Amenity Migration: Challenge for Better Understanding Gateway Communities and National Parks to Conserve Common Resources
(Case Study of San Martín de los Andes and Lanín National Park)

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Abstract: This paper analyzes the fragmentation of land occurring due to amenity migration on private enclaves in a premier Argentine protected area, the Lanín National Park, along with its impacts on the park’s gateway community of San Martín de los Andes. Of the park’s total 412,000 ha, 26,865 have been subdivided into private ranches. The park is located in Neuquén Province northwest Patagonia Region of Argentina. San Martín de los Andes sits at 640 m at the head of Lake Lacar surrounded by the Andes. Its premier ski resort is on 1980 m high Mt. Chapelco. This park and town are among the favourite places in Argentina for amenity migrants and tourists. The paper concludes with proposing guidelines for conserving such fragile areas and their water basins.

Introduction

Water availability is one of the key issues in the world today. During the next 50 years, problems related to the lack of water will affect almost all the Earth’s population. Patagonia as a region has one of the planet’s most important reserve of fresh water, with water resources of about 230,000 km². However, a global driving force threatening this reserve is amenity-based mobility. Its accelerated
growth over recent years, attracted principally by the beauty of Patagonia’s high basins and lakeshore areas, can be analyzed from two perspectives. There are the impacts of tourism, and secondly, and more recently, the impacts produced by amenity migration (Otero et al 2006, 307).

A number of towns of Patagonia, Argentina are receiving this type of migration, such as San Martin de los Andes, El Bolsón, and Ushuaia. This amenity-led process leads to a growth of gateway communities to parks and also the subdivision of private land holdings within national parks. This loss of rural and natural land is threatening the conservation of common resources, specifically water, forests and natural landscapes.

Objective & Methodology

The purpose of this paper is to systemically analyze the fragmentation of land due to amenity migration in a premier global and national protected area, the Lanín National Park, and in its gateway community of San Martín de los Andes. From this analysis we will also propose policy and planning guidelines that address the concern for sustaining fragile mountain protected areas and their water basins.

Due to the experience of one of the authors of this article working for many years as Head of the Territorial Planning Office of Neuquén Province, the research group had good access for key informant interviewing in Lanín National Park, the Territorial Planning Office of Neuquén Province and the Municipality of San Martín de los Andes. In addition, we analyzed bibliographical references and public documents and drew on our participant observation experience. During 2005 and 2006 research information was in particular developed about the estancias (ranches) inside Lanín National Park and new urban developments in the gateway city of San Martín de los Andes.

Lanín National Park and its gateway community of San Martín de los Andes

Lanín National Park is located at about 40° 08´ S., 71° 18´ W. in Neuquén Province, northwest Patagonia Region Argentina. Of the park’s total 412,000 ha, 26, 865 ha have been subdivided into private ranches. This area has been zoned as a “Special Uses Area” in the Park Management Plan. San Martín de los Andes is one of its main gateway communities. The town sits at 640 m, at the head of Lake Lacar, and is surrounded by the Andes. Its premier ski resort is on 1980 meter high Mt. Chapelco. San Martín de los Andes and Lanín National Park are two of the favourite places in Argentina for amenity migrants and tourists.

Theoretical Approach

“Around the world there is a growing migration to mountain areas for the remaining concentrations of our planet’s natural environment and distinct cultures. Today, this movement is perhaps the most significant manifestation of a societal driving force: amenity migration”(Moss 2006, 3).

One of the most important impacts of this type of migration is the fragmentation of rural land into an urban pattern which can be characterized as “diffuse urbanization”. This model separates the different functions of the city, in contrast to the characteristically compact and diverse/mixed use pattern of the “classic or historical city” (Naredo 2003, 26-27) Also the diffuse model consumes more land in its
development. The main difficulty in changing from this trend is not only the strong dynamic of its
growth, but it is controlled by people who lived outside the local community. In addition its process of
urbanization and building are supported and sponsored by a speculative real state rationality, generally
without concern for socio-cultural, spatial and ecological effects. Further it is a model where an
extensive and self-sufficient pattern, as well as privatization and individualistic processes predominate.
In fact, if the city is understood as a group of human interactions, it can be affirmed that the
disintegration that diffuse urbanization produces, is a denial of the city itself.

They are many characteristics that define diffuse urbanization, most of them quite interrelated.
The principal ones are highlighted by Souto González (2006)

1) *Disintegration*: diffuse urbanization destroys social interactions or, at least vastly hinders them.
2) *Extension*: The territory is invaded indiscriminately. As a consequence urban density falls
vertiginously and quality of urban life becomes poor or it is totally eliminated.
3) *Single function*: the assignment of specialized and separate functions to urban spatial developments in
diffuse residential urbanization destroys the desirable mixture of urban activities.
4) *Homogeneity*: the functional differentiation also transforms the city into segregated communities
where social distances increase.
5) *Privatization*: Public space disappears or is reduced to strict coldness of communication by car. When
the public space idea dies the idea of city also dies.

In summary, diffuse urbanization is a way of life that threatens to destroy the demonstrable
social and physical closeness of mountain villages.

The manifestation of the above in our study area results from the sale of land in fragile mountain
areas, even including areas in natural reserves. This results from the subdivision of ranch land within the
Lanín National Park into gated areas creating urban clusters within them. The process embodies
effective loss in quality of life, as well as a restriction of democracy and, consequently, a reduction of
the citizen's freedoms. These public resources that enter into the speculative real state market, in most
cases allowed by corruption of government officials, bring about: a magical disappearance of public
streets and public circulation (as they are considered to be exclusive zones); the lack of attention to
regulations by urban developers and owners; and the general lack of respect to urban plans rules. All
these conditions impinge on the civil rights of all citizens.

Therefore, territorial planning in mountain centres requires a re-conceptualization of the existing
dichotomy between society and nature, in the sense of analyzing and harmonizing the urban
environmental relationship. The systemic approach to this need recognizes that the elements are not
autonomous and that they do not act in a void, but is involved in a complex net of interdependences, in
which some are affected by others, and that their state or condition cannot be understood except from an
holistic perspective. The city and its area of immediate influence should be understood as a functional
system, a group of components related to each other for attaining common ends that interact with each
other in a constant way. Inside that functional system, the tourist subsystem mobilities and amenity
migration mobilities can be found.
This systemic vision of vital resource management in the amenity migration process in tourist destinations forces one to adopt an inter-jurisdictional approach to the resolution of the problems linked to them. In relation to the issues around water, it is important to have “negotiation rounds” involving all those institutions that have jurisdiction and domain on the water basin as stakeholders. Recognizing their interdependences facilitates developing an integral plan that offers common solutions.

The establishment of standards to act as "thresholds" for environmental quality that determine when and where a new development can take place, can help mountain communities establish use conditions for urban development generated by amenity migration.

The concept of limit is well established in ecological studies, and its concept of capacity of use is important for establishing the tolerance of a landscape for types of activity. It is linked to the impacts on an ecosystem and how the level of use affects the quality of water, soil, air, plants and animals. All the resources of an environment are involved in the determination of this capacity. The limits of capacity, or thresholds, should be analyzed for the specific special, structural and historical properties of a given place.

In using Koslowzkí´s concept of Environmental Limits Thresholds, a range of environmental restrictions exists for the development processes. "The threshold of the development is reached when this development cannot be extended to a new area, when producing an additional result, to reach a better quality or to accelerate the development process, cannot be reached, without producing an increase in the investment or in the ecological and social costs. The quantity of units of product of development in which happens in such situations indicates the threshold in a real or hypothetical curve.

The thresholds represent limits to certain developments; if we exceed them, there will be damages of irreversible character to specific natural resources, many of which are indispensable for the same process”.

Water availability and quality should be considered a factor of territorial development that imposes a limit on the urban capacity of land. The biological function should be highlighted to assure potentially involved lands as a life sustaining ecosystem. This is essential not only for an urban area, but to protect water basins in national parks because of their importance in providing water supply for entire regions. As an example of such risk, consider the current lack of water that the community of Picún Leufú faces due to water availability variations (a city in the same region about 200 miles distant from this research focus). This case demonstrates the necessity of an ecological perspective for bounding the urbanization capacities of land in a water basin, along with analysis of possible derived impacts. It is possible that a number of communities depending on the water of a lake region will not have enough water supplies in terms of quality and quantity for a healthy life in the future.

Fragmentation of the land in Lanín National Park (Otero, A. and Gallego 2007, 8)

Lanín National Park was created in 1937. The objectives were geopolitical -- to promote the development of settlements in border areas, and also to conserve landscape beauty for recreation and tourism activities. When the park was created parts of it were already in private domain and referred to as called "patagonic ranches". These lands were subjected to diverse exploitation for agricultural, cattle ranching and forestry. The historical ranches found on the map of Lanín National Park, elaborated in 1964 by the General Office of National Parks, are from north to south: La Ofelia, Manuil Malal, Los Helechos, Huechuquina and Lago Hermoso. According to data of the Department of Construction and Infrastructure, Lanín National Park Headquarters, many of these ranches in the Park have been
subdivided, presenting a mosaic from 16 lots to 689 lots, and varying in plot size from 55 ha to 253 ha, with the latter ranging from 1136 m² to 7.2 ha.

To summarize, Table 1 shows the quantity of lots inside ranches and adjacent to the Park on the shores of lakes and rivers. Following, Figure 1 shows the spatial distribution of these urban developments in the Park. These changes constitute a real threat for the principles of conservation of a protected area.

Table 1: Quantity of lots inside Ranch in Lanín National Park and adjacent to it.

<table>
<thead>
<tr>
<th>Urbanizations</th>
<th>Lanín National Park Q of Lots</th>
<th>Adjacent to Lanín National Park Q of Lots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quillén</td>
<td>31</td>
<td>-</td>
</tr>
<tr>
<td>Huechulafquen</td>
<td>463</td>
<td>3.190</td>
</tr>
<tr>
<td>Quila Quina</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>Río Hermoso</td>
<td>248</td>
<td>-</td>
</tr>
<tr>
<td>Meliquina</td>
<td>437</td>
<td>2.100</td>
</tr>
<tr>
<td>Lago Hermoso</td>
<td>746</td>
<td>-</td>
</tr>
<tr>
<td>Quilquihue</td>
<td>-</td>
<td>530</td>
</tr>
<tr>
<td>Lote pastoriles 44 y 43</td>
<td>-</td>
<td>3.800</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1975</td>
<td>9.620</td>
</tr>
</tbody>
</table>

Source: Based on data of General Direction of Urban Infrastructure, Neuquén Province and Building and Infrastructure Department, Lanín National Park Headquarters (2005)
These subdivisions of urban developments present administrative irregularities, since they are registered in the Cadastre of Neuquén Province. They aid recovery from the territorial jurisdiction of the Park that the Province considers are provincial, yet registration lacks juridical authenticity, since the Park jurisdiction is a national not provincial one. This situation causes a conflict of jurisdictions that owners and developers take advantage of to avoid obeying current regulations. The provincial acceptance for subdivision should not apply, and as they are not registered in the Park as urban developments, and they do not comply with national regulations either.

In addition to the juridical dimension of overlapping jurisdictions that tends to confuse the *de facto* and *de jure* condition, there are other issues. Differing sales and land use activities are carried out, causing damage to juridical order and image from people being devieved. Considering the environmental dimension, the main issue is the occupation of land without consideration of any current norm. This generates not only local impacts but also other impacts that rebound in the whole park and region, among the most relevant, contamination of drinkable water sources, lack of public riverbanks and lakeshores, deforestation.

The urban developments are generally located in the shoreline areas of lakes, rivers and streams. It is necessary to highlight the magnitude of the juridical chaos in which some of these villages are immersed. A good example is Huechulafques urbanization. There are lots entirely in national jurisdiction, lots entirely in municipal jurisdiction and lots divided between both jurisdictions. In 1972, by Resolution #342, the National Parks Administration tried to regularize the lots in its jurisdiction, but until now the developer has not executed all the requirements that had been requested since then. In spite of the legal problems of ownership, the Sociedad Ganadera del Sur (Cattle rising Society of the South), who owns the land, is still marketing the lots, without any oversight by the National Parks Administration or the Municipality of Junín de los Andes.

While Huechulafquen village is considered to have a capacity for 20,000 inhabitants, it does not have any basic services infrastructure, nor any study for how to develop them. In spite of these constraints the village still sustains new residential construction. This process indicates the magnitude of negative impact such development means for the Park, and greater regional environment.

As a consequence of this subdivision of land, and as a way to face existing irregularities, the National Parks Administration has approved a rule to regulate division of land in private properties since 2006, and also approved in 2007 a rule to regulate the use and occupation of land in Parks, Reserves and National Monuments, as well as a Building Construction normative. We have yet to see how effective these will be.

**Amenity Migration and Tourism Urbanizations in Environmental Fragile Areas in San Martín de los Andes**

San Martín de los Andes City (SMA), with more than 14,000 ha of public land, extends from the shores of Lake Lacar to the banks of Lake Lolog. The latter is the source of potable water for the city. However, Lake Lolog is under the jurisdiction of another municipality, Junín de los Andes, which generates a challenge to appropriate water use management (Figure 2).
Figure 2: Lake Lolog and Quilquihue River – Potable Water Source of San Martín de los Andes City

![Figure 2: Lake Lolog and Quilquihue River – Potable Water Source of San Martín de los Andes City](image)

Source: Municipality of San Martín de los Andes (2005)

The historical settlement of SMA is located on the shore of Lake Lacar, on the floor of a glacier valley, and is now completely consolidated as an urban area. The valley where the city is located constitutes a longitudinal hydrological axis which collects water from Pocahullo Stream basin (Rapacioli, R. 1998, 2) and is part of La Vega Maipú, a plain without important discontinuities. It is 7 km long and its average wide is 1.4 Km. adopting the shape of a perfect basin.

An ecological role of this area is to slow the hydro flows of the whole basin. This process has an important biological function in the growth of the lower area of the water basin, especially in the city’s core. This plain is categorized as a rural area for land uses purposes, but it is slowly shifting to permanent residential urban uses in a highly fragile rural-urban ecological zone (Rapacioli, R. 1998, 3) (Figure 3)

Figura 3: La Vega Maipú – San Martín de los Andes

![Figura 3: La Vega Maipú – San Martín de los Andes](image)

Source: Municipality of San Martín de los Andes (2005)
At the north of La Vega Maipú is a landscape of rounded hills with glacier erosion and rocky cliffs. The Northeast hillside has a significant change in its gradient, which separates two areas: the hillsides and the terraces. Second and permanent homes developments have been locating on the terrace area during recent years. Gated neighborhoods and country clubs are the types of urbanization that predominate (Gallego E. 2006, 21). (Figure 4)

*Figure 4: La Vega Maipú Landscape. North Slope of Chapelco Range*

According to the National Census, in 2001 San Martín de los Andes had 23,520 inhabitants, and the 2008 estimate was about 32,739 (General Direction of Statistics and Census of Neuquén Province, 2008) This population growth of 39% mainly resulted from in-migrants from other cities of Argentina and from abroad who are permanent, seasonal or intermittent settlers. This change in population generates territorial transformations obviously manifest in the high demand for urban land and in the fragmentation of the land by real estate development pressure. (Figure 5)

The advance of the process of occupation of land, the increase in its price and its shortage, in relative terms, in the closest areas to the city’s core, have generated the new urban developments in La Vega Maipú and on its slopes. These locations generate challenges in recent years for the city’s Urban Planning Department.
The first of them is to assure a drinkable water supply. The technical solution was to pump water from Lake Lacar. This option has been very expensive and doesn’t reach urban developments on the slopes and those further away. So it has not sufficed, and it has been necessary to use the other provisioning water sources of natural wells and water extractions through perforated wells.

The second challenge is to minimize pollution in water bodies. As the urban developments grow in La Vega Maipú the treatment plant exceeded its capacity. In spite of adaptations to catch solids, since 2004 it has been necessary to open a by-pass to spill out untreated black water into Lake Lacar. At present, there a larger treatment plant is under construction to improve the system, but it will still not have enough capacity to absorb the waste water of the developments on the slopes and those located in La Vega Maipú.

The third key challenge is to maintain the quality of the main source of drinkable water for the city: Lake Lolog. First of all, most of Municipal land of San Martín de los Andes is within Lake Lacar basin. This basin is under three jurisdictions (Neuquén Province, National Park Administration and Municipality of San Martín de los Andes). Secondly, San Martín de los Andes land is distributed in two different basins, Lake Lacar and Lake Lolog, and almost the whole of Lake Lolog is under Junín de los Andes’ jurisdiction. Actually, there are two different urban developments on the head of this lake, which means potential pollution of Lake Lolog and its principal stream, Quilquihue This stream and the lake at San Martín de los Andes’ main sources of drinkable water. This problem shows the necessity of co-management of these shared resources (Figure 6).

Water is also an important resource for recreation purposes. It offers the opportunity to have significant experiences related to snow in winter and in summer recreation activities like fishing, swimming, and bird watching and more in the neighboring rivers and lakes.
To find appropriate solutions to these water issues is far from easy. Keeping good quality drinkable water sources and the quality and public access to water resources for visitor and resident recreation purposes, implies harmonizing a dynamic private real state market and government’s public responsibilities.

Figure 6: Lake Lacar Basin and San Martín de los Andes Municipal Land

The Black Line indicates the Lake Lacar Water Basin and the Red Line the boundaries of San Martín de los Andes Municipality
Source: Direction of Cadastre of Municipality of San Martín de los Andes (2005)

Conclusions

If we analyze the above outlined key issues pertaining to Lanín National Park and its gateway community of San Martin de los Andes that arise from the amenity migration process, we see there are a succession of decisions taken and omissions made by the National Parks Administration, by Neuquén Province and local governments in their respective jurisdictions. The results are clearly discernable and strongly indicate that action is taken typically ex post facto, adjusting to conditions when issues already exist.

The process of planning and management of land in mountain areas has to be developed from a systemic perspective and promoting decision making before issues become present. To deal with water issues derived from fragmentation of land due to amenity migration it is necessary to consider the land of park and gateway communities in a global and integrated manner.
In this sense, it is necessary to recognize the importance of the State as a guarantee of civil rights related to public resources, and the necessity of linking a policy with the different public institutions at a regional scale to avoid the development of unplanned urban development in valuable natural areas. In addition to the definition of a policy and a regulation for the emergence of these developments, it is also necessary to design administrative procedures that bring about the relevant issues, which include simpler and more effective mechanisms to prevent or reduce bureaucracy and focus on coordination to solve problems of the different jurisdictional boundaries involved.

The water basin, the bioregion, must be the basic territorial unit of planning, not the political jurisdiction in which it is divided. An integrated database should be created to share information between jurisdictions and be the base to develop of social, economic, and environmental dimensions to help in the process of making decisions and to asset them in the future.

The role of government during the planning process, in terms of growth management of mountain destinations, is to assure the preservation of fragile environmental areas and public resources by the application of different instruments, such as declarations of protected landscapes, rights of no development for special areas, moratoriums, or another kind of incentives to manage areas.

Guidelines for Environmental Management for Land Use in Amenity Migration Mountain Destinations

The following guidelines for formulating public policies for urban development in amenity migration mountain destinations are operational measures for environmental management of land use. They outline how to deal with real estate development while trying to preserve those environmental elements that are essential for life, such as water resources (Consejo Deliberante San Martín de los Andes 1999,24). They imply a strong presence of local government, negotiating rounds with investors and good linkage among the different jurisdictions involved.

These approaches are part of San Martín de los Andes’ current Urban Plans and of their corresponding zoning process. This research group was involved in institutionalizing these planning tools through their roles as policy makers or consultants.

- **Implementing Measures of Territorial Planning**
  - **Declare areas as Protected Environment**
    The declaration of protected environment enables prioritizing considerations of environmental protection against human activity (Consejo Deliberante San Martín de los Andes 1999,35)
  - **Declare Land for Special Treatment** (Consejo Deliberante San Martín de los Andes 1999,28)
    Recognize urban areas of special value and establish guidelines and approve special norms for fragile areas (wet lands, forest areas, etc), and develop urbanization which could generate great impacts.
  - **Respect environmental limitations to protect and preserve rivers and streams**
    *Establish “Hydrobiological Tutela” in rivers and streams* (Consejo Deliberante San Martín de los Andes 1999 37)
Forbid human uses in water bodies, including civil works like buildings, artificial slopes, or filling works.

- **Design infrastructure considering areas of high environmental quality**
  
  *Open roads and streets* (Consejo Deliberante San Martín de los Andes 1999,38)
  
  Reduce the opening of roads and streets to the minimum possible.
  
  *Special Treatment for Land without buildings or construction.*
  
  Limit paved soil to a minimum of 15% of the permitted area to build in one floor using eco-blocks or similar materials.
  
  Prevent the use of impermeable pavement in parking areas.
  
  - *To Adopt Special Urban design patterns* (Consejo Deliberante San Martín de los Andes 1999 40)
  
  - In swamps, adopt the “Independent Urban Intervention Module” (IUIM)” (Consejo Deliberante San Martín de los Andes 1999 48)
  
  This type of urban intervention implies an island in large areas of land in rural areas. The island works as a mother dominant land which is not possible to subdivide. Functional units are admitted as lots inside it. This Module looks for to encourage to avoid subdivisions of lots and low density occupation. As an example in a 15 has of land, the (IUIM) is of 2 has.
  
  The land without buildings is used as an area of water infiltration. This area is called *Environmental Protection Area*, and there is forbidden any type of construction on it.
  
  The size of lots on the slopes has a minimum of 2.500 m2, with low occupation factors (10%) in open urbanizations.

**References**

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- **Municipality of San Martín de los Andes** (2005) Direction of Cadastre
  

