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**Integrating Biodiversity into the Tourism Sector:
Best Practice and Country Case Studies
The case of Chile**

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1. OVERVIEW OF PRESENT STATE OF TOURISM DEVELOPMENT IN CHILE

1.1 Relative importance in the national economy ¹

During the period 1989 - 1998, the evolution of tourism in Chile has been clearly positive. In this period receptive tourism increased 120.3% and emissive tourism 74.9% (both in number of tourists). In the same period the foreign currency income generated by tourism increased from US\$ 407 millions to US\$ 1,062.1 millions (161%) and the expenditure of emissive tourism also increased in a relatively similar amount (128.1%). Considering these values, Chile is ranked ninth in arrivals to America and 12th in terms of tourism income.

This positive evolution of tourism in Chile during the last decade is also appreciated by the average individual daily expenditure of foreign tourists. This average increased from US\$ 38.8 in 1989 to US\$ 52.3 in 1998. Most of foreign tourists are from Argentina and during the period 1989 – 1998 the number of persons coming to Chile has almost duplicated, with a 91% increase. However, during the same period, European tourists have increased from 70,800 to 215,600 persons and, most important for the national economy, they have a larger and increasing individual daily expenditure, their average permanence in Chile being almost twice as long as that of tourists coming from American countries. In 1998 the number of arrivals from Europe was 12.3% of the total, but these arrivals accounted for 24.6% in terms of the total income.

Domestic tourism in Chile is very important within the total tourism demand (39.5% of the total demand). During the last 10 years, Chile had a sustained and fast growing economy, with an average rate of 7.3%, allowing a larger expenditure capacity in tourism activities for the national population. One of the best indicators of the growing domestic tourism is the vehicular circulation measured through toll payment. For the period 1991 – 1995 this circulation increased 41.2 % for private automobiles and 45.7% for public transportation.

Another positive sign of tourism in Chile is the growth of private investment in tourism. During five years (1994 – 1999) the private investment reached a total US\$ 571 million, distributed in similar annual amounts. As a consequence, the number of hotels and motels increased by 70% and the travel agencies by 71.5% during the last ten years (1989 – 1998).

Projections are even more optimistic. The new on going tourism projects within the country were 34 (to December 1999) with a total investment of US\$ 173 million, and there were also 12 new on going tourism condominium projects with a total investment of US\$ 3,184 to December 1999. Projected investment is still larger, with a total of 48 projects under study, for a total investment of US\$ 1,714 million.

¹ Based on statistics of the National Tourism Service of Chile, December 2000

A recent study has demonstrated that tourism in Chile is also important as a source of employment. In 1999, almost 160,000 persons were employed by activities related to tourism, including lodging, restaurants, transportation, travel agencies, car rental, entertainment, tourist commerce, and hand crafts. This employment represents 3% of the total labor within the country and is highly concentrated in the restaurant sector (48%).

According to national statistics, in 1999 a total of 5,807,811 persons used lodging facilities across the country (Table 1). Almost 64% of these persons were nationals, while the rest were foreign tourists. An important proportion of the total have been concentrated in Región Metropolitana (28%), where the Chilean capital is located, strongly influenced by the arrival of foreign tourists. Of the total number of persons using lodging facilities in Región Metropolitana, 72% were foreign people.

Table 1. Number of persons (national and foreign tourists) using lodging facilities by geographical regions (from North to South) in 1999²

Geographical Region	Nationals	Foreign	TOTAL
Tarapacá (I)	323.872	121.8644	445.736
Antofagasta (II)	270.950	89.706	360.656
Atacama (III)	164.452	11.968	176.420
Coquimbo (IV)	386.346	80.232	466.578
Valparaíso (V)	412.152	214.967	627.119
Metropolitana	456.535	1.168.592	1.625.127
O'Higgins (VI)	97.955	7.733	105.688
Maule (VII)	231.029	19.491	250.520
Bio-Bio (VIII)	537.680	55.803	593.483
Araucanía (IX)	316.182	75.163	391.345
Los Lagos (X)	400.171	181.557	581.728
Aisén (XI)	48.358	17.093	65.451
Magallanes (XII)	54.618	63.342	117.960
TOTAL	3.700.300	2.107.511	5.807.811

1.2 Relative priority in national planning policy

Tourism is recognized an important activity in the Strategies of Regional Development³. It is mentioned specifically that there is the need to stimulate tourist activities and associated services, supporting overall socio-economic development. The national planning policy recognises the effects of tourism on different activities such as transportation, commerce, hand crafts, recreational and cultural, which create a dynamic effect on labor and local

² National Tourism Service and National Institute of Statistics. 2000. Chile. Tourism Annual Statistics 1999

³ Strategies of Regional Development Ministry of Planning 1995

development. According to national policies, tourism is an important contribution to the utilization of local potentialities.

Several activities are planned to implement national policies, including inventories of tourist resources and potential uses, and the preparation of several projects of tourist investments. Of great importance also is the development of an educational programme to promote tourism and to protect the clients, those who receive the services.

1.3 Institutional structure of tourism government planning and policy

The National Tourism Service (SERNATUR), established in 1975 under the Ministry of Economy, is the public body in charge of proposing tourism development strategies to the Chilean government. Within this framework, the Service is responsible for defining and implementing the action plan. The major mission of SERNATUR is to orient and consolidate tourism development in Chile, stimulating transparency in the competitive tourist market ⁴. This mission is developed from the tourist supply perspective (involving managers, workers and investors) and from the tourist demand perspective, including the social dimension and the improvement of life quality.

Following a general governmental policy, the National Tourism Service is promoting a decentralized programme. Each administrative region of Chile (13 in total, along the whole country) is formulating regional policies to implement national goals, under homogeneous criteria and principles. Some of these criteria and principles are the following ⁵:

- a. Coherence with national policies and with regional development strategies.
- b. Participation and institutional co-ordination of different regional sectors and stakeholders, such as regional and local government, universities, different public organizations, and the private sector.
- c. An integral and multisectoral vision, in order to bring together different productive sectors and services, and to promote coordinated plans among the different administrative regions.
- d. Amplitude and focalization, so as to cover the different ambits of tourist activities, but at the same time oriented to specific items.
- e. Prioritisation of actions, considering the scarcity of human and financial resources.
- f. Differentiation, in recognition of particular geographic and cultural characteristics of the different administrative regions.
- g. Territorial hierarchy, in order to include the heterogeneous tourist opportunities within each region.
- h. Financial rationality, considering the viability of obtaining the necessary funds.

⁴ *National Tourism Service. 1998. National Policy of Tourism. Ministry of Economy of Chile*

⁵ *Rivas, H. and V. Silva. 2000. Recommendations to prepare Regional Policies of Tourism. National Tourism Service. Department of Planning*

- i. Environmental sustainability to assure compatibility between tourism development and quality of life.
- j. Control and evaluation, developing monitoring process to analyze the effects of the proposed policies and activities.

1.4 Dominant types of tourism practiced

In Chile, the dominant type of tourism is conventional tourism, such as beach, gastronomy, shopping, conventions, hand crafts, casinos, sports, and other similar activities. Cultural tourism is also important and apparently increasing in some regions of the country, such as in the north and in Easter Island. In this last case, the annual increase rate of visitors is 25%.

However, as a consequence of the growing interest in enjoying outdoor activities associated with natural environments, there are several so-called “emergent” tourist destinations, mainly related to the Andes Mountains. This is a reality not only for foreign tourists but also for nationals, due to the high annual growth rate of motorization, the increment of family income, and the increase of urban concentration.

In Chile, during the last decade, the motivation for tourist activities in natural protected areas, such as national parks and national reserves, is increasing rapidly. According to the National Tourism Service ⁶, these areas offer guarantees to conserve better natural ecosystems in the long term, contributing to satisfy the expectation of the demand. The Chilean protected area system includes three management categories: national parks, national reserves and natural monuments, with a total area of more than 14 million ha. According to the National Forestry Corporation (CONAF), the governmental institution responsible for the National System of Protected Areas, during the period 1989 – 1998 the total visits increased from 720,500 to 930,200 persons (29% of increase). In the same period the number of foreign tourists increased from 91,400 to 202,200 (a 121% rise) to the protected area system ⁷.

1.5 Participation and degree of interaction of different sectors and stakeholders in the tourism process

The participation and degree of interaction of different sectors and stakeholders in the tourism process is relatively new in Chile. In the past most policies at national and regional level have been prepared through an internal and centralized process.

⁶ Rivas, H. 1995. *Perspectives for the development of rural tourism in Chile*. 2000. *National Tourism Service. Department of Planning*

⁷ CONAF. 2000. *Statistics for the National System of Wild Protected Area*. National Forestry Corporation (CONAF)

However, recommendations for the preparation of regional policies of tourism are now including the need to incorporate all regional actors that, directly or indirectly, are involved in management of tourist activities ⁸. In this context, the importance of the interaction between different regional governments organizations, municipalities, non- governmental organizations and the private sector, is recognized. The role assigned to the National Tourism Service is to catalyze the formulation, co-ordination and monitoring of tourism policies, under the scope of expanding partnership. As perceived by several organizations, partnership is becoming a very popular concept, as the benefits of working together become increasingly apparent in a time of scarce human and financial resources.

As an example, the proposal of the National Tourism Service for preparing a regional policy of tourism in Chile includes five major steps: a) diagnosis, b) definition of objectives and goals, c) formulation of development strategies, d) formulation of the instruments for policy, and d) preparation of the action plan. During the process of diagnosis it is specifically stated that the participation and consensus of all the actors and stakeholders is required to legitimate conclusions. The participatory approach may use different mechanisms, including workshops and seminars to analyze strengths, weaknesses, opportunities, and threats.

1.6 Education and training of tourism

Formal tourism education in Chile is at three different levels: i) Technical/Professional High School (high school level), ii) Technical Education Centers (technical level), and iii) Professional Education (university level) ⁹.

The Technical/Professional High School System includes about 50 schools in the whole country, and comprises a special training programme given during the high school period. The programme emphasizes lodging facilities operation, gastronomy and tourist guide activities, and has been growing fast during these recent years.

The Technical Education Centers comprise also about 50 institutions countrywide, offering the degree of Tourism Technician in different subjects, such as hotel management and gastronomy, tourism operation activities and travel agencies. These Centers are private agencies admitting students after they complete high school. The duration of their programme is usually two years.

Professional tourism education at the university level is relatively new in Chile and is growing rapidly during these last years. Presently 12 universities are offering the university degree in tourism under different denominations, and during the last three years the institutions involved in this kind of programmes increased from three to 12.

⁸ Rivas, H. and V. Silva. 2000. *Recommendations to prepare Regional Policies of Tourism*. National Tourism Service. Department of Planning

⁹ Szmulewicz, P. 2000. *Personal communication*. Universidad Austral de Chile, Valdivia, Chile

Most of the university programmes on tourism are focussed on tourism administration and management. One of the longest standing curricula is being developed by the Universidad Austral de Chile, in Valdivia (southern Chile). The objective of this four years programme is to prepare professionals to manage institutions responsible for market services, planning, development and research on tourism. The professional will be able to fulfill an executive role in new tourist business, optimizing the capacity of human, natural and financial resources.

In addition to the above-mentioned opportunities, in Chile there are some sporadic training activities, such as workshops, seminars and training courses on specialized subjects of tourism. Some institutions, like Universidad Austral de Chile are planning to develop these activities as part of a permanent training programme to the graduate level.

1.7 Compliance with existing international guidelines on best practice for sustainable tourism

The National Tourism Service of Chile is promoting the World Ethic Code for Tourism, approved by the participant countries to the XIII General Assembly of the World Tourism Organization, carried out in Chile in October 1999. The Code is considered necessary to minimize the negative effects of tourism on the environment and on the cultural values, and it is perceived as an appropriate mechanism to increase the benefits of local communities.

The following synthesize the ten articles included in the Code:

- a. Contribution of tourism to the understanding and mutual respect between human beings and societies: tolerance and respect for different religions, philosophical and moral beliefs, traditions and particular laws and regulations.
- b. Tourism as a mechanism of personal and collective development: strengthening equality among individuals, human rights, in particular of the most vulnerable populations, applying national and local laws, norms and regulations, promoting educational and cultural exchanges.
- c. Tourism as a factor of sustainable development: protecting the environment, minimising the use of energy and scarce natural resources, conservation of biodiversity, promoting the benefits of local communities, recognizing the advantages and benefits of ecotourism according to the carrying capacities, among others.
- d. Tourism as a factor to use and enhance the world cultural heritage: respect to the particular cultures, art, and archeological resources and values, rights of the owners, avoiding the impoverishment of cultural heritage.
- e. Tourism as an activity to benefit host countries and communities: fair participation of the benefits, particularly as regards new employment opportunities, improving quality

of life of local populations, giving special attention to coastal zones, islands, mountains and fragile zones, and promoting environmental impact assessments.

- f. Responsibilities of tourism development agents: providing objective information through the available means of communications to the tourists related to travel destination, security, and assuring cultural and spiritual development.
- g. Tourism rights: providing direct access to the tourism opportunities as an open right to all people, including families, young's, students, old and handicapped persons.
- h. Freedom to tourist displacements: avoiding discrimination and excessive formalities, easy access to administrative and legal services, maintaining the same rights of local citizens in terms of the confidentiality of personal information, adapting sanitary and customs regulations to foster international tourism.
- i. Tourism sector workers' and managers' rights: the guarantee of workers' rights considering the seasonal characteristics of the tourism sector, the need of training and exchange of experiences, social protection, promotion of local developments of multinational enterprises, collaboration among enterprises of receptive and emissive countries.
- j. The application of the principles of World Ethic Code for Tourism: cooperation of public and private agents to apply and control the Code, recognizing the role of the World Tourism Organization, and other organizations to promote tourist development and the protection of human rights, the environment and human health.

1.8 Brief description of main ecotourism attractions in Chile

Chile, a long and narrow strip of land (4.300 km long and 180 km wide in average) includes some of the finest scenery in the Americas, a bewildering variety of climates and landscapes, ranging from the world's most arid desert to southern islands receiving more than 4.000 mm of annual precipitation. Among the ecotourist superlatives are Easter Island, Patagonia, Tierra del Fuego, Antarctica and the Atacama Desert.

In the extreme North of the country (Regions I, II and III) there are several ecotourism attractions, like the desert, the Altiplanicie (high plateau), the coastal range, and the coastal plain. In the North-Central part of the country (mainly IV Region) the major ecotourism attractions are the ocean beaches and coastal valleys. In the Central part of Chile (V Region) tourism activities are concentrated along the several ocean beaches, while the capital is an obligated stop for those coming or leaving through the international airport or using the international motor route to Argentina.

In the Central South of Chile (VI to IX Regions) several natural attractions are located in the valleys, ocean beaches and Andean Mountains, important destinations of national tourists. This part of the country includes an important number of protected areas with

ecotourism attractions, in particular within the Araucarian forest of the Andean Mountain in the IX Region, where an important number of volcanoes and glacial lakes are located.

However, Southern Chile (X and XI Region) and the Patagonian region (XII Region) are the favorite places for ecotourism activities. In this portion of Chile most of the protected area system is located, and the natural attractions include islands, volcanoes, fiords, glaciers, ocean channels, endemic birds, and Patagonian steppe.

2. OVERVIEW OF PRESENT STATE OF BIODIVERSITY CONSERVATION AND PLANNING

2.1 State of biodiversity conservation and relative priority in national planning policy

Population in Chile is essentially urban and the rural population has not increased during the past 40 years, representing only 17% of the total number of inhabitants. As a consequence, the impacts of subsistence agriculture are not significant.

Nevertheless, the increase of economic activities, a distinctive feature of Chile among Latin American countries, and the opening of international markets, have originated different kinds of problems. The development of important urban centers, forest exports at large scale, industrial fishing, and the explosive increase of aquaculture are some examples. These activities, altering the natural habitats, are the major reasons that several species of flora and fauna are classified as threatened.

According to official estimations, almost 35% of Chilean terrestrial vertebrates are in one of the categories of threatened species ¹⁰: Extinct, Endangered, Vulnerable, Rare, Indeterminate, or Insufficiently Known. 100% of the continental fish species are in danger of extinction. The group of terrestrial mammals has 52 threatened taxa (16 in danger of extinction and 15 under the category of vulnerable). Concerning birds, 18% of raptors are threatened. It is interesting to mention that in Chile a total of 440 bird species have been recorded, of which 8 are endemic. With respect to native trees and shrub flora, 409 species are threatened: 92 species are in danger of extinction, 211 species are vulnerable, and 89 species are classified as rare.

In recognition to this situation, and in general to the environmental concern prevailing in different organizations, Chile approved the Environmental Policy for Sustainable Development in 1998 ¹¹. The general objective of this policy is to promote sustainability in the development process of Chile, to improve quality of life, guaranteeing an environment free of pollution, the protection of nature, and the conservation of environmental heritage.

¹⁰ CONAF. 1998. *Red List of Chilean Terrestrial Vertebrates*

¹¹ CONAMA. 1998. *Environmental Policy for Sustainable Development*

The seven specific objectives are: to improve environmental quality, to prevent environmental damage, to enhance protection of environmental heritage and sustainable use of natural resources, to introduce environmental considerations to the productive sector, to involve the civil society in environmental issues, to strengthen environmental institutions, and to improve environmental legislation.

As a consequence of this environmental concern, Chile has ratified different international agreements associated to environment protection, and incorporated to the Chilean legislation. Among them are:

United Nations Convention on Climate Change

Convention on Biological Diversity

Agenda 21

Vienna Convention and Kyoto Protocol

RAMSAR Convention on Wetlands

Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)

Convention on Fight against Desertification and Drought

2.2 Institutional structure of biodiversity government planning and policy

The Basic General Law on Environment of March 1, 1994 established the National Commission of Environment (CONAMA), a decentralized public service, under the General Secretariat of the President. The Commission has the following functions:

- ❑ Propose to the President of Chile the environmental policies of the country
- ❑ Inform to the President the application and law enforcement on environmental issues
- ❑ Coordinate environmental matters
- ❑ Maintain an information system on environmental issues
- ❑ Administer a system on environmental impact assessment
- ❑ Cooperate on education programmes on environmental protection and conservation of biological diversity
- ❑ Coordinate, in collaboration with other public agencies, environmental projects of international cooperation
- ❑ Finance projects and activities to protect the environment, nature, and environmental heritage

CONAMA is headed by an Executive Board composed by the General Secretary of the President (Head of the Commission), and the following 12 Ministries: Foreign Affairs, National Defense, Economy, Planning and Cooperation, Education, Public Work, Health, Housing and Urbanism, Agriculture, Mining, Transportation, and National Properties. The Commission is the operational focal point of Chile on the subject concerned to the Convention on Biological Diversity and to the Global Environmental Facility.

2.3 Participation of Chile in the Convention on Biological Diversity and perceived benefits

Chile signed the Convention on Biological Diversity (CBD) in Rio de Janeiro, Brazil, on June 13, 1992, and ratified the Convention through the Supreme Decree N° 1963 of September 28, 1994, published in the Official Magazine on May 6, 1995.

The government of Chile assigned the National Commission of Environment (CONAMA) the coordination of activities concerning the Convention. Under these responsibilities, CONAMA prepared in 1993 a proposal for a Biodiversity Action Plan in Chile. This document included a referential framework, a conceptual framework, a diagnosis of biodiversity, and the action plan itself. However, the Council of Ministries (Executive Board of CONAMA) decided in 1998 to re-formulate the document and a new version is being programmed for 2001, using a participatory approach.

The benefits of being a part of the Convention are beginning to be perceived by public organizations and by non-governmental organizations. As an example, the Center of Environmental Research and Planning (CIPMA), a Chilean non-governmental organization, is implementing a GEF Project on public/private mechanisms for the conservation of biological diversity in the X Region. Using the same financial mechanism, through a GEF – UNDP project of enabling activities, CONAMA will start in January 2001 the formulation of the Strategy and Action Plan for Biodiversity in Chile.

2.4 Overview of the role of NGOs and local communities in biodiversity conservation

During the last years non-governmental organizations in Chile are playing an important role in biodiversity conservation. For example, the Center of Environmental Research and Planning (CIPMA) and the Committee for the Defense of Fauna and Flora (CODEFF) are promoting the organization of a private protected area system, in order to complement the public system. Other non-governmental organizations are focussed on studying threatened species of flora and fauna.

Within the Basic General Law on the Environment (issued March 1, 1994), participation of the civil society is considered an important instrument for environmental management. Under these circumstances, participation is a requirement for environmental impact assessment and for preparing norms for environmental quality, decontamination and preservation of nature.

In the Environmental Policy for Sustainable Development ¹² it is recognized that environmental issues are becoming a concern of the whole Chilean society. This concern is expressed in the increasing participation of non-governmental organizations on environmental impact assessment of important development projects. In some cases some

¹² CONAMA. 1998. *Environmental Policy for Sustainable Development*

conflicts have been raised for differences on the opinion and points of view. However, participation of the civil society in the formulation of national policies and decisions related to the environment is still insufficient. Up to the present, the formal participation mechanisms have not always permitted an effective and systematic involvement of all interested and affected parties. For this reason the Chilean government is working on the development of new channels of social participation.

2.5 Overview of National System of National Parks and other Protected Areas

The roots of protected areas in Chile are found in the legislation of 1925 and 1931 (Forestry Law), still in force, although the first protected area (Malleco National Reserve) was established in 1907 by a Decree of the Ministry of Foreign Affairs. At the present, the National Protected Area System is under the tuition of the National Forestry Corporation (CONAF), a part of the Ministry of Agriculture.

The national conservation objectives of the System are the following:

- ❑ Maintain unique and representative samples of biological diversity
- ❑ Protect and improve natural resources of wild flora and fauna through sustainable use
- ❑ Maintain the productive capacity of soils
- ❑ Maintain hydrologic natural systems
- ❑ Preserve and improve natural scenic resources
- ❑ Maintain cultural values associated to natural environment

Three management categories are included in the System: national parks, national reserves and natural monuments, with a total of 94 areas covering more than 14 millions hectares, equivalent to 19% of the national land area. (Table 2).

Protected areas in Chile represent almost one fifth of the national area, but protected areas are strongly concentrated in the southern part of the country. Almost 60% of the number and more than 90% of the total area of protected areas are located between the IX and XII Regions (southern 38° S). About 75% of the total area of protected units are a combination of native forest, wetlands, permanent snow fields and glaciers. More than 30% of the total native forest is included in the National Protected Area System.

Table 2. Number and area of protected areas in Chile ¹³

Management Category	Number of Areas	Area (ha)
National Parks	32	8.759.192
National Reserves	47	5.347.512
Natural Monuments	15	17.880
TOTAL	94	14.124.584

¹³ CONAF. 2000. *Personal communication*

The main weaknesses of the protected area system in Chile are three: i) inadequate representation and coverage of native flora and fauna, ii) lack of appropriate institutional capacities and legislation, and iii) lack of financial resources.

Some forest types and vegetative associations are scarcely represented within the system of protected areas. For example some of the forest types not well represented are the following: Roble – Hualo (*Nothofagus glauca*) with 0.5% of the total distribution of this Forest Type, Sclerophyllic (arid and semi-arid zone) with 2.0%, and Roble-Raulí-Coigue (*Nothofagus sp.*) with 2.8%. An additional sign of this lack of representation is the number of priority areas identified as necessary to be included within the National System of Protected Areas ¹⁴. A total of 21 sites have been classified as “urgent”, 30 as “important”, and 49 as “interesting” or “specially interesting”.

To improve institutional capacities and legislation is also a need in the protected area system. CONAF, the institution administering the system, is a private corporation assuming public functions and goals, and there is a lack of legislation to endorse the system itself. Moreover, there are several legal contradictions and also a lack of coordination among the institution involved.

The lack of financial resources is another characteristic of the national system of protected area, although from 1992 to the present the total annual budget has increased from US\$ 2.5 million to US\$ 5.0 million. However, about 90% of the total budget is being used to pay salaries, good and services. Financial resources used in new investments are limited.

Total visitation to protected areas in Chile increased during the last decade by almost 30%. In 1998 a total of 930,200 persons visited protected areas in compared with 720,500 persons in 1989. More relevant is the increase of foreign visitors. In 1989 a total of 91,400 foreign persons visited the areas compared with 202,200 in 1998. The total number of visitors in 1999 was 914,182, including 205,962 foreign visitors (22,5% of the total).

As a reaction to this ecotourism demand, the National Forestry Corporation has formulated specific policies for the development of ecotourism in the Chilean protected area system ¹⁵. These policies will be further discussed in Chapter 3.

¹⁴ CONAF. 1996. *Red Book of the Priority Sites for the Conservation of Biological Diversity in Chile*

¹⁵ CONAF. 1996. *Policies for the Development of Ecotourism in Protected Areas*

3. OVERVIEW OF LINKS BETWEEN TOURISM DEVELOPMENT AND BIODIVERSITY CONSERVATION AND PLANNING

3.1 Analysis of existing national strategy, plan or policy applied to tourism development and biodiversity conservation and planning

3.1.1 The Convention on Biological Diversity.

Chile, as most of the Latin American countries, signed and later ratified the Convention on Biological Diversity during the United Nations Conference on Environment and Development (Rio de Janeiro, 1992). The Convention identifies several actions, such as:

- ❑ National plans, strategies and programmes for the conservation and sustainable use of biodiversity.
- ❑ Inventory and monitoring of biodiversity components and negative effects.
- ❑ Strengthening and development of mechanisms for *in situ* conservation of biodiversity, inside and outside of protected areas.
- ❑ Strengthening and development of mechanisms for *ex situ* conservation of biodiversity as a complement of *in situ* initiatives.
- ❑ Restoration of degraded ecosystems and recovering threatened species.
- ❑ Regulation of genetically modified organisms.
- ❑ Preservation of local and indigenous systems to manage biological resources.
- ❑ Integrating the concepts of biodiversity among national decision-makers.
- ❑ Promotion of research, training and public information,
- ❑ Evaluation of impacts on biodiversity of projects, programmes and policies.

3.1.2 National environmental policies

In line with the Convention on Biological Diversity, the Environmental Policy for Sustainable Development prepared in 1998¹⁶ identifies several actions associated to its seven specific objectives. Several of these planned actions are in some way or another related to the tourism sector:

¹⁶ CONAMA. 1998. *Environmental Policy for Sustainable Development*

Objective 1: To improve environmental quality.

- Actions:
- i) Atmospheric decontamination and recovering of acceptable levels of air quality.
 - ii) Decontamination and recovering the quality of water resources for different uses.
 - iii) Formulation of policies and norms for managing domestic and industrial solid residues.

Objective 2: To prevent environmental damage.

- Actions:
- i) Environmental impact assessment of investment projects. The environmental impact assessment system is based on the Basic General Law on Environment (Law 19.300) of March 1, 1994, and is obligatory since April, 1997. This Law and the regulations of 1997 define the projects and activities to be evaluated. Tourism development projects are included, such as tourist facilities for lodging and camping. Facilities, programmes and activities in protected areas are also subject to environmental impact assessment.
 - ii) Promoting the consideration of environmental components from the design phase to the execution of projects.
 - iii) Environmental considerations in the formulation of public policies.
 - iv) Environmental education.
 - v) Norms of environmental quality and norms of emissions.
 - vi) Scientific and technological research.

Objective 3: To enhance protection of environmental heritage and sustainable use of natural resources.

- Actions:
- i) Norms on natural resources mentioned in Law 19.300, such as the legal framework for the National System of Protected Area, the private protected areas, threatened species, inventories of flora and fauna, and the preparation of management plans.
 - ii) Definitions of standards for the conservation of biodiversity (preparing the biodiversity strategy and actions plans), native forests, hydrobiological resources, water resources, and soils.
 - iii) Strengthening forestry institutions.
 - iv) Basis for sustainable development, watershed and coastal zones planning.
 - v) Knowledge of the ecosystems.

Objective 4: To introduce environmental considerations in the productive sector.

- Actions:
- i) Promotion of international standards of environmental quality applicable to products and processes.
 - ii) Adoption of environmental certification.

- iii) Fostering clean production.
- iv) Complementing environmental policy and foreign trade.

Objective 5: To involve the civil society in environmental issues.

- Actions:
- i) Consolidation of mechanisms of participation identified in the Basic General Law on the Environment of March 1, 1994.
 - ii) Strengthening of Consultative Councils in governmental institutions at national and local level.
 - iii) Involvement of new population sectors (youth, scouts, church)
 - iv) Revitalize environmental education.
 - v) Implementation of the Environmental Protection Fund.

Objective 6: To strength environmental institutions.

- Actions:
- i) Strengthening the National System of Environmental Management, coordinating different policies of governmental institutions and the private sector.
 - ii) Formulation of a National Environmental Budget.
 - iii) Consolidation of the role of the Commission of Environment (CONAMA).
 - iv) Regional (local) dimension of environmental management.
 - v) Training of human resources.
 - vi) Improving supervision capacities.
 - vii) Implementation of the National System of Environmental Information.

Objective 7: To improve environmental legislation.

- Actions:
- i) Improving the Basic General Law on the Environment (March 1, 1994, Law 19.300), and other legal mechanisms.
 - ii) Modernization of legislation.
 - iii) New instruments of environmental management (economic evaluation, environmental accounts, voluntary agreements, and strategic environmental assessment).

3.1.3 National policy on tourism

The national policy of tourism ¹⁷ is based on the following three elements:

- Instruments in support of competitiveness, transparency of markets and sustainability
- Instruments in support of competitive and regional tourism development, and
- Institutional development

¹⁷ *National Tourism Service. 1998. National Policy of Tourism. Ministry of Economy of Chile*

The following is a detail of the actions involved in each of the three elements, emphasizing those particularly concerned with environmental issues and conservation of biodiversity.

Element 1: Instruments in support of competitiveness, transparency of markets and sustainability

- Actions:
- i) Improving normative systems on tourism, including territorial planning, conservation of natural resources, protection of cultural heritage, and many others concerning tourist services, transportation, international border facilities and services, and training.
 - ii) Research, studies and basic information required for tourist decisions, focussed on economic impact, tourist markets, territorial planning and environment, and quality of tourist services.
 - iii) National system of quality certification.
 - iv) Evaluating formal education - defining the professional profile required in Chile - and the need of training.
 - v) International relationships, incorporating tourism in policies of foreign affairs.
 - vi) Marketing planning and tourist promotion in cooperation with the private sector.
 - vii) Planning for particular segments (senior adults, youth, and local governments).
 - viii) Environmental conservation. The National Tourism Service will provide permanent information on tourist values of natural areas, to the Commission of Environment (CONAMA). Within the framework of the Basic General Law on the Environment, the National Tourism Service is available to collaborate with CONAMA for environmental impact assessments of tourism projects.

Element 2: Instruments in support of competitive and regional tourism development

- Actions:
- i) Productive promotion plan for tourism enterprises.
 - ii) Product development and promotion of tourism investments.

Element 3: Institutional development

- Actions:
- i) Strengthening national institutional management, through appropriate coordination among the different Ministries involved in tourism (Foreign Affairs, Education, Public Work, Housing and Urbanism, Transportation, and National Properties); improving the National Tourism Service, and coordination of the public/private sectors.
 - ii) Strengthening regional (local) institutional management, through a regional policy of tourism, regional coordination among governmental and non-governmental institutions, and the private sector.

3.1.4 National policies on ecotourism

The best expression of linking tourism and conservation of biological diversity in Chile is found in the National System of Protected Areas. This type of tourism in protected areas is usually known as ecotourism, since the motivation is to enjoy the natural environment, its flora, fauna, landscape, and cultural values associated to nature. It is widely recognized that ecotourism in Chile is an important means for the sustainable development of protected areas, providing the appropriate and necessary facilities for public use, and most of the facilities for administration.

However, tourism in protected areas may also affect in a negative form, particularly when it produces negative environmental and/or social impacts, or when it damages the recreational experience of visitors. Controversial issues are the location of tourist facilities inside protected areas and the definition of carrying capacity in different categories of protected areas. The development and operation of ecotourism projects, involving the private sector and local communities, need to be compatible with the major national conservation objectives of these areas.

To face some of these problems and constraints, the National Forestry Corporation (CONAF), the institution responsible for public protected areas in Chile, prepared specific policies for the development of ecotourism in the National System of Protected Areas¹⁸. The objectives of these policies are:

- To promote and regulate ecotourism development in the National System of Protected Areas, for the benefit of present and future generations.
- To enhance participation of the private sector in the execution and operation of ecotourism projects, through the mechanism of regulated concessions.
- To strengthen institutional capacities for protection and environmental education through ecotourism activities.

The following is a synthesis of these policies:

Administration

- Ecotourism development will be developed according to specific management categories.
- CONAF will maintain the tuition of the land and will decide facilities and activities.
- The institution will invest the generated benefits in protected areas.
- CONAF will be responsible for controlling and monitoring the projects.
- Public bidding standards and specifications will be prepared by the institution.

¹⁸ CONAF. 1996. *Policies for the Development of Ecotourism in the National System of Protected Areas*

Concessions

- ❑ Activities will be carried out through concessions, regulated by a contract, and assigned by public bidding.
- ❑ Projects will include options for visitors with different social and economic levels.
- ❑ Options for three types of projects: formulated by CONAF, conceived by CONAF, and conceived by privates.
- ❑ According to Law 19.300 all projects are subject to environmental impact assessment.

Ecotourism facilities and services

- ❑ The type, size, and location of facilities in concessions will be defined according to the management, zoning, and recreational plan of the protected area.
- ❑ Residual treatment will use appropriate technology.
- ❑ Design of facilities will be according to aesthetic values of the protected area.
- ❑ Prevention of risks will receive appropriate importance.

Tariff

- ❑ CONAF will fix and collect entrance fee to protected areas.
- ❑ Concessionaires will fix tariff for their services. To avoid limitation of the public access, in exceptional cases CONAF may fix the maximum tariff.
- ❑ CONAF may apply exceptions or privileges to educational groups, or to facilitate social tourism, for those facilities and services directly operated.

Cultural values and local communities

- ❑ Concessionaires will protect and divulge cultural values of protected areas, according to the management plan.
- ❑ Tourist activities will respect cultural identity and traditions of local communities inside protected areas or within their buffer zones.

In the process of application of these policies, CONAF has had successful experiences, but also a few failures. During a first stage, most of the projects were those formulated by CONAF to the private sector, including cabins, camping sites and lodging facilities. However this alternative did not attract, as expected, the attention of private investors due to the small size of the operations.

During a second stage, some protected areas were selected as appropriate to receive proposals and ideas for ecotourism projects conceived by the private sector. During this stage (last year) 52 ecotourism project ideas were formulated, of which 28 are compatible with the management plan of the involved protected area, and approximately 19 might be approved by CONAF¹⁹.

¹⁹ CONAF, personal communication. Santiago de Chile

During the last few years, CONAF is beginning to use different mechanisms for tourism development, in addition to concessions. One of them is through agreements and alliances with public or private organizations, where each one will take on the role it is capable of, to act under clearly established and accepted government policies and regulations. For example CONAF established an agreement with Fundación Chile to manage ecotourism in La Campana National Park. During 2001 a new agreement will be signed to implement a project in Los Flamencos National Reserve. Fundación Chile is an institution dedicated to technological innovation and technology transfer, which promotes productive development, covering the areas of agribusiness, forestry, marine resources and quality. Its 23 years of experience in product control and certification, process development, creation of demonstration enterprises and business associations with technological content, are behind its national and international work. The Chilean Government and ITT Corporation of the United States created this organization in 1976, as a legal, non-profit entity.

3.2 Analysis of perceived problems and constraints at the national level

From the previous sections it is possible to underline the following conclusions:

- a. The environmental concern prevailing in Chile motivated the Environmental Policy for Sustainable Development to promote sustainability in the development process of Chile, to improve quality of life, guaranteeing an environment free of pollution, the protection of nature, and the conservation of environmental heritage.
- b. The Strategies of Regional Development recognize tourism as an important activity, and the need to stimulate tourism and associated services, supporting integral development.
- c. National planning policies recognize the effect of tourism on different social and economic activities, such as transportation, commerce, hand crafts, recreation and culture, which create a dynamic effect on labor and local development.
- d. Several activities are planned to implement national policies, including inventories of tourist resources and potential uses, and the preparation of several projects of tourist investments. Development of an education programme is also considered an important need.
- e. Improving normative systems on tourism, territorial planning, conservation on natural resources, protection of cultural heritage, tourist services, transportation, international border facilities and services, and training are also priority issues.
- f. Institutional coordination is still necessary, although the National Tourism Service is willing to coordinate and provide permanent information on tourist values of natural areas to the environmental agencies. Within the framework of the Basic General Law on the Environment, the National Tourism Service is available to collaborate with CONAMA for environmental impact assessments of tourist projects.

- g. The application of environmental impact assessment is obligatory in Chile, it being considered a guarantee to prevent negative environmental impacts of tourist project development, such as tourist facilities for lodging and camping. Facilities, programmes and activities in protected areas are also subject to environmental impact assessment.
- h. The best expression of linking tourism and conservation of biological diversity in Chile is in the National System of Protected Areas, which represent almost one fifth of the total country area. About 75% of total area of protected units are a combination of native forest, wetlands, permanent snow and glaciers.
- i. As in many other countries, the lack of financial resources is a characteristic of the National System of Protected Areas, although during the last 8 years the total annual budget has been duplicated. However, about 90% of the total budget is used to pay salaries, goods and services, and financial resources used in new investments are limited.
- j. The institution responsible for protected areas has prepared a set of policies on ecotourism, including several action lines on administration, concessions, facilities, tariff, cultural values and local communities
- k. Threats of tourism to biodiversity conservation are still not relevant in Chile. However, there is the need to strengthen several issues, such as:
 - The legal framework for the National System of Protected Areas
 - Regulations for private protected areas
 - Threatened species
 - Preparation of management plans
 - Definitions of specific standards for the conservation of biodiversity (preparing the biodiversity strategy and actions plans), native forests, water resources, and soils
 - Strengthening forestry institutions
 - Basis for sustainable development, watershed and coastal zone planning
 - Knowledge of the ecosystems

4. PROPOSED STRATEGIES AND SOLUTIONS

This section includes proposed strategies and solutions for improving biodiversity conservation and planning into the tourism planning sector, some of them outlined in the previous section.

4.1 Policy-oriented

One of the first considerations for improving biodiversity conservation into the tourism planning sector was to identify clear objectives for the Natural Heritage Program of the National Forestry Corporation (CONAF), through an Action Plan²⁰. Three sub-programs are included: the National System of Protected Areas, Wild Flora, and Wild Fauna.

Concerning the National System of Protected Areas, three objectives were identified:

- a. Achieve management goals and objectives of protected areas through appropriate management practices.
- b. Develop protection standards for the management categories, which are complementary to the national system (Tourist Protected Areas and Natural Sanctuaries) and administered or supervised by CONAF.
- c. Increase ecosystem coverage of protected areas
- d. Protect and manage cultural values in protected areas.

In respect to wild flora and fauna, four objectives have been formulated:

- a. Avoid extinction of native flora and fauna.
- b. Maintain appropriate ecological distribution of threatened species of flora and fauna.
- c. Avoid habitat degradation of threatened species of flora and fauna.
- d. Enhance ecological function of threatened species.

Protected areas are essentially natural attractions, whose characteristics and values allow ecotourism development. The natural conditions are the attraction for visitors and to maintain these conditions is a major responsibility of the national government. This natural heritage is also an important alternative for economic development and sustainable use, in harmony with the principles of conservation of protected areas.

4.2 Economic

Economic benefits obtained from tourism activities in protected areas should be used to improve the protection and administrative programmes of these areas, including facilities for public use (roads, trails) and personnel, stimulating local development and the benefits to local communities.

²⁰ CONAF. 1989. *Action Plan for the Natural Heritage Program*

To provide better and specialized services to the visitor, the implementation of ecotourism projects may be carried out through concessions to the private sector. In this case, special consideration should be given to the rates and prices to be applied by the concessionaires, and also to appropriate mechanisms for making good use of the economic benefits. An important proportion should be destined to improve the services and facilities, and to maintain these ecotourism facilities.

The concessions mechanism should be carefully applied to avoid limitations to free access to the main attractions of protected areas. Tariffs in addition to the entrance fee should be applied only for lodging, food, and for those ecotourist activities requiring important investments. Environmental education is the typical programme that needs to be free of any charge, as it is one of the main management objectives of protected areas.

4.3 Technical/managerial

The management principle of protected areas is to maintain a perfect equilibrium between protection and conservation of biodiversity, number of visitors, and facilities required for ecotourism. In some particular situations, ecotourist facilities may be located just outside protected areas. However this decision must be analyzed in a case by case basis, as consideration of carrying capacity, management objectives, and ecotourism potentialities are important factors to consider.

The particular characteristics of each area will be the basis for the type and intensity of ecotourism development, under the principle of selectivity and segmentation of the ecotourist market. The management plan is the instrument guiding protected area development and will be the framework for any ecotourism programme. Investment in larger facilities may be considered only in those cases where the protection of biodiversity and cultural values are assured. Furthermore, according to Chilean legislation, all facilities and activities are subject to environmental impact assessment.

Special consideration should be given to those basic services necessary for the operation of tourism facilities, such as energy and water supply, roads, public transportation, and waste removal and treatment. Design of these elements need to avoid all kind of physical, chemical, visual or acoustic pollution. Environment monitoring is an important part of this process.

4.4 Human resources

The implementation of ecotourism/conservation of biodiversity requires strengthening national institution responsible for protected areas. Concession mechanisms need strong regulations and control to maintain desired management objectives. Human resources should be appropriately trained for the administration of concessions to assure biodiversity protection and provide a regular cash flow. Career development and training are important needs among the personnel in Chilean protected areas.

4.5 Biodiversity conservation *per se*

Biodiversity conservation is the major objective of any management of protected area category and for the whole national system. Protected areas are essentially natural resources and attractions and this condition is the basis to provide ecotourism opportunities. Natural and primitive conditions of biodiversity are the substantial attraction for ecotourists.

Biodiversity conservation is, under this perspective, the major goal and ecotourism one of the consequences resulting from the presence of well-protected natural resources. Ecotourism should be compatible and subordinated to conservation of biodiversity of protected area, since this is the essential reason to put them under protection.

4.6 An example of best practice in linking tourism development and biological conservation and planning: the Austral Road Project

Chile has a continental and insular area of 755,572 square kilometers between parallels 17° 30' and 56° 30' South, and between meridians 66° 30' and 75° 40' West. The nation is 4,300 km long and only 180 km wide in average. Considering the country's shape and extension, Chile contains a great variety of landscapes: Andean ecosystems, deserts, warm grassland, humid grassland, grassland/spiny shrub, Mediterranean shrub, Valdivian rain forest, deciduous *Nothofagus* forests, north Patagonian rain forest, Magellanic rain forests, Magellanic moorland, Patagonian steppe, and snow and ice fields above the timberline.

Rain forest is one of the major ecosystems, from 40° S to the extreme south of the country. In this region is concentrated more than 30% of the total number of Chilean protected areas and more than 80% of the total area classified in the national system.

4.6.1 History and location of the Austral Road Project

Less than two decades ago, from 41° 30' S to southern Chile, accessibility was by air or maritime. Terrestrial internal roads were very limited, and none of the several projects were successful to provide longitudinal access to the numerous valleys. The presence of transverse mountain ranges and deep valleys were the major constrains, associated to the financial restrictions.

During the 70's the idea to built the Austral Road connecting the province of Llanquihue and Palena was materialized. From the beginning this project was considered a hazardous, pioneering and daring one due to a number of limiting factors, such as the presence of dense native forests, large wetlands, mighty rivers, rough topography, and adverse climatic conditions. From 1976 technical planning of the Austral Road was under the Ministry of Public Works, in collaboration with the Military Task Force and all the municipalities of the region.

According to priorities, the first stage was the access between the city of Chaitén (43° S) to the city of Coyhaique (45° 50'S) for a total distance of 384 km, available for public use in 1982 after 6 years of construction. At the present the Austral Road has a total of 1,322 km providing terrestrial access, combined with ferry-boats, through fiords and channels, to the following localities:

Chaitén and Futalelfú (43° S)
Palena (43° 30'S)
Puerto Cisnes (45° S)
Puerto Aysén (45° 30'S)
Coyhaique (45° 50'S)
Cochrane (46° S)
Villa O'Higgins (48° 30'S)

This is equivalent to 7° in latitude South of additional terrestrial access (combined with ferry-boats) along the country (see attached map).

4.6.2 Coordination for tourism development in Austral Road

Tourism is identified as a key sector for future development in the region influenced by the Austral Road ²¹. On this basis, the National Tourism Service (SERNATUR) has prepared a master plan for tourism development at a regional level ²². Several institutions are collaborating with this plan, such as the German Service of Social and Technical Cooperation (Ded), the Society for Technical Cooperation of Germany (GTZ), and several national institutions and financial mechanisms (Solidarity Fund and Social Investment – FOSIS).

This planning process has been conducted under a participatory process. Tourist perceptions and expectations have been considered, as well as the needs, visions and desires of stakeholders (managers of tourist activities, local organizations, governmental institutions, and the private sector). Mechanisms used include intersectoral communication, visitor surveys, and workshops. The importance of preserving and protecting nature as a major tourist attraction is a shared opinion among all the actors involved in tourism activities.

4.6.3 Natural tourist attractions of the Austral Road

Administratively, the Austral Road is located in the southern portion of the X Region and in the XI Region. In this area important studies have been carried out through the National

²¹ *Regional Governments X/XI Region. Development Productive Plan for the Austral Zone*

²² *National Tourism Service (SERNATUR). 1998. Master Plan for Tourism Development. Aysén (XI) Region*

Tourism Service to identify, analyze and plan tourist opportunities ²³. According to these studies, considering only the XI Region, a total of 107 tourist attractions have been identified. They have been classified as follow:

Natural sites	Number
High mountains	3
Glaciers and blizzard areas	10
Permanent snow areas	1
Caverns	1
Notable geologic formations	6
Lakes and lagoons	26
Rivers	4
Channels and fiords	3
Bays	3
Beaches	2
Waterfalls	8
Hot springs	3
Protected areas	18

Cultural features	Number
Hand crafts	4
Museums	2
Picturesque towns	8
Picturesque bridges	1
Rock and cave paintings	3
Traditional production	2

In addition, the Guide for Tourist Development (1999), prepared by the National Tourism Service for the southern portion of X Region (province of Palena) has identified five locations containing valuable tourist resources (the area of Hornopirén, Hualalhué, Chaitén, Fulalelfú, and Palena). The Guide also mentions the importance of two public protected areas and one private protected area.

There is no doubt that among the major natural tourist attractions of the Austral Road is the presence of a high number of national protected areas. According to Table 3, almost 14% of the total number and almost 35% of the total area of protected units in Chile are located in the two administrative regions (X and XI) affected by the Austral Road.

²³ SERNATUR. 1998. *(above cited)* and SERNATUR. 1999. *Guide for Tourist Development. Province of Palena (Southern X Region)*

Table 3. Geographical location of protected areas in Chile

REGION	% NUMBER	% TOTAL AREA
I – V	24.9	8.2
Metropolitan	2.2	0.1
VI – VIII	15.2	1.0
IX	13.8	2.1
X – XI	31.9	34.7
XII	12.0	53.9

The Austral Road is providing direct or indirect access to many protected areas, which were previously not accessible by land. Biodiversity of these protected areas vary according to specific location as precipitation increases from East to West and from North to South. However, the following are common characteristics: presence of high mountains, influence of the ocean, presence of fiords and channels, and the presence of several mountain lakes and rivers. The scenic beauty of the whole area is striking.

Table 4 shows protected areas that have had their access substantially improved by the Austral Road. The improved access is classified as i) “*direct influence*” when the Austral Road reaches (or almost reaches) the boundaries of protected areas (including penetration roads), and ii) “*indirect influence*” when the road reaches a sea dock to provide access to a protected area by boat.

Table 4. Protected areas with improved access through the Austral Road

NAME OF PROTECTED AREA	AREA (ha)
Direct influence	
Alerce Andino National Park	39,255
Hornopirén National Park	48,232
Queulat National Park	154,093
Laguna San Rafael National Park	1,742,000
Dos Lagunas Natural Monument	181
Cinco Hermanas Natural Monument	228
Cerro Castillo National Reserve	179,550
Coyhaique National Reserve	2,150
Lago Carlota National Reserve	27,110
Lago Cochrane National Reserve	8,361
Lago Las Torres National Reserve	16,516
Trapananda National Reserve	2,305
Lago Rosselot National Reserve	12,725
Río Simpson National Reserve	41,621
Lago Jeinimeni National Reserve	161,100

Indirect influence	
Isla Magdalena National Park	157,616
Isla Guamblin National Park	10,625
Las Guaitecas National Reserve	1,097,975
Katalalixar National Reserve	674,500
TOTAL	4,376,143

In addition to the above-mentioned areas, the Austral Road has greatly improved the access to a private initiative of protected area (Pumalín Natural Sanctuary), located in the XI Region (province of Palena). This private protected area, being managed under the same principles as the national parks and national reserves of Chile, has an area of 289,562 ha. The management plan of the area includes several management programmes, such as protection of natural resources, protection of scenic values, restoration of ecosystems, ecotourism and recreation, environmental education, research, support to sustainable development of local communities, and administration²⁴. This area is being proposed to government authorities as a Natural Sanctuary, a management category contained in the Chilean law, as an alternative for a private protected area.

National Sanctuaries are not included as part of the National System of Protected Areas, but they are considered a complement to the national system. These areas are officially established by the Ministry of Education to protect particular possibilities for studies and research on natural resources. As a difference to protected areas included in the National System of Protected Areas, Natural Sanctuaries might be owned and administered by the private sector, under governmental regulations.

According to Table 4, the access to more than 30 % of the total protected area national system of Chile is being directly or indirectly improved by the Austral Road. The geomorphologic diversity, presence of mighty rivers, rough topography, and the rich forest and shrubland species are significant in this portion of Chile, as well as superlative resources for tourism development. The potential for ecotourism programmes is so important that numerous private and public initiatives are beginning to be implemented, or being planned for the near future in this fragile environment. This potential is even greater considering borderline protected areas (Chile/Argentina) connected by international passes. This is the case of North Pumalín Natural Sanctuary (Chile)/Lago Puelo National Park (Argentina); South Pumalín Natural Sanctuary (Chile)/Los Alerces National Park (Argentina); and Futalelfú National Reserve (Chile)/Los Alerces National Park (Argentina).

The greatest challenge for tourism development in the region is to prevent environmental impacts, as these areas are superlative tourism attractions, but at the same time they contain very important ecological and fragile values. This particular characteristic is being increasingly recognized by planning governmental agencies, as stated in previous sections, through policies, strategies and plans of institutions dealing with environmental, tourism, rural development, and protected area issues. It is recognized that well managed tourism

²⁴ Pontificia Universidad Católica de Chile. 2000. *Master Plan for the Pumalín Natural Sanctuary*

will ensure a rational management of natural resources and quality of life of local communities, maintaining the integrity of the area, and protecting the environment²⁵. As an example, a very positive element has been the engineering design used in building the Austral Road. The design needed to effectively solve the many topographic obstacles of this Chilean territory. In drawing and building the road several objectives were achieved, such as respecting the natural landscape and providing environment protection, while at the same time giving access to major tourism attractions and providing socio-economic development for the local rural communities.

4.6.4 Ecological importance of the zone affected by the Austral Road

In general, the native forest of southern Chile has not been subject to forest management practices. In some places the most valuable species and individuals of best form have been selectively cut illegally. Chilean law requires a management plan, approved by the National Forestry Corporation, for this activity. While fires have destroyed a proportion of the forest cover, selective cutting has seriously degraded part of those areas which are not under protection. In protected areas virgin stands contain the most valuable species, well protected for now, as they are located in remote and still inaccessible areas.

As southern Chile is a one of the rainiest region of the world, characterized by extremely rugged topography, the soil and water protection afforded by the Chilean rain forest is of paramount importance²⁶. The extreme southern Andes are susceptible to catastrophic mass movement of soil and erosion, increasing the importance of forest cover.

The study “A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean”²⁷ classified the zone influenced by the Austral Road as Valdivian temperate forest. This forest association is located in southern Chile and in the eastern sector of the Andean Range in Argentina.

According to the above-mentioned study, the ecoregion of Valdivian temperate forest, considering the serious threats it presently faces, is under the category of “Vulnerable” as regards conservation status, within the Latin America and Caribbean region. In general, ecoregions vary by the number of species they contain, by the level of endemism, and by uniqueness of the assemblages, natural communities, ecological interactions, and biological phenomena found within them. This is what the study named *biological distinctiveness*, to

²⁵ Rivas, H. 2000. *Tourist development: an opportunity to Chile*. Revista Universitaria. Pontificia Universidad Católica de Chile. N° 70

²⁶ Veblen, T., Schlegel, F., and Oltremari, J. 1983. *Temperate broad-leaved evergreen forests of South America*. Ecosystems of the World Volume 10. Elsevier Science Publishers

²⁷ Dinerstein, E., Olson, D., Graham, D., Webster, A., Primm, S., Bookbinder, M., and Ledec, G. 1995. *A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean*. WWF - The World Bank

include the relative rarity of certain major habitat type besides the more commonly used variables of species richness and endemism.

Using these variables, the Valdivian temperate forest found along the Austral Road received the category of “globally outstanding”, representing one of the world’s five major temperate rainforest ecosystems. This forest can support extraordinary standing biomass and contain many unusual species and higher taxa. However, intensive logging and timber plantations are severe threats to the ecoregion. This is the major reason for this ecoregion to be classified as one of the ecoregions of highest biodiversity conservation priority at regional scale (Latin America and the Caribbean).

4.6.5 Tourism planning in the Austral Road

Several tourism projects and activities are being planned for the zone affected by the Austral Road, although planned tourist investments of the private sector are very limited. The National Tourism Service is coordinating at the regional level the following action plans:

- Promote protected areas at the provincial level
- Encourage private protected areas, in collaboration with non governmental organizations
- Promote the category of Natural Sanctuary, a classification that may be used for official recognition of a private protected area, according to Chilean legislation.
- Prevent forest fires, as they have severely affected some areas of the XI Region in the past.
- Encourage organic agriculture to protect the environment.
- Prevent pollution through appropriate domestic sewage and agricultural waste treatment.
- Strengthen environmental issues in basic and secondary schools.
- Develop environmental education programmes.
- Enhance traditional and local values.

As has been noted, most of the tourism actions planned for the near future are related to protect natural resources, landscape and the environment. This is evident in the Master Plan for Tourist Development, prepared by SERNATUR for the XI Region. Some of the specific proposals of this Master Plan are:

- Establishment of a Regional System of Tourist Protected Areas, considering both, protected natural area and non-protected areas.
- Collaboration in the financial process of protected areas, through a Foundation for the Conservation and Development of Natural Resources. This Foundation will be coordinated by the Regional Government and integrated by forest, agrarian, mining and tourist industries.

- Development of rules and regulations for land zoning plans in protected areas, through management plans, development of compatible tourist activities, concessions, and sustainable and regulated tourist use.
- Regulations for land zoning in non-protected tourist areas.
- Land zone planning and preservation of adequate tourism conditions in urban tourist areas.
- Integration to the “National Policy on the Use of the Coastal Border” of marine and coastal areas of particular tourist interest, including land borders, favoring protection of the environment.

Tourism investments in the zone influenced by the Austral Road are very limited and insignificant compared to the national situation. There are only two on going tourist investment projects for a total of US\$ 2.5 million (1.4% of national on going tourists projects) and only three projects under study, for a total of US\$ 1.8 million.

4.6.6 Conclusions

- a. The Austral Road located in the southern portion of the X Administrative Region and in the XI Region, contains more than 100 identified tourist attractions. Lakes and lagoons, protected areas, glaciers and ice fields are the most abundant.
- b. Protected areas are the major natural tourism attraction of the Austral Road. Access to a total of 19 public protected areas has been directly or indirectly improved by means of the Austral Road, with a total of almost 4.4 million hectares. A large and valuable private protected area is providing a biological corridor between these public areas.
- c. The geomorphologic diversity, presence of mighty rivers, rough topography, and the rich forest and shrubland species are significant in this portion of Chile and superlative resources for tourism development. This potential is even greater considering several borderland protected areas shared by Chile and Argentina connected by international road passes, although visitors and tourist investments are still not significant.
- d. Policies and strategies of planning governmental agencies dealing with environmental, tourist, rural development, and protected areas issues are oriented to develop tourism preventing environmental impacts. These institutions agree that protected areas are superlative tourism attractions, but at the same time they contain very important ecological and fragile values.
- e. Considering the present threats, Valdivian temperate forest around the Austral Road is under the category of “Vulnerable” as regards conservation status within the Latin

American and Caribbean Region. Using the variables of biological distinctiveness, this forest has been classified as “globally outstanding”, and is one of the ecoregions of highest biodiversity conservation priority at regional scale.

- f. Several tourism projects and activities are being planned for the zone influenced by the Austral Road and most of the actions planned for the near future are related to protect natural resources, landscape and the environment. Investment projects are still limited.
- g. Institutional coordination and involvement of all stakeholders is urgently required in order to appropriately face the challenge of tourism development and biodiversity conservation in this superlative region.

4.7 Additional examples of best practice in linking tourism development and biological conservation and planning in Chile: the private protected area initiatives

It is recognized that public protected areas are important mechanisms for the conservation of biodiversity and to provide ecotourism opportunities. However, in order to maintain and improve a National System of Protected Areas an important budgetary effort is needed. These budgets are strongly competing with numerous prevailing economic and social needs. Therefore, the challenge faced in Chile, like in many other countries, is to design realistic strategies of biodiversity conservation, considering reduced public financing, and the participation of the private sector.

The private sector is beginning to play an important role in the future expansion of protected areas in Chile, complementing the biodiversity coverage and management programmes, such as ecotourism, of the National System of Protected Areas. Important initiatives for establishing private protected areas are under development, which are facing new challenges of institutional co-ordination and the need for clear and accepted public rules and regulations.

4.7.1 Statistics of private protected areas

The Basic General Law on Environment of March 1, 1994 defined the role of the government to promote private protected areas in the private sector. A specific regulation is under study to create some mechanism to incentive the private sector, such as bonus and tax exception. However, in Chile private protected areas have not yet had an official recognition from government institutions.

In spite of this lack of recognition, recent studies have identified 83 private protected areas along the country ²⁸. Table 5 includes location, number of properties and total areas classified by their owners as private protected areas.

Table 5. Location, number of properties and total areas classified by their owners as private protected areas

Administrative Region	Number of properties	% of the number	Area (ha)	% of total area
RM	5	6,0	9.614,1	2,2
V	10	12,0	10.956,5	2,5
VI	5	6,0	38.100,4	8,5
VII	3	3,6	1.273,0	0,3
VIII	12	14,6	10.721,4	2,4
IX	15	18,1	5.972,4	1,3
X	28	33,7	297.652,8	66,6
XI	4	4,8	7.500,0	1,7
XII	1	1,2	65.000,0	14,5
Total	83	100,0	446.790,6	100,0

These statistics have some limitations. As private protected areas still have not an official recognition from government institutions, the category of protected area is given by their owners and it is not a result of the application of technical criteria from governmental institutions. Some areas might have not the requirements of a protected area, and also disinterestedness or ignorance of the owners might cause the exclusion of valuable areas.

4.7.2 Ecotourism and biodiversity in private protected areas

The following are some of the characteristics of private protected areas in Chile, according to the FAO/CONAMA study (see footnote). These characteristics demonstrate the appropriate linkage of ecotourism and biological diversity in private protected area initiatives.

- a. Ecotourism, environmental education and conservation of biological diversity are the main motivations of private owners to classify their properties as protected areas.
- b. Almost 90% of these properties are destined to develop non-consumptive activities such as ecotourism²⁹. None of the owners is motivated by future commercial value of their properties.

²⁸ Oltremari, J., Thelen, K. 1999. Analysis and Methodological Design to prepare Management Plan on Private Protected Areas. Final Report. FAO/CONAMA. Santiago of Chile.

²⁹ The following definition has been adopted for ecotourism: tourism that is carried out in relatively undisturbed natural areas (from pristine nature to more or less degraded habitats) and which serves as a tool for conservation and sustainable development of local communities (Ceballos-Lascurain, H. 1993. The IUCN Ecotourism Consultancy Programme. Mexico City).

- c. Scenic beauty is the main environmental value assigned by the owners to their properties, a condition closely associated to ecotourism attraction.
- d. Almost 50% of private protected areas in Chile are carrying out management programmes concerned with ecotourism, including environmental education. However investments in facilities are still modest, probably as a consequence of the lack of governmental recognition.
- e. Most private protected areas are associated with native forest environments. The most frequent type of forest is the so-called “Evergreen Forest Type”, characterized by high biodiversity and the presence of several vegetation layers (each one with several species). This is considered the vastest and most complex forest type found in Chile, including a great habitat variability.
- f. Some properties are protecting endangered forest species, such as *Fitzroya cupressoides*, *Austrocedrus chilensis*, *Araucaria araucana*, and *Nothofagus glauca*, and one of these properties is registered in the Red Book of Priority Sites for the Conservation of Biological Diversity.

4.7.3 Some specific example of private protected area

In addition to the Pumalín Natural Sanctuary, mentioned in section 4.6.3, which is part of the private protected area system in Chile, there are several examples of best practices of ecotourism linked to biodiversity conservation within the context of private protected areas. The following is the detail of an additional specific case: The Alerces of Lenca Protected Area.

Alerces of Lenca is a private forest land located 36 km south of Puerto Montt, in the Andes Mountains, including a spectacular evergreen rain forest dominated by Alerce (*Fitzroya cupressoides*), a Chilean forestry endangered specie. The reserve has about 2,000 ha and is located close to the Austral Road and adjacent to Alerce Andino National Park.

In 1994 a local family bought the property to a forestry company, which exploited the *Fitzroya cupressoides* forests throughout 20 years. This hardwood still is used for making shingles and for house building. *Fitzroya cupressoides* is an ancient species, which grows at a rate of about one millimeter a year, or less, meaning the trees were exploited when they were 1,000 – 4,000 years old. The local family had in mind to continue the exploitation of *Fitzroya cupressoides* forests; however, in a short time they came to the conclusion that it was more important to protect the forest, including many more native species of flora and fauna, as well as spectacular views within a glacial valley. The new idea was not only to protect, but also to share these values, through a natural park for public use, building a lodge for ecotourism.

In 1996 the construction of the lodge began , with a series of restrictions and regulations to avoid environmental impacts on the valuable species. A year later in 1997 the lodge was open to the public. This lodge has the following accommodations:

- a. Three natural wood cabins of 85 square meters, each one with two bedrooms, a living room and a bath room, located near Lake Reflejos, with a magnificent view. The cabins are of high standard of comfort, and maintain the architecture and the feeling of their surrounding. All cabins, housing up to seven people, have electricity and hot water system.
- b. A building of 750 square metres, with bar, kitchen, game room, dinning room, inside grill, some areas for relaxing, and six bedrooms, housing up to 30 people at the same time.
- c. Ecotourism activities include: horse riding, short bilingual guided walks ranging from easy to difficult, guided bilingual trekking to different points of the mountain range (the highest peak reaches about 1,500 meters above sea level), and fishing.

The Alerce Mountain Ecotourism Lodge was developed from the idea that biodiversity is a source of enjoyment and study. The owners belong to a group who believes in the possibility to share natural values and enjoy nature, following the old tracks of the shingle makers. They believe that conservation of flora and fauna should be a priority for Chilean and foreign society, while enjoying ecotourism activities.

Constraints for this type of activities are the lack of incentives of governmental institutions to promote private protected areas, under a recognized and regulated system. Private protected areas in Chile are conservation initiatives of the private sector without any kind of incentive or regulation from official institutions. An additional constraint is the lack of coordination among interested owners. In spite of these consideration, private protected areas are still a valuable complement for biodiversity conservation and the provision of sustainable ecotourism.