Use and management of natural resources in Argentina's protected areas

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An analysis of the historical development of protected area management in Argentina and the challenge of moving towards multiple, sustainable resource conservation and use.

Introduction

Despite Argentina's reputation as a major agricultural producer, more than 80 percent of its territory is uncultivated. This area of 279 million ha consists mainly of grazing lands and productive woods and its value lies in its living resources - the pastures, savannahs, scrub and forests. Closed humid and dry open forests today account for 36 million ha, one-third of their original size, and forest plantations cover approximately 760000 ha (Di Pace, 1992).

Argentina's natural characteristics are therefore similar to those in the rest of Latin America: a 1988 FAO study of the continent established that cultivated land accounted for a mere 10 percent of the total land area, while potentially or currently productive land and natural forests covered some 76 percent. This does not mean, however, that the continent - and in our case, the country - is uninhabited. With the exception of the high Andean peaks, the whole of the territory is populated (population density is proportional to the per hectare productivity of each region) and capital investment is very low.

Figure

In this context, Argentina's protected areas cover 13 million ha, 4.7 percent of the national territory. Being a federal republic, each of its 23 provinces has the right of decision over land use in its territory. Thus, protected areas fall under provincial or federal jurisdiction, with the latter administered by the National Parks Administration.

Data provided by the National Network for Technical Cooperation in Protected Areas show that those under federal jurisdiction comprise 26 administrative units, covering 2.8 million ha, while those under the provincial authorities (including the municipalities, universities and privately held land) number 184 and cover 10.2 million ha.

A view of Nahuel Huapí National Pork In Argentina

Some 22 percent of the total protected area (national and provincial parks) is strictly protected - productive activities are banned and people are admitted only as visitors. The remaining area comprises non-exclusive categories that allow the presence of settlements, crop and livestock farming or forest logging, etc. Most of this land is "multipurpose", "managed" or "biosphere" land or (in the case of land under federal jurisdiction) "national reserve" (IUCN, 1984; NPA, 1991), whose role is to act as a buffer zone for the national parks.

History of natural resource use in protected areas

Latin America's first national park, Nahuel Huapí, was established in the forests of Argentina's southern cordillera in 1922. The National Parks Department (now Administration) was created in 1934, as were the great parks of this southern region with its many lakes, mountains and forests. The only other park established in the country at about that time was the Iguazú National Park, created around the famous falls which are today a World Heritage Site.

By 1968, there were already 14 national parks covering 2.4 million ha although only 150000 ha (6 percent) were located outside the Patagonian forest region and these were organized into seven very small units. The conservation objectives at that time were not related to biodiversity, genetic resources or ecological sustainability but rather to safeguarding these exquisite landscapes against the risks inherent in private, discretional ownership (Bustillo, 1968).

In those days, protected area initiatives were exclusively a federal undertaking: it was not until the 1970s that "things started to happen" at the provincial level. In the 22 years from 1970 to 1991, national parks expanded by an average of 16000 ha annually, while protected areas under provincial jurisdiction increased by an average of 415000 ha per year. In 1970, 86 percent of protected areas were under federal jurisdiction but, by 1991, they accounted for only 22 percent of the total.

Given this situation, any analysis of resource use in protected areas up to 1970 must focus almost exclusively on what was taking place in the national parks of the southern cordillera - concession logging in public forests and livestock raising on large, privately owned ranches or precarious squatter settlements, i.e. the same activities that had taken place prior to the establishment of the parks. The new use, firmly encouraged by the National Parks Department from 1934, was tourism, backed by large-scale state investment in road, transport and hotel infrastructure in these out-of-the-way regions of the country.

The National Parks Department was a pioneer in the southern cordillera - not only developing tourism, with the town of Bariloche as its focal point, but also acting as a settlement agency, building schools and churches and providing other essential public services. In the early days, tourism promoters sought to attract a select, international market but, later, as popular governments came to power, the focus shifted to popular tourism - in both cases with a high degree of subsidization.

An extension worker (standing) bike with the president of a cattle, llama and alpaca production cooperative located in the Laguna de he Pozuelos Biosphere Reserve, Argentina

Attempts to ban livestock activities in the parks were only partially successful and were mainly at the expense of squatter settlers who were without legal or political backing. Forestry activities were maintained, with concessions being monitored and efforts made to improve the activity, although these were based on forest transformation using species from the Northern Hemisphere. Some plantations (now more than 60 years old) introduced into the native southern beech forests (*Nothofagus* spp.) still bear witness to this policy.

In the late 1960s, the North American concept of national parks began to make itself felt and forestry activities in the national parks were restricted. In 1968 a new National Parks Act was promulgated which, for the first time, introduced different categories of protected areas and established national reserves, whose role was to act as a buffer zone around the parks. These national reserves were fenced off and the livestock and forestry activities were transferred there from inside the park. Notwithstanding the Act, there are still some national parks which are partially inhabited and many of the provincial protected areas have problems with occupation and use of land in a way that is not compatible with conservation objectives. In most cases, however, it is a question of a few dozen families per protected area, a less serious problem than similar challenges facing protected areas in Central America, Peru and Brazil.

At about the same time, forest reserves were established outside these traditional protected areas, both in the south and in the Chaco and Paraná subtropical forests. These reserves, institutionally and physically separate from the national parks and reserves, were under the jurisdiction of the Forests Department, later called the National Forestry Institute.

Even though the main criterion for forest improvement in the country has always been replacement by quick-growing exotic species, a considerable amount of knowledge on the commercial qualities, propagation and cultivation of native species has been obtained thanks to technical work undertaken in and through these forest reserves. Unfortunately, efforts to develop our native forest resources have rapidly decreased since the 1970s (in parallel with

the decline in federal guidance in the sector). Instead, exotic pine and eucalyptus are now planted by the private sector, particularly the pulp and paper industry. The impact of this gradually spread to the forest reserves where, today, trials, permanent plots and forest management plans have virtually been abandoned.

Natural resource use and management in protected areas today

As noted above, non-exclusive categories officially account for the vast majority (78 percent) of Argentina's protected areas. They were intended as managed land-use models, but little significant progress has been made along these lines. Let us now take a look at the situation by natural resource type in view of the fact that these resources have always been used sectorally by separate institutions.

Recreational resources

Tourism development efforts in protected areas have been confined to those of the National Parks Administration in the parts of the country with particularly high potential: the southern forests and lakes (particularly the Nahuel Huapí National Park) and the Iguazú Falls. Today, each of these receives about 300000 visitors every year.

More recently, recreational resources have been protected and developed through independent provincial initiatives. The most outstanding example is that of the Chubut province in Patagonia, which has established its own system of coastal protected areas for large marine birds and mammals (such as seals and sea elephants, right and killer whales, penguins and seagulls) which make their way there year after year, fuming the area into a major tourist attraction. Other provincial initiatives started during the past five years are prospering in regions as far afield as the central Andes (Mendoza) and the Paraná forest (Misiones), not far from the Iguazú National Park. The provincial governments have combined the establishment of new protected areas with appropriate legislation and active tourism-promotion drives.

Recreation is the only use permitted by law in certain categories of strictly protected areas, including national monuments, and service infrastructure must be developed outside the borders of these areas, for example in the surrounding buffer zones.

Forest resources

Forest resource use in federal protected areas, on a concessional basis and under the supervision of the National Department of Protected Areas, is currently restricted to five managed areas (each no larger than 1000 ha) in the southern national reserves. These activities are conducted under very good technical control but their annual output (between 10000 and 20000 m^3 of roundwood) is low. Fuelwood is also produced, although only for local use. The authorities assign top priority to conservation while forestry development, although permitted by law, is not encouraged.

Parts of the national forest reserves in the southern and the northern subtropical forests Paraná and Chaco), administered by technological institutes or universities, are or have been under experimental management. Some were isolated short-term experiments; other more recent ones are still under way. Some very limited efforts of this type have also been undertaken in provincial forest reserves.

The waterfalls in the Iguazú National Park, visited by 300000 tourists each year, have been designated a World Heritage Site

Fodder production

The protected areas have made relatively little contribution to expanding sustainable use of

ecosystems for livestock production, but this does not mean that they cannot be used for this purpose. Very little of Argentina's territory is unsuitable for livestock; livestock raising is possible, and indeed even recommended, on the best lands of the Pampas (combined crop and livestock farming). In a totally different type of ecosystem, livestock raising in woodland areas has even made inroads in the subtropical rain forests (for example, in Las Yungas, northern Argentina).

Vast arid, wet or highland regions are suitable for livestock raising based on the use of pastures, brushwood and xerophile or scrub forests. However, poor management practices and the lack of investment in fencing and water supplies are so common (except for a few worthy exceptions) that land degradation caused by overgrazing is today one of Argentina's most serious ecological problems. The only areas that are still relatively unaffected by this phenomenon are highly stable natural areas such as the Pampas. Existing protected areas within those ecosystems, the most extensive in Argentina, have practically never - except in a few experiments - played their true role as stable, model livestock management areas.

Wildlife resources

As regards the use of wildlife, which in Argentina is of major commercial and recreational significance (but not so widely used for food), the protected areas have once again failed to play a major role as wildlife reserves and even less as sustainably managed pilot areas. Hunting regulations and controls do exist, and technical experiments have been conducted, but not within the legal and institutional framework of the protected areas. One exception concerns the management of exotic wildlife (European deer, wild boar and hare) for recreational hunting in the southern national reserves and the provincial reserves in the Pampas. Private farms are also making increasing use of these resources for hunting in the hope that they will be more profitable than traditional livestock.

Multiple use of resources

Productive activities have traditionally been based on a single resource (timber, firewood, wildlife, etc.) and the possibility of combining several such activities in a single area has remained virtually unexplored. Even on public land, the settlers who hunt and collect forest products belong to different ethnic or social groups from those (in the Chaco, for instance) who raise livestock. Although the advantage of multiple use is generally acknowledged, experience in mixed schemes (agroforestry, silvopastoralism, livestock and hunting) has been limited to short-term or isolated experiments.

The National Department of Protected Areas is promoting rural development in the southern forests of the Lanín National Reserve, which is home to indigenous Mapuche settlements

The authorities in charge of protected areas are beginning, albeit in a rather limited manner, to look into the question. About six years ago, the National Department of Protected Areas began promoting rural development in the Lanín National Reserve's southern forests which are home to indigenous Mapuche settlements (Osidala, Romero and Corvalán, 1992). The Mapuche are receiving assistance in fodder improvement, subsistence crop cultivation, cottage industries and tourism services. In response to the concern voiced by the Mapuche, small-scale timber and firewood marketing enterprises were also set up and began operating in 1993.

At the other end of the country, in the high plateau area stretching towards Bolivia, the Laguna de los Pozuelos Biosphere Reserve, managed by a council of institutional and community representatives, is implementing activities to improve the pastures for sheep and llamas and developing local cottage industries (García Fernández and Tecchi, 1991). There are good

hopes that other protected areas in various parts of the country will also get involved in the natural resource multiple-use plans now in the pipeline.

Funding and financial returns

Tourism is, by far, the largest income-producing component of the country's protected areas, although detailed statistics are not available. Over the past four years, increasing attention has been given to the concept of at least partial self-financing of national parks. Historically, administration of these areas was financed by government - income from concessions was more symbolic than real. Today, there is a move to increase income through the granting of concessions and use rights as well as from entrance fees charged by the parks. Nonetheless, the income generated from natural parks does not return to the parks themselves or to local administrations; rather, it goes into the central state coffers. In some of the provincially managed protected areas - for example those of Chubut and Mendoza - there is a move to devolve tourism-generated revenues directly back to the park administrations.

Assessment and prospects

We have covered vast and diverse regions of a country which, two or three decades ago, was thought to be an inexhaustible source of natural resources. The fact that, until 1970, a mere 1 percent of the territory had been designated as protected area is a reflection of this. Now, 20 years later, and with greater awareness of what is at stake, the proportion of protected areas has risen to 4.7 percent. Although satisfactory in terms of quantity, the quality of what has been done leaves much to be desired. Let us now look at the conclusions to be drawn from our review and at the prospects for the future.

In Latin America, where the plundering of forest resources has resembled the pillaging of the conquistadors during colonial times, the conservation movement was initially very distrustful of protected area management plans, particularly those calling for continued use of natural resources. The reaction of commercial resource users, who viewed reserve demarcation as the confiscation of potential sources of income, was also hostile. This is why the dialogue and efforts between opposite extremes, even though both are theoretically in favour of sustainable development, is a difficult and painfully slow process. It is therefore not surprising that the "appropriate use of natural resources" is a concept that has not been overwhelmingly successful either globally or in Latin America (Wells and Brandon, 1993) and even less so in Argentina, as our review shows. While the size and proportion of the non-exclusive protected areas are considerable, improvements in resource use have been minimal in comparison.

Given Argentina's ecological and socioeconomic conditions, its vast areas with very low human sustenance capacity and the extensive, low-input technologies available for the sustainable use of natural resources, forestry activities in the natural forests, extensive livestock farming, forest wildlife management, ecotourism and viable combinations of these should be widely disseminated and their socioeconomic value promoted, but this is still far from being the case.

With the dynamic growth of ecotourism and its variants worldwide, this clever combination of wildlife conservation and the development of its appeal as a tourist resource is a land-use option that is becoming increasingly important in Latin America. Good examples of its development can be found in Brazil, Costa Rica, Ecuador and Guatemala. With appropriate ecological and social sensitivity on the part of local government, ecotourism has the potential to generate a variety of employment sources for local populations in communities surrounding protected areas.

Ecotourism schemes can also help to compensate local people for the opportunity costs of hunting restrictions, wood-cutting bans and other resource uses that are judged incompatible

with the creation of, for example, a national park. However, it is important to note that such compensation does not happen automatically; instead, efforts are required in extension and in the provision of incentives for local populations until tourism activities begin to generate income.

The development of underutilized land-use options would contribute to the reduction of the opportunity costs associated with the maintenance of protected areas. At the same time, the use of cost/benefit analysis as a tool for resource-use planning in protected areas would lend the necessary transparency to financial evaluations, thus permitting an evaluation of how to cover the costs of certain activities with the financial gains generated by others.

Conservation concepts (not so much biodiversity as those regarding the productive potential of natural resources with a view to sustained yields) have traditionally been considered rather avant-garde in agrarian and forestry scientific circles. This was the context in which protected areas were established as experimental stations, particularly for fodder and forest resource management. The experiments were, however, done on too small a scale and lacked continuity. Moreover, such stations were virtually never concerned with resource use, except in the southern national reserves noted above.

The result is that experiments of great personal or institutional merit have been and still are being undertaken, but their lack of continuity and isolation have not led to a consolidation of technological expertise in natural resource (particularly forest) management to make this a valid sustainable development option for the region as a whole. On the contrary, there is strong pressure to substitute introduced species for those natural resources whose yield potential under sustained management, and response under improved management, are still unknown (Burkart, 1993).

The current range of non-exclusive categories of protected areas - enclosed parcels of land which possess better-defined legal and administrative instruments than the rest of the territory are useful areas as a laboratory - not only for testing appropriate technology for the judicial use of natural resources, but interinstitutional comanagement practices, aimed at combining functions and objectives which might have run parallel or clashed in the past but which, in the sustainable development context, must exist side by side.

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