

# **Cultural heritage and local development issues for Chilean Andean vernacular settlements.**

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## **Abstract**

This article introduces the vernacular heritage of the Andean regions of the north of Chile, in South America. This heritage is an example of wise adaptation to a hostile environment with scarcity of resources, as is characteristic of the semi-desert area of the Andes mountains, and is an example of the fusion of the Hispanic and indigenous cultural traditions.

Nowadays this valuable heritage is in a state of great vulnerability, due to several factors, such as water scarcity, remoteness from urban centres and a strong emigration process towards the cities in the search of work. In addition the considerable seismic activity of the area, has destroyed an important part of vernacular architectural heritage, and the traditional architecture has been replaced by modern buildings that do not respect the traditional techniques, provoking not just the lost of the identity, but also the reduction in the response to the climatic characteristics of the region.

The Chilean Andean region represents an ecosystem at risk, and the local communities have no clear direction to take to continue to develop in a sustainable way, as it once was. It is a complex process, very difficult to reverse, however understanding and enhancing the vernacular heritage maybe could be the first step to reduce this situation: if authorities and local communities are aware of what they own, they can create tools for local development rooted in vernacular tradition.

## **1. Andean Territory**

The geographical macro-area known as Andean territory is located in the Andes Mountains, near the Tropic of Capricorn. Today, it comprises of southern Peru and Bolivia, and northern Argentina and Chile, with some regional variations.

The Andean Chilean territory includes three regions (Arica-Parinacota, Tarapaca and Antofagasta), and it is divided into two geographical areas with specific characteristics: the "foothills" ("pre-cordillera" in Spanish) from 2300m to 3800 meters above sea level (Fig. 1), and the "highlands plateau" ("altiplano" in Spanish), a plain set among the high peaks of the Andes (Fig. 2), that goes from 4000 to 5000 meters above the sea level.

The foothills have a semi-arid climate, with large temperature variations between day and night, and scarce water resources that give rise to small oasis. Here, agricultural development was possible, and therefore, the establishment of some small settlements. In the Andean highlands instead, the weather conditions are extreme, with strong winds, rain in summer and temperatures ranging between 10° and 30° below zero at night; the flora and fauna are scarce, and hence just the pasture of *llamas*, *alpacas*, and *vicuñas* was possible, since pre-Columbian period.



Fig. 1. The foothills territory and landscape. Nama town in the Region of Arica y Parinacota (Author: Natalia Jorquera, 2009).



Fig. 2. The highlands plateau territory and landscape. Parinacota Vulcan and Chungará lake in the Region of Arica y Parinacota (Author: Natalia Jorquera, 2010).

## 2. Andean Vernacular Settlements

The origin of Andean settlements, dates back to the various pre-Columbian cultures that belonged to Tiwanaku,<sup>1</sup> that occupied both macro-geographical areas. Due to climatic, geographic and productive differences between the foothills and the highlands, two types of distinct settlements were established: villages with houses gathered continuously forming blocks in the foothills, related to the agricultural activities, and detached and scattered houses in the highlands, which responds to the more sporadic pastoral activity.

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<sup>1</sup> The Tiwanaku was a State established in the Andean territory around the 2500 BC to 1150 AD. After that, the region was inhabited by Aymara tribes, until the thirteenth century, and then from 1300 AD by the Incas (Tawantisuyo), until the arrival of the Spanish in 1532.

Before the arrival of the Spanish in America, the Andean people used to travel several times a year, from one settlement to another, looking to supplement the resources for their livelihoods.<sup>2</sup>

With the arrival of the Spanish in the sixteenth century, the Andean communities were forced to live in one place, in order to more easily control and evangelize them. The Spanish chose the foothills settlements for this, increasing their density and changing their appearance, while the highlands settlements, began to be gradually abandoned.

### 3. Vernacular Andean Architecture and Technologies

Both the architecture and the Andean technologies that remain today, are the living testimony of how the Andean people managed a hostile environment, adapting the scarce local resources, for modeling a habitat as functional as possible to their needs for shelter. At the same time, this architecture represents one of the most interesting manifestations of a synchrony between indigenous and Spanish traditions. For both reasons, we can confirm that we are facing an important vernacular and cultural heritage.

The Andean architecture results from of a close relationship with the work of the land and with the Andean religiosity, based on the veneration of the natural elements and the open and unlimited space, in contact with the "Mother Earth" (*Pachamama*) and "Father-Sun" (*Tata Inti*).

The architecture is small and with essential forms, either due to technical reasons (the wood shortage used for the beams, that do not allow the building of large spaces) and cultural (open spaces are privileged). The building is conceived more as a small piece of pottery,<sup>3</sup> shaped by hand, rather than a rational object imposed on the environment, thus the architecture blends with the landscape.

There are three main architectural typologies:<sup>4</sup> the highland housing, the foothills housing, and the Andean church.

#### 3.1. The Highland Housing

The highland housing (Fig.3) corresponds to a more simple model of single-family housing: it is a mono-cellular space that responds to basic activities (eating and sleeping), while the rest of the activities are performed outdoors. The house is one story, with a strong predominance of horizontality, and with a shape that slightly resembles the figure of the hill, for structural reasons (greater stability against seismic action) and symbolic (likened to the *Pachamama*, represented with figure of the hill).

The house has few openings, only those for the door(s), facing east, and in the cases where some windows exist, they are small and located in an upper wall (useful more for ventilation than for looking outside).

The house is built of stone masonry and in some cases of adobe brick, with many local variations (size of the components, morphology, quality of the mortar). The roof is pitched with steep slopes to withstand the highlands winter, and it is comprised of a wooden structure of local wood named *queñua*, a layer of mud and straw for the insulation, and a cover of native straw.

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<sup>2</sup> Aura consultora, *Guías de diseño arquitectónico aymara para edificios y espacios públicos*, Santiago 2003.

<sup>3</sup> Juan Benavides and Pedro Vilaseca, *Arquitectura Colonial en Tarapacá*, Santiago 1981.

<sup>4</sup> Natalia Jorquera, *Culture costruttive in terra e rischio sismico. Conoscenza delle architetture tradizionali cilene e valutazione della loro vulnerabilità al sisma*, Florence 2012.



Fig.3. A highland housing in Isluga town, Region of Arica y Parinacota (Author: Natalia Jorquera, 2007).

### 3.2. The Foothills Housing.

This housing is located in the towns of the foothills, placed continuously with other houses forming blocks (Fig.4).

The increased presence of hidric resources in this geographic area, gave rise to an increased presence of vegetation, and thus of wood used for the beams, which enables the construction of bigger spaces. At the same time, the water and the presence of better soils, more adeguated for making adobe bricks, explain the mayor diffusion of this techniche.

The house plan is rectangular or "L", "U" or "O" shaped, with its rooms organized around a courtyard, and it is divided into three areas: a "more urban" towards the street—with the main rooms on it-, a "more rural" in the back part of the house, where bathroom and kitchen are placed, and a final area destined for crops and pens. All areas are connected with elements like eaves, that filter the sunlight, and are constructed with vegetal fibers.

The architectural language of this typology, is a bit stiffer than the highland housing (less modeled by hand), and with a strong Spanish influence, that is present mainly in the decoration around the front door.

### 3.3. The Andean Church

Present both in the area of the foothills and in the Andean highlands (with some local variations), the Andean church (Fig. 5) represents the best example of the synchrony between Andean traditions and the Christian religion: the idea of a closed space to gather the faithful is a Christian idea, while the architectural language and the technologies, are contributions of indigenous vernacular architecture. In fact, at the beginning, the church was almost identical to the highlands housing, so a single little volume, to which the Spanish incorporated some elements, the most important, the campanile, which plays an important symbolic mission to represent the vertical component that rises towards heaven.<sup>5</sup>

Another element of Spanish origin is the atrium around the church, conceived as a processional space, and was preferred by Andean communities—because it is an outdoor space in contact with the

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<sup>5</sup> Natalia Jorquera, 'Las iglesias del altiplano: un modelo de fusión entre el mundo hispánico y andino', in Maria Fernández and Mariana Correia [ed], *Terra em Seminário* (Lisboa 2010), p.125-129.

sacred elements. Finally, in addition to the clear austerity of indigenous vernacular architecture, the Spanish imposed decorative elements of a classical and baroque character (depending on the century), mainly around the doors and altar.

From the technological point of view, as in the houses, we find churches built in adobe brick or stone masonry.

Since its construction, the church became the most important monument of the Andean towns, a symbol of community unity, and a meeting space for different uses: religious baptisms, weddings, parties and caucuses occur in the church.<sup>6</sup>



Fig. 4. Foothills Housing of *San Pedro de Atacama*, in Antofagasta Region (Author: Natalia Jorquera, 2011).



Fig. 5. The Andean church of *Parinacota* Region of Arica y Parinacota (Author: Natalia Jorquera, 2011).

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<sup>6</sup> Roberto Montandón, *Iglesias y Capillas coloniales en el desierto de Atacama*, Santiago 1951. Roberto Montandón, *El Barroco en la Sierra de Tarapacá*, Santiago 1967.

#### 4. Changing Context and Heritage Vulnerability

From the last decades of the nineteenth century, the Andean regions of Chile, began to suffer economic and social changes linked to the appearance of the first mining in the Atacama Desert which attracted an important number of people to work with them, causing not only changes in production systems, but also the gradual abandonment of the Andean towns. This migration increased during the second half of the twentieth century when the younger population started to seek employment in the urban centers. Since that time the continual abandonment of the Andean towns has provoked the accelerated deterioration of the built heritage due to lack of use and maintenance. Other factors which contribute to the worsening situation are: the little enhancement of heritage and the disparagement of traditional construction techniques, which are considered poor or "underdeveloped" by the local population, resulting the loss of "constructive knowledge".

Meanwhile, a lot of traditional vernacular architecture has been replaced by concrete and low-quality constructions, or have suffered inappropriate interventions, as consequence of the fact that traditional construction techniques are not considered within the Chilean standards for construction, and the great pressure from the artificial materials industry.

To finalize, two environmental factors contribute to the loss of the vernacular heritage:

- Water shortages, due to its unrestrained use in mining activity, which occupies much of this vital element for the survival of life on industrial needs;
- The high seismic activity of the area: as throughout Chile, earthquakes over magnitude 7° are frequent. With the last two earthquakes of June 2005 of magnitude 7.9 °, and the one of November 2007 of magnitude 7.7 °, a lot of properties, already in precarious condition, disappeared.

#### 5. Problems for Local Development

Nowadays a complex process is underway in the Chilean Andean region: first, the aforementioned deterioration of the architectural heritage and the environmental context of Andean towns, together with the lack of employment opportunities, the high rates of poverty and the changes in the natural requirements of modern life. On the other hand, a rich intangible heritage, linked to the traditions of the indigenous groups<sup>7</sup> remains. Because of the geographical isolation much of the vernacular heritage has been kept, such as the original languages, music, dance, crafts and cuisine. In synthesis, it is an area where there is a strong cultural identity, but in a state of extreme vulnerability, and as such, there is no a clear direction to take for local development.

Within this scenario, the Chilean State has no legislation that recognizes the importance of preserving this vernacular heritage, nor does it to promote measures to encourage sustainable local development. At national level, the only law concerned with the conservation of cultural heritage, is the "Monuments Law", created in 1970 and focused –as its name says-, to protect the great "monuments" of history, without recognizing the popular or vernacular heritage, nor the intangible heritage.<sup>8</sup>

Besides, there are no regulatory instruments or policies that promote local development in a country where all administration and production is concentrated in the center of the territory,<sup>9</sup> neglecting the

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<sup>7</sup> The Aymaras in the highlands, the Quechua in the foothills, and the Atacameños in the Andean region of Antofagasta.

<sup>8</sup> Although Chilean government ratified the UNESCO *Convention for the Safeguard of Cultural Intangible Heritage* in 2009, this has not been reflected in Chilean laws, which does not consider the intangible heritage as a category.

<sup>9</sup> Almost half of the Chilean population lives in the Metropolitan Region (7,000,000 people from 16,000,000), where the capital Santiago is located, In the Andean Region instead, the density of population is the lower of the country: from 4 to 10 inhabitants/ Km<sup>2</sup>.

extreme territories such as the Andes, and where the free market economic model, promotes investment only in those places that are "profitable".

## **6. Conclusions**

The reversal of the negative situation that affects the Andean vernacular heritage is not easy and would imply a long process. However considering the state of decay of this heritage, its recuperation should be an urgent task before it is too late. We have to remember that cultural heritage is not a self-renewing resource.

The first step of this process would be to educate and sensitize local authorities and communities about the close relationship between "heritage preservation" and "sustainable local development". Cultural and vernacular heritage does not only refer to a physical object, but how that object responds to its environment in a sustainable way, and how this conditions lifestyles and the culture of the community that inhabited it. There is so much to learn about vernacular heritage and especially about Andean settlements: they have survived for centuries in a hostile environment, in harmony with nature and without depleting natural available resources. Thus, the study of vernacular heritage can be used as a basis for a generation of new local and self-sustaining development process.

The second step after education should be a change in the current Chilean legislation for heritage, promoting new laws and standards, that recognize vernacular heritage as an important cultural and environmental testimony worth preserving. Such laws should also enhance the local construction techniques and the intangible heritage: recover "local knowledge" is also an essential step to maintain the heritage alive.

The third step could be to create interest and abilities in professional groups, to preserve this heritage, promoting interdisciplinary networks that will be able to do this great work.

Finally, to make vernacular local heritage known to the international scientific community, can activate initiatives "from the outside" that increase the awareness of local authorities, promotes cultural and vernacular heritage within local communities that inhabit it. This is the main goal of this article: to introduce the vernacular Andean Chilean heritage in an international congress in Abu Dhabi, could surely help to enhance this important and vulnerable heritage.

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