Evaluation of Governance in the Administration of Protected Areas on the Peninsula of Baja California*

Evaluación de la gobernanza en la administración de las áreas naturales protegidas de la península de Baja California

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ABSTRACT

This article analyzes the incorporation of normative principles of governance in the management of protected areas on the Peninsula of Baja California, Mexico, during the period 2007-2011. A review of the literature permitted an evaluation of the following indicators: effectiveness, efficiency, participation, inclusiveness, and equality. It was found that important changes leading toward improved governance have taken place at the administrative level. However, these changes are still insufficient to bring about greater stakeholder involvement; therefore, continued improvement is necessary for governmental management practices and refining participatory mechanisms.

Keywords: 1. social participation, 2. conservation policy, 3. environmental policies, 4. Baja California, 5. Mexico.

RESUMEN

En este artículo se analiza la incorporación de los principios normativos de la gobernanza en la gestión de las áreas naturales protegidas de la península de Baja California en el período 2007-2011. A través de una revisión documental, se evaluaron la eficacia, eficiencia, participación, inclusión y equidad. Se encontró que la administración presenta cambios que tienden a mejorar su gobernanza. Sin embargo, éstos aún son insuficientes para incorporar a los actores sociales, por lo que es necesario continuar mejorando las prácticas gubernamentales y afinar los mecanismos de participación.

Palabras clave: 1. participación social, 2. política de conservación, 3. políticas ambientales, 4. Baja California, 5. México.

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INTRODUCTION[1]

In the last two decades, discussion has grown about the governance of protected natural areas. This is due to biodiversity conservation problems associated with administrative shortcomings; as a result, improving the governance of protected natural areas is one of the priorities on the international conservation agenda. Also, there is a growing and broader consensus about the importance of incorporating local communities into the management of protected natural areas to reduce the conflicts and resistance that conservation policy has generated among social actors[2] (Abrams et al., 2003).

The normative character of governance has been translated into recommendations focused on improving administrative efficiency and efficacy, making information about the management of the protected natural areas transparent, generating mechanisms of evaluation and accountability, and encouraging social participation (Graham, Amos, and Plumptre, 2003).

The case of Mexican biodiversity conservation is particularly emblematic due to the existence of a close historical and cultural relationship between the local population (in many cases indigenous) and biodiversity (Simonian, 1999). For example, traditional management practices[3] have at times benefited biodiversity conservation and at the same time, the inhabitants depend in large part on its utilization (Toledo, 2001). On the other hand, many of the zones of interest for conservation are *ejido* or communitarian property; as a result, it has been necessary to adapt the model of international protected natural areas (for example, no use) to the Mexican institutional and cultural environment (Brenner, 2012), where use is managed and tied to nature conservation.[4]

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[2] The actors are those subjects, organizations, and institutions that have a series of specific values that give them their own identity and that also possess enough resources to act in the social arena in the defense of their interests at the individual, institutional, or collective level. For the purposes of this study, governmental actors are understood to be the representatives of institutions that exercise government functions and social actors as all nongovernmental actors such as community representatives, civil society organizations, academics, private citizens, and businesspeople.

[3] Historical practices of utilization and management of natural systems and their resources undertaken by indigenous and/or rural populations (IUCN, 2000).

[4] In Mexico, ejidos are rural properties of collective ownership made up of land for common use, with some land parceled out, and other land for human settlement.

In recent decades, protected natural areas underwent administrative changes that modified their governance. Among these was the push for management categories that do not restrict productive activities while having initiated a process of decentralization and deconcentration of conservation policy (Arellano, Fraga, and Robles, 2008). They also modified management guidelines to incorporate the social dimension of conservation and established mechanisms for social participation.

It is important to point out that governance of the protected natural areas includes, on the one hand, the sociopolitical processes where social actors play a central role in environmental management, while on the other hand the administrative practices tend to make management accessible to social actors (Aguilar, 2010). The present study makes reference to the evaluation of management practices from the beginnings of governance: the administration of protected natural areas has been transformed in recent years to improve its efficiency and to establish the incorporation of social actors into the management of the areas.

In this sense, the study has as its objectives: *1)* to analyze the influence of governance principles in the management of Mexican protected natural areas, *2)* to evaluate how these principles are reflected in the daily endeavors of the management of the protected natural areas, examining the case of the areas of the Baja California Peninsula, and *3)* to make some recommendations on how to improve the management processes. The study shows that management changes have taken place in terms of transparency, efficiency, efficacy, and participation, which tend to improve governance. Nevertheless, these changes still are insufficient to incorporate the social actors, making it necessary to continue improving governmental practices and to refine social participation mechanisms.

THE NORMATIVE PRINCIPLES OF GOVERNANCE IN THE ADMINISTRATION OF PROTECTED NATURAL AREAS

The Theory of Governance and its Influence on Public Management

Governance is defined as a new process in the sociopolitical direction that has as its principal characteristic an increase in the interaction between social and governmental actors (Kooiman, 2003), which produces networks of interdependent actors who influence the cycle of public policy. Thus, governance is different from traditional government in the transition from an exercise of unidirectional and

vertical power, that is of government toward society, to a multidirectional one where governmental actors also are influenced by society.

Governance theory arose around the end of the 1980s as an interpretive framework for the new relationships between government and social actors. In these new relationships, social actors played a more active role in the public sphere while governments lost or ceded their dominance in work that previously had been exclusively theirs (Peters and Pierre, 2005). This new relationship between governmental and social actors was explained by several factors: *1)* the financial crises of the 1970s and 1980s that generated the perception that the bureaucratic state was spent, *2)* market liberalization and globalization, which led to cooperation and interdependence between governments, and *3)* new demands of modern societies in areas such as environmental deterioration, gender equality, and respect for human rights. In addition, there was the development of civil society, with a growing number of organizations and citizens interested in public affairs.

In recent decades, governance theory has exercised a strong influence on public administration reforms, which focused on improving efficiency and efficacy while promoting transparency in government endeavors and the incorporation of social actors in the various stages of the public policy cycle. This permeated the environmental sector in particular, because governance was perceived as a propitious way to generate policy answers that incorporated the complexity that environmental problems pose. Some international agencies found in governance theory the elements necessary for democratizing, improving social returns, and revitalizing public administration. In this way, the concept of governance was quickly taken up by the World Bank, the Organisation for Economic Co-operation and Development (OECD) and the United Nations Development Programme (UNDP). These organizations promoted to governments the incorporation of a series of normative principles under the auspices of good governance, which in the opinion of the organizations crystallized best government practices (Aguilar, 2010).

The normative principles coming from governance theory found an ideal public policy arena for their implementation in the environmental sector. This came about as a result of the introduction of the concept of sustainability through the Brundtland Report (1987), where a broad consensus was reached about the complexity posed by environmental problems, which take place at the interface of ecosystem, social, and economic processes (Foladori, 2002).

In the decision-making processes, the complexity of the environmental problems meant that there was not enough information, or that it was too fragmented,

for the problems to be diagnosed. Also, the environmental sector is characterized by the need to make urgent decisions, the existence of values and interests in dispute between actors, and the risks that can come from political decisions. Thus, it was thought that participative processes could provide an effective way of integrating information from various actors into the decision-making process, encouraging communication between them and permitting policy adaptation in a changing context (Funtowicz and Ravetz, 1993).

Governance in the Management in Protected Natural Areas

Protected natural areas are the principal international strategy for biodiversity conservation (Dudley, 2008). It is estimated that protected natural areas cover almost 12 percent of the earth's surface (IUCN, UNEP and WCMC, 2011) and in general rural and/or indigenous populations who have a close economic and sociocultural relationship with biodiversity live in them (Naughton-Treves, Holland, and Brandon, 2005). Additionally, the protected natural areas provide ecosystem services such as the safeguarding of water reserves that supply urban centers, protection of species of economic value, and conservation of potential biological resources (Wittemyer et al., 2008).

Nevertheless, some modalities of protection (Table 1) mean restrictions on the use of traditional resources, which generate conflicts between the inhabitants and administrators (Naughton-Treves, Holland, and Brandon, 2005). One such example is the restrictions that the indigenous Cucupá (also known as the Cocopah) face in maintaining their fishing activities in the Upper Gulf of California and Colorado River Delta Biosphere Reserve. Also, conservation takes into account processes at the ecosystem and landscape levels that are often beyond the legal limits of the protected natural areas and has proposed the protection of biological corridors; this requires the cooperation of neighboring populations (Abrams et al., 2003). However, the declaration of a protected natural area in and of itself is insufficient to assure that conservation takes place; this depends on its management (Dudley, 2008).

One method of improving the administration of protected natural areas focuses on diversification of their management categories. In principle, the protected natural areas are based on preservation that has as its objective the protection of pristine spaces to impede their alteration (Melo-Gallegos, 2002). However, the loss of biodiversity at the world level required the expansion of the international protected natural areas system, which is many cases made schemes of strict

protection impracticable in economic and social terms. At the present time, the platforms that guide international conservation policy promote less restrictive management categories, such as the biosphere reserves (Table 1) that provide for human populations and the sustainable utilization of natural resources (Brenner, 2012).

TABLE 1. Principal Characteristics of the Protected Natural Areas of the Baja California Peninsula

Management category	*Protected natural areas*	*Area (km²)*	*Population (2010)*	*Characteristics of use*
Biosphere reserve	Upper Gulf of California and Colorado River Delta Biosphere Reserve	9 428	5 141	In the core zones, the only permitted activities are environmental education, preservation, and scientific research. In the buffer zones, the development of harvesting activities is allowed.
	El Vizcaíno	25 271	51 211	
	Isla Guadalupe	4 764	92	
	Sierra la Laguna	1 113	409	
	Bahía de los Ángeles	3 880	1	
National park	Bahía de Loreto	2 057	6	Activities of preservation, research, recreation, tourism, and education.
	Cabo Pulmo	70	0	
	Constitución de 1857	51	0	
	Sierra de San Pedro Mártir	734	0	
	San Lorenzo Archipelago	584	0	
Areas of protection of flora and fauna	Valle de los Cirios	25 127	1 993	Activities of preservation, repopulation, propagation, acclimatization, refuge, research, and sustainable utilization of species. Also permitted are the activities of outreach, education, and utilization of resources on the part of communities that inhabited the zone at the time of the decree.
	Cabo San Lucas	50	33	

Source: Authors' calculation based on Conanp (2012).

On the other hand, in terms of conservation, international organizations have recognized some protection systems based on management by nongovernmental actors. In these zones, the local populations have maintained management systems of natural resources that permit biodiversity conservation (Toledo, 2001). Also, civil society organizations develop conservation projects such as the Ramsar

sites, payment for environmental services, and the lease or purchase of land. Also, some economic actors and private property owners assign land for conservation for economic or societal purposes (Graham, Bruce, and Plumptre, 2003).

The presence of social actors in the protected natural areas—such as the inhabitants who stayed inside the territory under protection, civil society organizations, economic actors, and academics—means a new management context for the protected natural areas. The management of the protected natural areas, due to the presence of social actors in protected natural areas under protection or in the interest of promoting the cooperation of the population in neighboring zones, now faces a diversity of actors, interests, and preferences; the traditional centralized and hierarchical management that considered society more as an object than a subject of public policy was inefficient (Abrams et al., 2003).

The management guidelines to improve governance in the protected natural areas are based on: *1)* legitimizing and promoting the participation of the social actors discussed above, *2)* strengthening management capabilities through planning and a consistent legal framework, *3)* improving performance through efficiency and efficacy in the management and development of monitoring and evaluation mechanisms, *4)* promoting accountability through transparency of information of public interest, and *5)* furthering justice through the impartial application of the law and fostering equity in benefits generated by biodiversity (Graham, Bruce, and Plumptre, 2003; UNDP, 1997).

The administration of protected natural areas in Mexico has followed international trends (Table 1). Influenced by the U.S. preservationist model, the first protected natural areas were decreed under the management categories of national parks (Challenger and Caballero, 1998). Nevertheless, this modality quickly found limitations in the Mexican context due to the relationship that exists between the population and zones with high biodiversity and economic costs involving the purchase or expropriation of land. This, added to conservation having been in conflict with the economic policy of the time, meant that the protected natural areas underwent a period of stagnation for a good part of the 20th century (Melo-Gallegos, 2002).

Beginning in the 1980s, the expansion of the National System of Natural Protected Areas (known by its Spanish acronym Sinanp) was reactivated, but with a focus that tried to adapt conservation policy to the social context. The Mexican model of the biosphere reserve was developed, as an area integrating the local population and promoting sustainable development (Table 1). This focus, inclusive

of the population, turned into the dominant model of conservation in the country (Brenner, 2012). Today there are 176 federal protected natural areas, which represent 12.9 percent of national territory (Conanp, 2012) and of these, 94 per cent of the surface under protection is under an inclusive management category. However, despite the relative opening of conservation policy toward society, in practice the incorporation of the knowledge and needs of the local communities in the management of the protected natural areas is limited (Brenner, 2012).

From its formation in 2000, the Comisión Nacional de Áreas Naturales Protegidas (known by its Spanish acronym Conanp) has undergone management and institutional reforms. For example, the institution is in a process of decentralization of functions that tend to strengthen the capacity of state and municipal governments for the creation of protected natural areas. At the same time, the creation of private and community protected natural areas on the part of *ejidos*, communities, associations, or private owners, under a certification process, is being promoted. Also, Conanp developed a process of deconcentration with the creation of nine administrative regions that have as their principal objectives tracking the protected natural areas better and improving management practices in the regional and local arena, both with the different levels of government as well as with the social actors (Arellano, Fraga, and Robles, 2008).

Management changes in the local arena included modifying the procedure to decree a protected natural area to allow social participation and establishing management plans that prescribe management guidelines for the areas; as part of this process, public consultation methods were established to take into account the interests of communities and social actors through participation (Villalobos, 2000). The advisory council also was instituted;[5] it involves actors and sectors interested in the management of protected natural areas. Although the protected natural areas have strengthened their mechanisms of participation, it is possible that they have not been as successful as expected given the conflicts generated in protected natural areas, in particular those where there is a great diversity of interests and actors (Brenner and Vargas, 2010).

With respect to the management, Conanp developed the Information, Monitoring, and Evaluation System for Conservation (Sistema de Información, Monitoreo y Evaluación para la Conservación, known by its Spanish acronym Simec)

[5] For the configuration of the advisory councils, invitations were extended to members of academic institutions, civil society organizations, productive groups, and businesspeople, as well as people with experience in terms of protected natural areas.

to collect strategic information for planning, tracking, and evaluation efforts for conservation; the annual operating plans (AOPs) were established as a planning tool for activities that the management of every protected natural area should carry out annually; the quarterly reports were included to report on the level of management progress; the General System of Annual Operating Plans (Sistema General de Programas Operativos Anuales, known by its Spanish acronym SGPOA), compile the information and established new strategic lines of management that include indirect conservation activities influencing governance such as producing knowledge, promoting the culture of conservation, and managing fundraising and the participatory process (Conanp, 2010).

This examination of the evolution in the management of protected natural areas suggests the need to develop a way of measuring governance in protected natural areas as a first phase of a process of evaluation of the most important instrument of conservation policy. The objectives of this work are: *1)* to study the influence of governance principles in the management of Mexican protected natural areas, *2)* to design an index to evaluate governance in the protected natural areas on the Baja California Peninsula, and *3)* to propose management improvements from the optic of governance.

METHODOLOGY

Evaluation is a pluralistic activity in its purposes, in its object of study, in the actor who implements it, in its scope, in the types of methodology, and in the use of the results (Feinstein, 2007). In this case, through the study of documents, the 12 protected natural areas of the Baja California Peninsula were examined for the 2007-2011 timeframe. The Baja California Peninsula is a biogeographical unit with important biodiversity, environmental heterogeneity, and a low amount of human pressure on its territory (Rosete, Pérez, and Bocco, 2008). It has a network of protected natural areas that represent 29 percent of federal territory under protection, making it an important region for Mexican conservation (Arriaga, Aguilar, and Espinoza, 2009; Riemann, Santes-Álvarez, and Pombo, 2011). Also, these protected natural areas have a wide variety of sizes, management categories, types of ecosystems, and points in time when they were created, giving them diverse managerial contexts.

The methodology of the evaluation is considered to be the analysis of the design, objectives, goals, planning instruments, results, impact, socioenvironmental

trends, institutional capacity, and all that is a subject of interest for environmental management through a systematic methodology that has as its objective contributing information for the decision-making process (Cardozo-Brum, 2006). Thus, although the reach of an evaluation can be broad in its objectives and cover various management phases, this study specifically evaluates the incorporation of the principles of governance in the administration of protected natural areas; as a result, it is considered to be a partial assessment.

A review of the literature found the following criteria utilized for the evaluation of governance: *1)* efficacy, which is based on compliance with management objectives (UNDP, 1997), *2)* efficiency, assessing compliance with management objectives in relation to the resources invested in this work, that is, the cost-benefit relationship (Abrams et al., 2003), *3)* participation, which allows settling potential conflicts between actors and therefore gives viability to conservation in the long term, *4)* social inclusiveness, which generates the appropriate conditions to improve the quality of social participation (Lockwood, 2010), and *5)* fairness, which promotes the perception of justice between the actors so they can make use of the benefits of conservation (UNDP, 1997) (Table 2).

The information used for the assessment of the indicators was taken from official documentary sources such as quarterly reports, annual operating plans, management plans, protected natural area decrees, and budget programming. The budgeting information and the quarterly reports were obtained through an information request made at Infomex and the rest through a review of Conanp's official webpage.[6]

Conanp provided 234 quarterly reports for the 12 protected natural areas in the 2007-2011 period. The reports concentrated on an annual database for each protected natural area through which management goal compliance with annual operating plans was evaluated. This process replicated the methodology of the administrative evaluation that Conanp undertakes of the management of protected natural areas (a process closer to an audit than an evaluation). This result was one of the principal inputs utilized to evaluate efficiency and efficacy. The quarterly reports also had information about the formation of the advisory council, the number of participants, and the development of activities focused on promoting gender equality.

[6] There is some missing data, for example for the Parque Nacional Constitución 1857 (2008) or San Pedro Mártir (2008-2010), because quarterly reports were not undertaken by their management.

TABLE 2. Criteria of the Management Evaluation Index in Protected Natural Areas (PNAs)

Criterion	*Definition*	*Equation*
Efficacy	Level of meeting objectives.	Efficacy = [(activities undertaken / activities planned in the annual operating plan—AOP) * 100]
Efficiency	Ability to meet objectives in relation to available resources.	Efficiency = [(efficacy) * (1-exp - number of established goals in the AOP / regional average of established goals in the AOPs) / (1 + total budget of the PNAs / average budget of the PNAs assessed)]
Inclusiveness	Transparency in the management objectives of protected natural areas and institutionalized mechanisms for social feedback.	Inclusiveness = [(management plan available for the population + PNA decrees available for the population) / (2 + existence of advisory council)] / 2
Fairness	Promotion of the well-being of historically segregated or marginalized population sectors.	Fairness = presence of actions in favor of gender equality
Participation	Intervention of interested or affected persons in the management of the area.	Participation = number of annual participants

Source: Author's calculation based on the collection of the governance criteria proposed by Abrams et al. (2003), Graham, Amos, and Plumptre (2003), Lockwood (2010), and UNDP (1997).

Although the basis of this work is the analysis of quarterly reports in order to triangulate, verify, and interpret the results of the evaluation, informal, unstructured interviews also were conducted with four key people it was possible to consult with: an employee at the operating level, a director of a protected natural area, a regional director, and a national director.

RESULTS AND DISCUSSION

Efficacy

In the period of study (2007-2011), at the regional level management efficacy increased from 80 percent to 87 percent. An increase was seen in the number of goals (from 531 to 798), which include assisting the Federal Attorney's Office

for Environmental Protection (Procuraduría Federal de Protección al Ambiente, known by its Spanish acronym Profepa) in inspections, vigilance rounds, participating in working meetings with other government agencies, and holding informational meetings for the promotion of federal programs or the development of environmental education talks in schools or communities. In theory, the increase in the number of goals represents a greater workload.

The increase in efficacy is in keeping with Conanp's establishment of planning mechanisms (annual operating plans), tracking (quarterly reports), and evaluation (Information, Monitoring, and Evaluation System for Conservation, or Simec). These can in part be responsible for more focused attention on the part of the bureaucracy in developing its work plans and in complying with their established goals; that is to say, activities that previously had been decided upon or established through the administrators' day-to-day work now are established and structured through formal work plans. Also, the increase in the number of goals coincides with the execution of the new lines of management on the part of Conanp, which contemplate both direct and indirect activities in terms of conservation (Conanp, 2010) (Table 3).

Efficacy has a positive effect on the governance of protected natural areas. In principle, the annual operating plans should be aligned with the management plans to develop a process of participation that allows the inclusion of social actors. Also, the daily interaction between management teams and social actors, for example through direct management or the advisory councils, must/should be expressed in concrete conservation activities through the annual operating plans. Also, focusing the bureaucracy on compliance with the goals of the annual operating plans reduces discretion in the development of activities and in the use of human resources and materials. Additionally, this allows evaluating goals met for internal control (inside Conanp) and external control (social accountability). Efficacy may affect governance in protected natural areas because administrative discretion is reduced, accountability capacity increases, and management activities are based on documents resulting from participatory processes (Graham, Amos, and Plumptre, 2003).

Nevertheless, those interviewed said there were some problems with the use of the annual operating plans as a means of evaluation. For example, the annual operating plans were developed before the budgetary allocations were, while compliance with the plans depends on the availability of resources. Also, the annual operating plans do not necessarily list all the activities management undertakes;

this establishes at least two focal points: *1)* when unforeseen changes take place in the environment, those administering the protected natural areas must change their work plans; however, there is no formal mechanism for adapting the annual operating plans, and *2)* in a regular administrative exercise, it would be appropriate for the bureaucracy to invest more time and attention to planning and to linking its activities with concrete management objectives. There is no precise procedure for the operating team of a protected natural area to study the results of their management and work on planning. And in line with Bobadilla et al. (2013), inherent environmental uncertainties of the objective being safeguarded are not included in management plans of the protected natural areas.

TABLE 3. Efficacy* (E) and Number of Activities Planned (AP), 2007-2011

Protected natural area	*2007*		*2008*		*2009*		*2010*		*2011*	
	E	*AP*	*E*	*AP*	*E*	*AP*	*E*	*AP*	*E*	*AP*
Regional total	80	531	88	479	77	933	93	788	87	798
Upper Gulf of California and Colorado River Delta	85	101	-	-	49	70	91	56	73	48
San Lorenzo Archipelago	84	43	60	83	67	106	89	70	49	75
Bahía de Loreto	81	52	87	53	92	88	92	75	81	72
Bahía de los Ángeles	-	-	47	86	67	114	80	82	68	81
Cabo Pulmo	100	53	67	52	68	113	91	129	76	119
Cabo San Lucas	100	53	74	27	53	47	65	37	68	41
Constitución de 1857	100	12	-	-	60	87	70	86	77	88
El Vizcaíno and Ojo de Liebre Lagoon complex	72	29	100	73	55	110	69	58	88	67
Isla Guadalupe	82	85	90	89	83	109	93	134	93	61
Sierra de San Pedro Mártir	45	20	-	-	-	-	-	-	100	82
Sierra la Laguna	85	54	70	87	70	111	74	96	82	99
Valle de los Cirios	76	29	100	15	79	92	96	47	91	46

* Efficacy = (activities undertaken / annual operating plan activities planned) x 100.

Source: Author's calculation using data from annual operating plans and quarterly reports from Conanp (2007, 2011).

Efficiency

In the 2007-2011 period, the protected natural areas of the Baja California Peninsula increased their efficiency from 0.33 to 0.48 (on a scale of 0 to 1). This

indicator contemplated both efficacy as a workload and the budget utilized. In 2011, the protected natural areas had more goals and fulfilled a greater number of them with a smaller budget (Table 4). Thus, an important element for consideration is that between 2007 and 2011, the budget destined for the protected natural areas declined from 30.4 million to 23.1 million pesos, which meant a decrease of the average budget per goal from 57 201 to 28 948 pesos.

TABLE 4. Administrative Efficiency* (AE) and Normalized Administrative Efficiency (NAE) of Protected Natural Areas, 2007-2011

Protected natural area	*2007*		*2008*		*2009*		*2010*		*2011*	
	AE	*NAE*	*AE*	*NAE*	*AE*	*NAE*	*AE*	*NAE*	*AE*	*NAE*
Regional average	0.22	0.33	0.27	0.42	0.3	0.46	0.26	0.41	0.3	0.48
Sierra de San Pedro Mártir	0.08	0.05	-	-	-	-	-	-	0.54	0.94
Isla Guadalupe	0.34	0.57	0.47	0.81	0.5	0.77	0.14	0.18	0.53	0.92
Cabo Pulmo	0.37	0.61	0.22	0.32	0.4	0.58	0.44	0.75	0.43	0.74
Constitución de 1857	0.09	0.08	-	-	0.2	0.33	0.32	0.52	0.35	0.57
Bahía de Loreto	0.21	0.31	0.28	0.44	0.4	0.59	0.31	0.51	0.28	0.44
Bahía de los Ángeles	-	-	0.34	0.55	0.4	0.73	0.57	1	0.25	0.38
Sierra la Laguna	0.15	0.19	0.27	0.42	0.2	0.27	0.17	0.24	0.24	0.38
Cabo San Lucas	0.39	0.65	0.15	0.2	0.2	0.31	0.15	0.2	0.23	0.34
Upper Gulf of California and Colorado River Delta	0.3	0.49	-	-	0.3	0.41	0.24	0.37	0.22	0.33
El Vizcaíno and Ojo de Liebre Lagoon complex	0.05	0	0.28	0.44	0.1	0.11	0.1	0.1	0.2	0.29
Valle de los Cirios	0.12	0.13	0.09	0.08	0.2	0.31	0.21	0.31	0.19	0.27
San Lorenzo Archipelago	0.35	0.58	0.3	0.48	0.4	0.68	0.22	0.32	0.14	0.18

$$*\text{Efficiency} = \frac{[\text{efficacy} + (1 - e^{\text{number of APO goals /Regional average of APO goals}}]}{1 + \text{protected natural area budget /average regional budget for protected natural areas}}$$

Source: Author's calculation using data from protected natural areas budget information, annual operating plans, and quarterly reports from Conanp (2007, 2011).

This increase in efficiency, at the same time as a decrease in the budget, suggests some possible reasons why this could be taken up in future research. For example, this could have been the result of the following: *1)* a large part of the available resources for the management teams were used in an inefficient manner or for activities not called for in the annual operating plans, which is why placing

greater emphasis on the process of planning was feasible with a smaller budget, increasing the number of activities that are called for in the formal planning, *2)* the scope of the goals was reduced, allowing the attainment of a greater number of goals with a smaller budget, and *3)* some of the costs of the operation were outsourced, for example, some activities were performed in a complementary way by social actors, principally on the part of civil society organizations that have increased their presence in the regional environmental agenda.

The protected natural areas with greater efficiency, such as Sierra de San Pedro Mártir, Isla Guadalupe, Cabo Pulmo, and Constitución de 1857, are characterized by their smaller size and a very low or nonexistent population. On the other hand, the Upper Gulf of California and Colorado River Delta, El Vizcaíno and the Ojo de Liebre Lagoon complex, and the Valle de los Cirios have a lower efficiency, only above the San Lorenzo Archipelago (which does not have its own administration). These protected natural areas have greater area and human presence compared with others in the region, and are in a category that allows resource utilization. This shows how factors such as demographics, area, and pressure over resources can bring about an increase in actors, interests, and conflicts, which together can increase complexity for the management team. The management of social participation requires significant economic and human resources on the part of the administrative team, without this necessarily translating into better management results. It will be important to study the effects of the characteristics of local populations, conflicts over the utilization of resources, and the pressure over resources on management efficiency and on the governance of protected natural areas.

Inclusiveness

Results show that in the period of study, the factor of inclusiveness in the region improved from 0.5 to 0.83; that is to say that for 2011, the majority of the protected natural areas have actors interested in the decrees and management plans for their protected natural areas, in addition to having formed an advisory council. These are factors that allow better governance due to their allowing social actors to have basic information about the management of the area and to have a follow-up mechanism for management decisions, which increases participation and management capacity. In the opinion of some of those interviewed, the existence of a publicized management plan is, in general, an indicator of governance in protected natural areas, although in some cases the management plan has not been issued due to conflicts between actors or the lack of agreement over the regulations.

The protected natural areas with the best results are El Vizcaíno and the Ojo de Liebre Lagoon complex, Sierra La Laguna, and Bahía de Loreto, given that they were the first administrative units to have a decree, a public management plan, and an advisory council. In contrast, the areas with the lowest performance are Sierra de San Pedro Mártir and Constitución de 1857 (both national parks) due to their not having an advisory council; following them are Valle de los Cirios, the San Lorenzo Archipelago, Cabo San Lucas, and Bahía de los Ángeles because they lacked a management plan at the time of the evaluation (Table 5). In this sense, a way of strengthening governance in the region is concretize the management plans and the advisory councils in the cases where they are still pending. A pending task will be the qualitative evaluation of the quality of these documents, the results of the advisory councils, accessibility, and the practical usefulness for the social actors.

TABLE 5. Inclusiveness* in Protected Natural Areas, 2007-2011

Protected natural area	*2007*	*2008*	*2009*	*2010*	*2011*
Regional total	0.5	0.6	0.81	0.81	0.83
Bahía de Loreto	1	1	1	1	1
El Vizcaíno and Ojo de Liebre Lagoon complex	1	1	1	1	1
Sierra la Laguna	1	1	1	1	1
Valle de los Cirios	0.75	0.75	0.75	0.75	0.75
Upper Gulf of California and Colorado River Delta	0.25	0.25	1	1	1
San Lorenzo Archipelago	0.25	0.75	0.75	0.75	0.75
Cabo Pulmo	0.25	0.25	1	1	1
Cabo San Lucas	0.25	0.25	0.75	0.75	0.75
Constitución de 1857	0.25	0.25	0.25	0.25	0.5
Isla Guadalupe	0.25	0.75	1	1	1
Sierra de San Pedro Mártir	0.25	0.25	0.5	0.5	0.5
Bahía de los Ángeles	NA	0.75	0.75	0.75	0.75

* Inclusion = [(management plan + protected natural area decree / 2) + Advisory Council] / 2.

Source: Author's calculation using data obtained from management plans, protected natural area decrees, quarterly reports (2007, 2011), and Conanp's official webpage.

On the other hand, the publication of a protected natural area's decree and its management plan constitutes a minimum base of information for the communi-

ties and interested actors. However, Conanp's transparency obligations would have to be expanded to provide for the publication of the annual operating plans and the quarterly reports (or the annual evaluations of the annual operating plans); this could strengthen participation, the processes of social accountability, and incentivizing greater attention on the part of the bureaucracy in its processes of planning, evaluation, and safeguarding of documents.

Fairness

International methodologies propose various indicators for measuring fairness in relation to the development of actions for vulnerable groups such as youths, indigenous people, and women (Abrams et al., 2003). Nevertheless, due to Conanp having only developed one work plan directed at improving gender equality to date, this aspect was selected as an indicator of fairness. The review of the documentary base shows that actions range from providing informal education in matters such as gender equality and the development of productive projects to the incorporation of women in the mechanisms of participation.

The results of this indicator at the regional level show that there is not much variation in the subject matter. Thus, between 2007 and 2011, the indicator shows a slight decline from 0.45 to 0.42, which shows that less than half of the management teams of the protected natural areas undertake any action to reduce the inequality of women in the access to the goods and services generated by conservation (Table 6). Also, it was found that these actions do not correspond to a diagnostic or planning about gender needs; this generates disarticulated work and the lack of follow-up in further management processes.

The protected natural areas with a category of restricted management such as Cabo Pulmo, Isla Guadalupe, Bahía de los Ángeles, Constitución de 1857, and the San Lorenzo Archipelago have administrations that undertake a more constant activity in matters directed at the population that lives in adjacent areas (communities neighboring the zones under protection). In contrast, El Vizcaíno and the Ojo de Liebre Lagoon complex, the Upper Gulf of California and Colorado River Delta, and the Valle de los Cirios (areas with inclusive management categories and a greater population in the region inside the legal limits of the protected natural areas) lagged behind in this rubric. This result appears to contradict the management requirements of inclusive management categories.

The importance of equality for the governance of protected natural areas is that biodiversity conservation can mean restrictions in the use of natural resources

or economic costs, which can generate greater effects on some actors or sectors of the population. Aguilar, Castañeda, and Salazar (2002) say that it is often the case that the sectors with the least capacity to defend their interests, for example resource users who do not own the land in question (as usually is the case with women), face the greatest limitations. Thus, the promotion of fairness has as its end promoting justice in the distribution of the benefits of conservation and avoiding conflicts within the population in the medium term.

TABLE 6. Fairness* in Protected Natural Areas, 2007-2011

Protected natural area	*2007*	*2008*	*2009*	*2010*	*2011*
Regional total	*0.45*	*0.3*	*0.45*	*0.45*	*0.42*
Upper Gulf of California and Colorado River Delta	1	-	0	0	0
San Lorenzo Archipelago	1	1	1	1	0
Cabo Pulmo	1	0	1	1	1
Isla Guadalupe	1	0	1	1	1
Sierra la Laguna	1	0	0	0	0
Bahía de Loreto	0	1	0	0	1
Cabo San Lucas	0	0	0	0	0
El Vizcaíno and Ojo de Liebre Lagoon complex	0	0	0	0	0
Constitución de 1857	0	-	0	1	1
Sierra de San Pedro Mártir	0	-	-	-	0
Valle de los Cirios	0	0	1	0	0
Bahía de los Ángeles	NA	1	1	1	1

* Fairness = presence of actions in support of gender equality.

Source: Author's calculation using data from annual operating plans and quarterly reports from Conanp (2007, 2011).

Participation

Participation is one of the core elements of environmental governance. In this respect, it was found that in the period of study, participation had a growth of 0.37 to 0.67, which means the number of participants grew from 11 327 to 35 025 people. At the regional level, the number of participants tripled in the space of five years. This increase in participation may be due to that from 2007, Conanp implemented the National Strategy for the Promotion of a Conservationist Cul-

ture, which has as one of its objectives incorporating participation as one of the pillars of management. In 2010, the best performance in this area (0.71) was recorded; this fell, however, in 2011.

In general, an increase in the number of participants was observed in all areas. Of these, the protected natural areas that had the best performance on average during the period of study were Bahía de los Ángeles, Bahía de Loreto, Sierra La Laguna, and the San Lorenzo Archipelago (Table 7). In contrast, the lowest performance, on average, was found in Cabo San Lucas, Isla Guadalupe, and the Sierra de San Pedro Mártir. This means that in this case, there does not appear to be a relationship between greater participation and the existence of a management category or a greater number of inhabitants.

TABLE 7. Participation* in Protected Natural Areas, 2007-2011

Protected natural area	*2007*	*2008*	*2009*	*2010*	*2011*	*Average*
Regional total	0.37	0.39	0.53	0.71	0.67	
El Vizcaíno and Ojo de Liebre Lagoon complex	0.85	0.38	0.39	0.91	0.82	0.67
Bahía de Loreto	0.72	0.83	0.79	0.84	0.69	0.77
Sierra la Laguna	0.68	0.67	0.78	0.73	0.79	0.73
Upper Gulf of California and Colorado River Delta	0.38	-	0.38	0.67	0.82	0.56
San Lorenzo Archipelago	0.35	0.68	0.74	0.94	0.81	0.7
Valle de los Cirios	0.33	0.09	0.49	0.9	0.81	0.52
Cabo San Lucas	0.3	0.05	0.14	0.02	0.17	0.14
Cabo Pulmo	0.24	0.12	0.52	0.66	0.61	0.43
Isla Guadalupe	0.17	0.23	0.26	0.54	0.38	0.32
Sierra de San Pedro Mártir	0.03	-	-	-	0.66	0.35
Constitución de 1857	0	0.23	0.59	0.65	0.86	0.46
Bahía de los Ángeles	-	0.66	0.75	1	0.66	0.77

* Participation = number of annual participants.
Source: Author's calculation using data from the quarterly reports from Conanp (2007, 2011).

Although other elements of participation must be studied, the increase in participation is important in and of itself as it means that at the institutional level, management outreach to the local population is being encouraged (for both residents of protected natural areas and those living in neighboring areas in the

case of the national parks). This is a core element for strengthening governance. Nevertheless, our study did not allow us to find out whether more participation has brought improvements, or whether, to the contrary, it has just made the administrative process more complex; a qualitative study needs to be made to determine the impact of participation on management. Still, participation in protected natural areas can improve communication between actors, settle conflicts, and add social resources to the work of government, becoming an essential interest of management.

Changes in Governance at the Management Level

Between 2007 and 2011, the administration of the protected natural areas of the Baja California Peninsula performed better than before in relation to the incorporation of the principles of governance in its work (from 0.51 to 0.64). This means that in general, management teams are more efficient, efficacious, inclusive, and fair, and undertake a broader promotion of participation (Table 8).

The protected natural areas with the best results are Isla Guadalupe, Cabo Pulmo, and Constitución de 1857, driven principally by their strength in efficiency and efficacy. This contrasts with the case of El Vizcaíno and the Ojo de Liebre Lagoon complex, the Upper Gulf of California and the Colorado River Delta, where in terms of their management categories, it would be expected for there to be a management team with characteristics more in tune with governance principles; they maintained a level below the regional average principally due to a lower management rating in terms of efficiency and efficacy, performing the least number of activities at a higher cost than the average in the areas studied. This could be because the demographic and productive characteristics of these protected natural areas present a greater administrative complexity than the protected natural areas of a lesser size, population, and diversity in the use of their land and sea. The management teams lagging the most are Cabo San Lucas and the San Lorenzo Archipelago, which can be explained by their lack of economic and human resources for their operation.

The results of this study show that the management reforms implemented by Conanp had an impact in management practices at the local level. The management teams of the protected natural areas of the Baja California Peninsula increasingly are conducting operations more in line with governance principles. Nevertheless, it is important to differentiate the normative basis of governance as a series of management practices tending to make management accessible to social

actors, and governance as a sociopolitical process where social actors play a central role in the management of protected natural areas (Aguilar, 2010).

TABLE 8. Governance* Evaluation Index (GEI), 2007-2011

	GEI				
Protected natural area	*2007*	*2008*	*2009*	*2010*	*2011*
Average	*0.51*	*0.54*	*0.59*	*0.64*	*0.64*
Upper Gulf of California and Colorado River Delta Biosphere reserve	0.61	-	0.45	0.6	0.57
San Lorenzo Archipelago	0.62	0.68	0.75	0.75	0.43
Bahía de Loreto	0.57	0.8	0.68	0.66	0.76
Bahía de los Ángeles	-	0.66	0.76	0.91	0.67
Cabo Pulmo	0.65	0.31	0.74	0.86	0.81
Cabo San Lucas	0.5	0.28	0.36	0.34	0.41
Constitución de 1857	0.31	-	0.37	0.62	0.73
El Vizcaíno and Ojo de Liebre Lagoon complex	0.49	0.59	0.4	0.52	0.6
Isla Guadalupe	0.58	0.59	0.78	0.7	0.86
Sierra de San Pedro Mártir	0.17	-	-	-	0.68
Sierra la Laguna	0.71	0.56	0.54	0.53	0.6
Valle de los Cirios	0.4	0.41	0.65	0.59	0.56

$$*\text{Governance} = \frac{(\text{inclusion} + \text{fairness} + \text{participation}/3) + (\text{efficacy} + \text{efficiency}/2)}{2}$$

Source: Author's calculation using data from protected natural areas budget information, annual operating plans, quarterly reports (2007, 2011), protected natural area decrees, management plans, and the official webpage of Conanp.

The practices that management develops in protected natural areas are only one of multiple factors involved in the governance of the protected natural areas, such as the political history of the region, characteristics of social organization, interests and conflicts in the area, types of actors and the resources available to them, among others. The efficacy, efficiency, fairness, inclusiveness, and promotion of participation constitute a minimum basis for governance in these protected natural areas; nevertheless, this goes beyond governmental practices. Also, it is probable that best governmental practices have an effect on conservation that could be evaluated in the medium term.

RECOMMENDATIONS

One proposal for improving the efficiency and efficacy of the administration of protected natural areas is based on improving the planning and evaluation processes. There is no formal procedure where local administrators review their annual evaluations and assess the goals, achievements, indicators, strengths, and weaknesses of their management. In this sense, the administrators are losing a valuable input to encourage the bureaucracy to learn more and improve management (Abrams et al., 2003; Hockings et al., 2006).

The development of a procedure or guidelines for annual planning is recommended. This can be important for improving the quality of the annual operating plans, and, in consequence, their efficiency. An alternative would be to conduct a participative planning workshop among the management teams in the area, where some key actors could be included (Hockings et al., 2006). Another related problem is that the annual operating plans are put together before the budgetary allocation is made; thus, resources being sent for the operations of protected natural areas do not match the requirements set forth by the annual operating plans, generating a basic shortcoming in planning; this means that a mechanism must be sought to reduce the breach between planning and the budget for implementing it.

In some cases, the protected natural areas can undergo unforeseen changes in their social and environmental settings. One of those interviewed said, for example, that as a result of a fire in the area where he worked, activities called for in the annual operational plan were modified, resulting in a negative evaluation at the end of the year. Thus, it is recommended that a mechanism be developed to allow changes in an annual operational plan in case of extraordinary circumstances. This is a clear example of the need to incorporate a factor for the unexpected; this, however, is poorly understood by the applicable auditing systems in the country. According to Lockwood (2010), managerial adaptation to the environment, in addition to increasing efficiency, improves the resilience of the protected natural areas.

Between 2007 and 2011, the protected natural areas of the Baja California Peninsula had a budgetary reduction of 24 percent. Economic resources are an indispensable input for the development of the activities. For example, Feinstein (2007) says that if governmental intervention does not match the size of its objective, it generates a sufficiency problem. Consequently, when it comes to budgeting, it will be necessary for attention to be paid to the magnitude of the objectives of the protected natural areas.

Having access to information that identifies management functions is an important factor for improving the inclusion of participants and those interested in protected natural areas. For this, it is proposed that the transparency obligations be broadened to cover the yearly publication of the annual operating plans.

It is suggested that a diagnostic should be made about the situation of inequality of women, young people, and indigenous groups, which would allow the eventual development of a working plan. With respect to that, Aguilar, Castañeda, and Salazar (2002) indicate that if diagnostics do not exist that concretely show the situation of inequality of women and other vulnerable groups, it is not feasible to improve their access to the benefits of biodiversity.

CONCLUSIONS

In the last two decades, a series of reforms in the conservation sector has been carried out, channeled to increase administrative efficiency and efficacy, as well as incorporate social actors in the management of protected natural areas (Arellano, Fraga, and Robles, 2008). In the period of study (2007-2011) it was found that those managing protected natural areas of the Baja California Peninsula improved their efficacy and efficiency. This is because management teams have increasingly fulfilled a greater percentage of their operations, even when the number of management operations rose while the budget for their implementation fell. Nevertheless, it is necessary to overhaul the planning and evaluation process to improve its consistency in light of planned operations and available resources and encourage the use of the evaluations and experience gained through the administrative exercise. These can include inputs for feedback, educating the bureaucracy, and the consideration of unanticipated changes that can occur in the environmental system.

Additionally, inclusiveness and participation have improved. This has been the result of a greater transparency in the guiding management documents and of the impetus from formal mechanisms of participation (public consultation and advisory councils). Consequently, there is a clear increase in the number of people involved in management. However, to improve the quality of social participation it is necessary to make accessible to the social actors important information, such as the annual operating plans, about the management of protected natural areas. Also, an outstanding issue is the promotion of fairness, which is an indispensable condition for sharing the benefits that biodiversity generates and maintaining conservation in the medium term.

The main methodological limitation was the documentary sources. The information was based on the governmental perspective (with its own reports of activities) and the most abundant data was generated in the appraisal of management outcomes, and sources of information about the diagnosis, planning, and impacts of management are scarce. As a result, the sources of information cannot be very critical about the management. Nevertheless, this same documentary base contributes a source of robust, systematic, and measurable information over time, which can be considered by social as well as governmental actors interested in assessing changes in the management of the protected natural areas. Also, the methodology allows the examination of management trends at the regional level and provides a frame of reference for the research in terms of the evaluation of the protected natural areas in the local arena.

One of the limitations of this study is the number of interviews that could be conducted; although they were with key people with broad experience in the regional protected natural areas, further study could be enriched taking into account the opinions of social actors about management sector changes. A second stage could study the finer details about the management of protected natural areas, following proposals such as that of Pomeroy, Parks, and Watson (2006).

In this study, it was found that, at least in the region with the greatest amount of protected natural areas in Mexico, management changes have occurred that tend to improve the areas' governance. Nevertheless, these changes are still insufficient in terms of the incorporation of social actors, making it necessary to improve governmental practices and to refine mechanisms of participation. It will be necessary to study the network of social actors who participate in the protected natural areas, the characteristics of their participation, and to explore the relationship between these new management processes and their effect on conservation to improve understanding about the sociopolitical system in the conservation sector. Finally, equivalent studies in other regions of the country should be conducted to compare and differentiate types of problems in terms of governance and its relationship with diversity in social and environmental contexts.

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