLA area, public services are incipient and the population and the area have been characterized with poverty conditions and marginalization (Castorena y Breceda, 2003). From the 26 existent ranches in ESJ, 24 ranches centralize in a rancher's space and the other two are isolated located in Santa Rita and El Encinalito (Olmos-Martínez, 2009).

4.Materials and methods

In order to collect quantitative and qualitative information needed as input for the analytical framework, three related approaches were followed: a survey, participative research and focus groups.

A semi-structured survey was applied to community members in the area. The tools included questionnaires with open questions, focus groups and participative research Bråten, 2002; Ingles and Sepez, 2007) applied to two target groups. Also a meeting with common land farmers convened by administrative personnel from REBILSA and contact with key informants provided important information. For the people living in ranches, the head of the family was interviewed.

Censuses were applied in the region in order to obtain socio-economic information searching for trends in the analyzed periods. These periods include: 1) a census applied by members of the direction of the REBISLA in 2000, including all ranches in the area, and 2) a socio-economic census applied to Ejido San Jorge (ESJ) in October 2004 and November 2006. The number of ranches censed in 2000 were 28, in 2004 the number of ranches was 26, and 23 ranches were targeted in 2006.

A comparative analysis on socio-economic indicators among periods was undertaken and an analysis regarding people's perceptions regarding the factors or conditions that generate a sense of wellbeing or vulnerability in relationship with the environment and the use of natural resources was also undertook. This paper focus on the changes in well being that individuals and households experience over time because understanding the causes of those changes can provide a sounder basis for effective strategies to reduce poverty (Agrawal and Redford, 2006; Hulme, 2003; McKay and Lawson, 2003).

People were also enquired about the coping strategies they have implemented to achieve individual and family goals. Participatory research approach was undertaken in this case (Brown, 1985; Finn, 1994; Montero, 2003; Aguilar-Morales, 2006) One family was selected to follow along the analyzed period to evaluate, how traditional activities, way of life, and people's wellbeing had been before and after the creation of REBISLA. People were asked if their socio-economic conditions had changed, and if the new conditions give them a sense of wellbeing or vulnerability after the enactment of the PA and what factors could contribute to this condition.

5. Results and Discussion

Respondent's profile

The demographic structure of ESJ is made up of 68 habitants, 44% of them are woman and 56% are men. Of the total, 59% of the people fall in the age structure of 15 to 59

years old, and 22% is between 60 years and older. The ESJ comprises 17% of the total population of the REBISLA.Results are presented describing different types of assets available for people putting into context the SJE community, followed by description of policies, institutions and process associated to the PA and community interactions, and finally an analysis on vulnerability perception associated to wellbeing conditions of SJE people given the enactment of the PA is presented.

Table 2.Indicators of satisfaction regarding the fulfillment of basic needs and in the three analyzed periods.

INDICATOR	Percentage from total population			Variation from 2000 to 2004	Variation from 2004 to 2006	Variation from 2000 to 2006
	Year					
	2000	2004	2006	(%)	(%)	(%)
Meat consumption per month	8	34	40	26	6	32
Money spent on clothing ($1,000 min. spent yearly)	NA	56	60		4	
Water access	100	100	100	0	0	0
Housing (Industrialized material)	38	42	45	4	3	7
Gas for cooking	64	80	85	16	5	21
Inside bathroom (only for bathing)	18	27	30	9	3	12
Power	96	100	100	4	0	4
Furniture, household supplies (bed, stove, dining set, refrigerator)	88	96	98	8	2	10
Educational level (From kindergarten to high school)	76	90	93	14	3	17
Literacy (population 15 years and older)	91	95	98	4	3	7
Public health services (IMSS)	25	49	55	24	6	30
Means of communication (radio)	96	88	95	-8	7	-1
Means of transportation (own a vehicle)	57	69	70	12	1	13
Leisure	100	100	100	0	0	0

Source: Information calculated from the surveys (2000, 2004 y 2006). NA= Not available

Human assets: In reference to human assets, the elements considered in this research are demography, education and employment. Interestingly, the survey showed that along the period of study population dropped 36% in ESJ. It was also observed that the proportion of people economically active was lower from 2000 to 2006. Increase of migration outside of the PA was acknowledged by respondents of the survey and during the participatory research. See Figure 3 in the Annex.

Breaking down the total population in function of their participation in the economy of the area, it was observed that only 33% of population are economically active, while 67% of people are economically inactive, fundamentally housewives, students and elders. The percentage of inactive people increased, from 48% to 66% from 2000 to 2006. A reduction in the percentage of housewives called the attention, associated to an increase on the proportion of students, clearly indicating changes on priorities among young population. It was confirmed through interaction with people in the community that women were less interested on getting married and preferred to continue studying aiming for a degree. Adults also agreed that younger population should persuade higher education in order to be able to obtain better jobs and more dignified salaries, especially in service sector, even though this means that they will abandon the ranch life and its traditions. Economically active people (EAP) were integrated exclusively

by males, which by the third period dropped to 33%. This fraction of the labour force includes people from 12 years old and over. From those, 92% employed and 8% unemployed. See Figure 4 in the Annex.

Relevant changes were evident in a very short period of time as people involved in agriculture moved to become an employed person under monthly or weekly wages. Hence between 2000 and 2006 people under salary move from 7% to 40% and the percentage of farmers/workers was reduced from 53% to 19%. This data reflects the profound structural change in the community in a relatively short period of time.

The majority of the ranchers and their family members are employed as seasonal farm workers in their own common land or surrounding locations. They also have access to a government program called "Temporary employment programs" (TEP). This program allows the government to provide some income in poor communities or during periods of crisis (floods, hurricanes, etc.). It has also been employed in protected areas to reduce the impact of exclusion or local people displaced. In the study area, this budget was managed by the park administration that offers some payment for working in task associated to maintenance. The use on TEP in protected areas pretends to reduce the dependence of natural resources and is one of the few programs that habitants in the area accept gladly. This income, however is not enough to improve quality of life for the population, given the fact that the salary is low and the season in which it is provided is short, hence people have to look for other sources of income.

Among the economic activities undertaken by community members, beekeeping represents 17%; it is developed within private property land, and the product is sold to the ranches, nearby locations, and tourists. In an isolated manner, some housewives have dedicated to the production of cheese, sausage and regional candies, commercializing them locally, at surrounding communities and with tourist as well. Occasionally they also commercialize fruit. The official census shows that the employees that work outside the PA are involved in activities such as gardeners, commercial sector, public services, and one person works in the education sector. It was evident that the process of urbanization and the conditions of the demand of labour from surrounding communities as well as having access to assets and services has influenced the lifestyle and well-being conditions of the ESJ population. See Figure 5 in the Annex.

Regarding education of the habitants of the PA it was observed a slight improvement from 2000 to 2006 changing from 91% to 98% of literacy. Improvement on the level of education was also evident as in 2000 only 76% of those completing elementary education moved into high school, by the year 2006 this value increase to 93%. In fact, one of the bigger changes in the area is the increase on the number of students. It should be noticed that currently within the location there are now a pre-school and elementary school, even though high school is located in Santiago, (15 KM from San Jorge). The transportation between these two locations is with an off-road vehicle donated from the state government.

The results obtained in this study are congruent with the description presented by Castorena and Breceda (2003), who indicates that ESJ and other common lands in the area i) were becoming a place to sleep for men and women of productive age that increasingly works outside the area, ii) in some cases, as in Ejido San Simon, people who refers themselves as "ejidatarios" where in fact living in the city of La Paz or

other surrounding areas, iii) a progressive abandon of traditional ranch or orchard activities is evident and iv) the level of well-being was very low and the marginalization degrade very high.

Environmental assets: Habitants of ESJ have been highly dependent on natural resources such as water, soil, and land conditions that allow operation activities like farming, agriculture, beekeeping and fruit culture. 81% of the herd farming is managed in an extensive way (predominantly cattle herding) and the rest, fundamentally swine and poultry, is intensive. The extensive livestock developed in the buffer zone of the PA has been the main activity of production in the primary sector. Predominantly livestock that is a crossbreed adapted to the environment conditions of this region, and it free-range the majority of the year in the pastures. During the dry season 71% of the families feed their cattle. The cattle are usually sold from $10 and $15 pesos (between 80 cents and a dollar) per kilo depending on the season, sex o age of the animal.

The management program from REBISLA (SEMARNAT, 2003:23) grades the extensive livestock with a high environmental impact and recommends an index of pasture of 25 ha/AU (hectares/animal units). In the ESJ there is an extension of 3,579 has with a total of 161 cattle, and index of 22.22 ha/AU of forage, value inferior to the one recommended in the management program; emphasis has to be made that deforestation is not an activity that occurs inside of ESJ.

The majority of the families grow fruit tree and orchards that are employed for auto consumption and to barter. Economic contribution from these activities is not significant though. The species of fruit and vegetables that are cultivated include: onion, tomato, chili mango (*Mangifera indica*) a mixed variety. Other species are guava (*Sodium guadiana*), papaya (Carioca papaya), avocado (*American persia*), Orange (*Citrus uranium*) and other citric fruits.

Rice, beans, milk, tortilla, bread, vegetables, fruit, eggs, pastas, among others have been the basic food of the population in ESJ; meat was not a traditional food in their plates by the year 2000 (8% of families reported consumption of meat four times a month by then). By the year 2006 meat consumption went up to 32% in respect of 2000. The meat consumed by the people in the area came from their own livestock or from farms located nearby.

No differences were observed among the three periods regarding water availability, respondents indicated their need were satisfied for housing and productive activities; water was obtained from a well for all community members. The habitants pay a quote for such service to maintain the water pump and to pay the electricity required for the water pomp operation. Data from the surveys showed a variation of the quote paid for water consumption; the changed was of about 112% increase from the year 2000 to 2004. For instance in 2000 the quote represented the 0.89% of people's average income, while for 2004 it represented 1.75%. Despite of having water available, purified system was not employed in the area. Fastio & Ibañez (2011) reported that only 24% of the population used a system to purify water.

Social assets: Communities like the ESJ, have been characterized by an identity centred on the traditional mountain lifestyle (the ranch and orchard), product of the Spanish seventeenth-century missionary legacy, that turns his back to surrounding sea, that values freedom and social solidarity procured for self-sufficiency, and that is characterized by an intimate knowledge of their natural environment (Cariño, 1996).

Social relationships related to this way of life are articulated on two fundamental levels: family relationships and the institutionalism of the *ejido*. The *ejido* is not only a form of land tenure, but also involves an organizational and political system articulated through three bodies: the Assembly, the *ejido* commissioner and the Supervisory Board. From the point of view of social capital is particularly relevant the assembly, since it is the supreme body of the *ejido*, it involves all community members unmediated and represents a way of direct democracy. Among his responsibilities was, for example, the administration of *ejido* lands. However, with the 1992 Farm Bill the *ejido* cohesion misses two fundamental points: the economic management and the regulation of parcelled land, leaving only the regulation of communal land and the problems of the urban core, supposedly to be increasingly managed by boards of settlers. The cancellation of the decision capacities over economic life tends to weaken the peasant social organization and management, fragmenting their interests through individualized or group ways (Escalante, 2001). However, as Morett (2003) pointed out despite these changes the experience of collective organization remains an important aspect of the common lands.

On the other hand, the family is the basic unit of social organization in at least two meaningful ways: as a fundamental economic unit and as integrator nucleus of the local social system. This means that social capital in this area is defined mainly by strong ties. As fundamental economic unit, is within the family that decisions are made regarding the strategy for the use of resources and the organization and division of labour. At the same time, traditionally community member have tide relationship by blood with the other habitants in the zone, showing the inbreeding and limited social movement. Currently this condition has changed since the habitants are moving on to different work alternatives outside the area. Those remaining feel vulnerable when a family member leaves and causes a sense of instability, and lack of motivation to look for other alternatives to improve their quality of life.

The set of relationships between the inhabitants of the REBISLA also includes others of more informal character, seeing that the 100% of the people that has free time for recreation, sport like, free time activities or have social gatherings.

Physical assets: None of the 23 settlements in the area have access to paved roads, and the dirt roads they have are in very bad condition and deteriorated, making it difficult the transit towards the San Jorge Ranch or others as El Encinalito and Santa Rita. Community members have provided maintenance to their roads with the tools and instruments they have at hand. There is not public transportation available in these common lands. The rate of people owning a car increases from 57% in 2000 to 70% in 2006, although they are generally older models.

The ranches have modest houses where four persons on average cohabit; 55% of the homes have two bedrooms. Constructions are built mainly with local materials such as cardboard or wood, only 42% of homes are built with industrial materials (unfinished block), dirt floors are the most common and some homes have windows; the roofs are made of metal or regional material as they make use of the natural resources found close by. Regarding general services for the houses, results show that the ESJ has a poor sewage system. Some homes have indoor showers, this asset increased from 18% in 2000 to 30% in 2006; bathrooms are uncommon, and sewage is pumped directly outside of the houses or into a small septic tank that they have underground.

The use of propane gas also increased, been available in 85% of the houses. By doing so, people increased their wellbeing to the extent that they don´t need to search for firewood for cooking, and at the same time the impact on the surrounding natural resources is reduced. Power is provided by the federal commission of power and all houses in ESJ had access to these services in 2006; the ranches Santa Rita and el Encinalito are powered by solar plants, and the maintenance is cover with a monthly quota of $150.00 pesos (about 12 Dlls per month).

By the year 2006, 98% of the families had: a bed, stove, refrigerator, and a dining area; this has gone up 10 percentage points since the year 2000. Electronics were also present in most houses, by the year 2006, 85% of the families had a television, phone service; 14 points above what was available in the year 2000. In 2004, 56% of the population reported they spent almost $1,000.00 pesos per year per family to buy clothes; this amount is not enough to cover their needs, considering, each family had an average of 4 members per family in the case of ESJ. Only 50% of the habitants of ESJ have access to public health services, nevertheless this percentage was 25% in 2000. The increase is due to salaried employees outside the PA, what allows them to have access to health services attended by de Mexican Social Security Institute. Inside the ESJ there is no doctor´s office to help them solve problems of everyday health. The locations in the area are visited by a doctor sent from the Department of Health once a week. Medical fees are $60 pesos in those cases (about $5.5 Dlls).

Financial assets: The main resources that local people have to achieve their livelihood are their land and their own workforce. The *ejidatarios* possess the land collectively through a rights system of dual access: on the one hand they have small individual plots in usufruct (usually devoted to vegetable and fruit), and on the other hand, the communal lands of regulated access and use.

In the year 2000 the average monthly income per family was $2,987.00, equivalent to 2.62 minimal wages (About 270 Dlls), $3,146.00 by 2004 (2.31 minimum wages) and $5,497.00 by 2006 (3.67 monthly minimum wages). Interestingly, the increase in salary was of 5% from 2000 to 2004, while from 2000 to 2006 the difference was of 84%. This increase was associated to the contribution of the worker's salary brought from their labor outside the reserve.

Policies, institutions and processes: At the beginning of the study two questions were posted: after the enactment of the reserve what kind of activities can be undertaken at the REBISLA?, and, who get the benefit from the available options?

The management plan of the reserve established in 2003 includes a zoning (core and buffer zones) indicating the activities that are allowed in each area within the reserve (SEMARNAT, 2003). Access is restricted by some of the regulations within this plan and Federal laws on environment protection, hence human activities get limited under those conditions. Core zones cannot be used at all means, while buffer zones can be used under strict regulations and on limited basis.

Enforcement of the management plan is under the Direction of the REBISLA. Financial support for the protection of the area and different programs associated to its protection are channelled through the direction of the PA. This money is also used to develop projects for the people that live in the area in order to promote resources sustainability, economic growth, and to maintain quality of life among the settlers in the area. Among the programs the TEP operated occasionally offering some income to

people (mainly man) in some activities related to the maintenance of the PA (gardener, park rangers, among others).

The direction of the PA also promoted some productive activities for the people living in the PA: ecotourism for men and composting for women, however the project did not yield the expected results, especially in the case of women. Projects such as nurseries of plants were also promoted for women, organizing courses but the program did not succeeded, as women did not maintain the interest on it.

Despite the benefits obtained from the programs referred above are acknowledged by people, changes in the life style they had as a result compared with how they lived before the enactment of it was referred. Being constrained on the use of natural resources, by regulation not only in the core area, but also in the buffer zones, have made householders feeling limited to maintain an income and has pushed them to change their live style. Under those conditions, work outside the PA became an option. Information gathered through the interviews showed that the residents indicated disappointment for the need of changing their life style after the implementation of the PA. They indicated pride in their origin, great attachment with the land and their customs. They stated the concern that the younger people started to leave the land to search for options somewhere else.

For example, the head of the family X stated, "we have lived here for generations, and we have always had the opportunity to familiarly organize ourselves and doing unrestricted traditional activities, but since the PAs creation the livestock has decreased because of the over pastured grasslands, hunting has been restricted as a way of traditional eating for our families, the younger generation looks for work in other common lands or nearby locations to help the family income, among other things".

To expand regarding the question of who benefits from the opportunities that the PA provides it is necessary to incorporate the impact of tourism (ecotourism) promoted as an engine of development in the region after the PA's creation. Although no consensus exists about the definition of ecoturism, two common ideas are widely share: i) should generate beneficial socio-economic outcomes for local populations and ii) should be compatible with de biodiversity conservation. See, for instance Ceballos-Lascurain, (1996), Fennell (1999), Krüger (2003), etc.

The REBSILA is located in one of the most touristic destinations in Mexico, whose primary focus of activity is situated in Los Cabos (San Jose del Cabo and Cabo San Lucas), where 86% of the touristic activity in BCS is concentrated. Figures surpass a million of people a year in the last decade, predominately from foreign countries, but mainly from the United States of America (Sánchez & Propín, 2011). More than half of these tourists are looking for five star hotels to stay in (Ibañez, 2011).

On the other side La Sierra La Laguna is a place for touristic activities for locals and foreigners. However the promotion of the activities (climbing, camping, and safari tours, and others) is done by touristic agencies in Los Cabos and La Paz, with little benefits for the locals, limited to the sale of handcrafts and the activities of some of the ranchers that offer their services as guides or rent their animals to carry tourist's belongings. This activity is disorganized and does not include creation of capacities of local people to undertake the touristic activities (Castorena & Breceda, 2003, CONANP, 2003; Olmos & Gonzalez, 2011).

In short, so far the benefits of tourism have been directed more towards whom is closer to the market than for those closer the tourist resources. In this field, tourist agents based in Los Cabos or La Paz hold a significant competitive advantage over rural communities. There are a number of barriers to market that rural communities should face (Forstner, 2004; IFAD, 2001) and that are of application in this case. Among the problems mentioned by locals to embed in the touristic activities are enlisted: distance from markets, lack of roads to their communities, and communications infrastructure, lack of market information and business skills from *ejidatarios*, as well as a lack of political power on the side of small farmers to influence the terms of reference to get concessions in tourism (IFAD, 2001). In particular, distance to markets appears to be a major constraint for rural communities (Forstner, 2004). This distance is both physical and cognitive. Physical distance also leaves local small-scale entrepreneurs with less opportunity to establish sales-related contacts in urban centres and to promote their products to potential customers. Cognitive distance summarizes the lack of deep understanding of the needs and expectations of their potential customers, language can be another barrier for them when it comes to deal with foreigners.

People´s vulnerability: The results derived from the focus group, show a sense of lost, exclusion and invasion by member of the community with the enactment of the reserve; they stated that have been there for 3000 years and now they have to adapt their live according to the new rules defined by the management plan of the PA, including the use of the natural resources (managed by them before). The management plan implemented by the federation without consultation or involvement of the community members and enforcement of regulation in the area by the National commission of protected areas was referred by locals like an invasion.

People also indicated they feel vulnerable to natural disasters like storms and hurricanes that happen almost every year in the region generally during September-October. The impact of these phenomena are roads destruction, the riverbeds filling, and more especially houses destruction as they are so fragile being constructed with regional materials. These conditions get exacerbated by the limited health services, which increases the sense of vulnerability of local community members; medical assistance is only available once a week.

Vulnerability results from the lack of resources to face uncertain conditions such as environmental hazards, changes in social and economic conditions, as is the case of the ESJ community members. Changes on the conditions, had demanded a change in costumes and local practices, all this requires adaptation and change of perspectives and coping strategies.

6. Final considerations

Throughout this work we have addressed a number of controversial issues regarding the relationship between biodiversity conservation and poverty reduction, as well as the role that tourism can play in solving this equation. Resulting in, on the one hand, a series of insights of interest to those stakeholders and policy makers involved in parks management, local development and/or poverty alleviation. On the other hand, some relevant outputs for the academic debate are also provided, helping to cover some of the existing gaps in this topic.

One of the first relevant considerations derived from the attention to relationship with the context and not just to the observed outcomes. Therefore, when analyzing data it

was observed that people improves their quality of life during the period of the study, particularly in human assets, financial assets or physical assets. It was observed that people have more public and individual assets throughout the evaluated periods. Nevertheless when analyzing relationship, it was observed that it was not the endogenous resources exploitation that fuel the improvement but the local people migration from the *ejido* to the urban area outside of the PA and the income derived from exogenous service sector jobs. So it was previous displacement that is feeding the process.

Displacement is expressed not only in current migration of population of working age, attracted by service sector jobs in urban areas but also the deferred migration of younger people. Again when analyzing data, an improvement in access to education was observed, but if looking for causes it´s noted that the main incentive for a wider involvement in education it´s the expectative of future more successful exit.

The outlook of population decline, particularly the perspective of younger population moving out the common land, is one of the main factors of uncertainty and vulnerability of *ejidatarios*. To this we should add furthermore environmental hazards, limited health services, poor sanitation and infrastructure and, finally, loss of autonomy steaming from new regulations aiming to biodiversity preservation.

Thus, although the park is not the cause of poverty nor is it possible to attribute the exclusive responsibility for the loss of population, it is also true that it has not been able to promote sustainable livelihoods and to contribute significantly to alleviating poverty. Instead, various vulnerabilities and loss of rights associated with its implementation have been identified. In this regard the results adhere to those who point out that the role of parks in local development is negligible and do not contribute to poverty alleviation significantly.

On the role of tourism and despite the proximity to major tourist destinations, it has shown that rural communities can be economically displaced as a result of the existence of barriers to market. That is, tourism is not a source of income per se for rural communities, but that their effective exploitation will require specific actions by the state or NGOs on the ground aimed at facilitating market intermediation and to empower rural communities. Tourism and more specifically ecotourism can be a source of income for parks inhabitants, particularly in areas of the tropics. However, this is unlikely to happen in the absence of specific policies and strategies.

Although at operational level no general recipes are available, there are certain considerations that may be of interest. Firstly, just attending to the polyhedral articulation of sustainability, an flexible and adaptive approach should be adopted. Second, the creation of areas for interaction between stakeholders (at least rural community representatives and managers, but also scientists and NGOs) could improve the design of policies or at least provide a better fulfilling of the residents needs. Thirdly, effective support from the state is recommended to fix opportunities (particularly the touristic ones) in the territory.

We finally consider this article widens the empirical analysis base and creates more room for comparative analysis. When making comparisons, however, it should be noted that context is expected to be not directly translated since key aspects such as market access, land tenure, regulatory framework, local culture, development of the tourism industry, etc, may differ.

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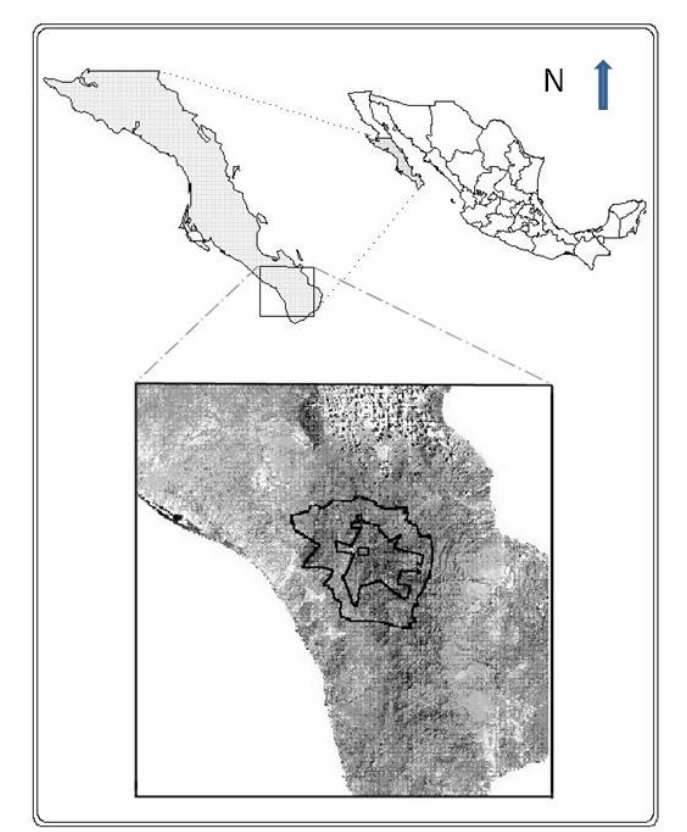
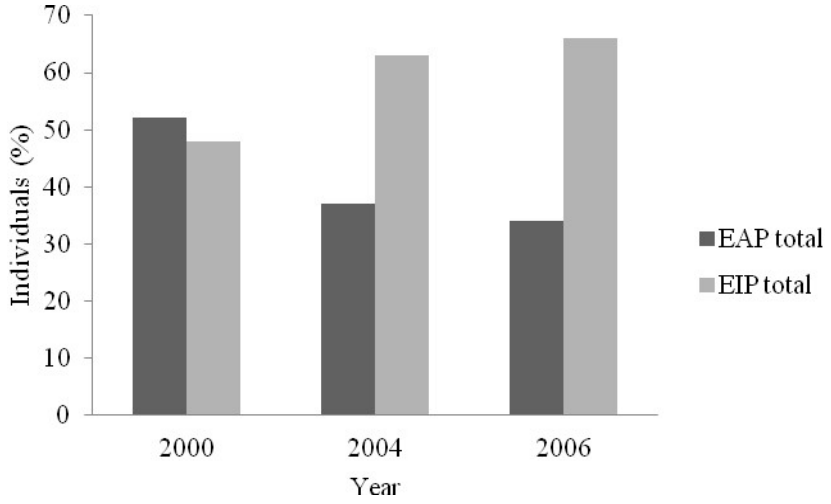
Annex

Figure 2: Location of the REBISLA and Ejido San Jorge.



Source: Own elaboration

Figure 3. Activities undertaken by the people in the study area

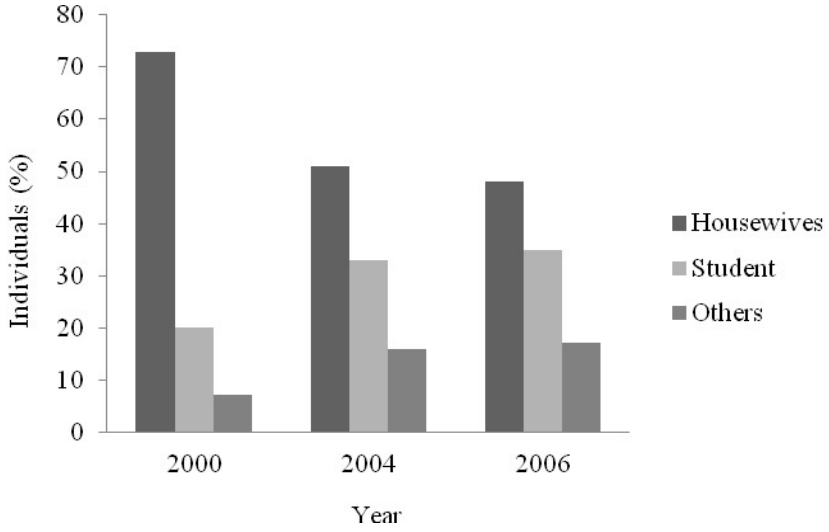


Source: Information from the surveys (2000, 2004 y 2006).

Figure 4: Characterization of the economically active (employed = black bars; unemployed = white bars) and inactive (grey bars) population in the study area.

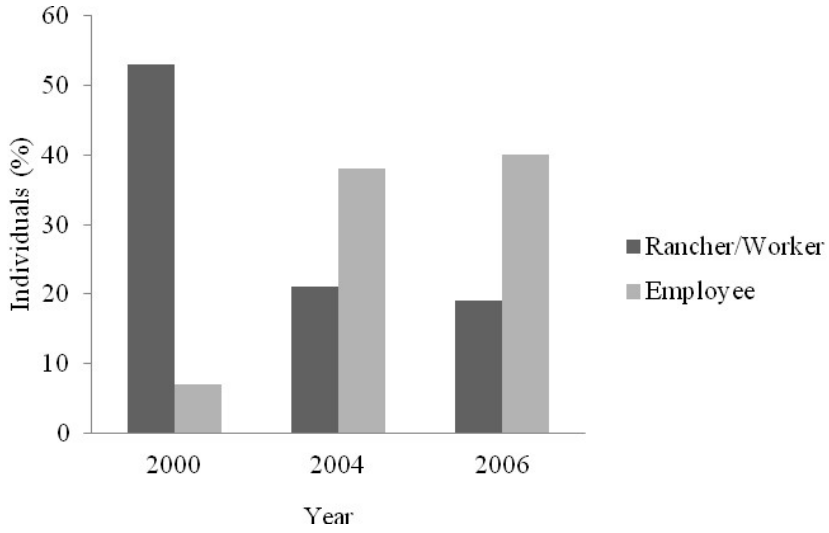
Source: Information from the survey 2006.

Figure 5. Trends on unemployed conditions for population in the study area



Source: Information from the surveys (2000, 2004 y 2006).

Figure 6. Percentage of variation of the two main activities undertaken in the REBISLA.



Source: Information from the surveys (2000, 2004 y 2006).