

Sewell Mining Town (Chile)

No 1214

1. BASIC DATA

State Party: Chile

Name of property: Sewell Mining town

Location: The Sixth Region of "Libertador Bernado Higgins" in the Province of Cachapoal, Municipality of Machali

Date received by the World Heritage Centre: 24 January 2005

Included in the Tentative List: 1 September 1998

International Assistance from the World Heritage Fund for preparing the nomination: No

Category of property:

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*. In terms of *Operational Guidelines for the Implementation of the World Heritage Convention* (2 February 2005) paragraph 47, it could also be a *cultural landscape*.

Brief description:

Sewell Mining town, 2,000 metre high in the Andes and subject to extremes of climate, was developed by the Braden Copper company in the early 20th century, to house workers throughout the year for what was the world's largest underground copper mine, El Teniente.

It is a city of steps, with streets too steep for wheeled vehicles: its timber buildings, based on American models and many painted in vivid hues of green, yellow, red and blue, cascade down steep slopes.

Largely abandoned in the 1970s, Sewell's extensive remains are testimony to the fusion between human and mineral resources, a technological revolution in smelting and huge investments of American capital that allowed large-scale copper production and fostered Chile's dominant role in that industry. It also reflects the profound social and economic role that copper mining has played, and continues to play, in national life.

2. ACTIONS

Background: This is a new nomination. Supplementary information has been sent by the State Party and has been received on 18 January 2006.

Date of the Technical Evaluation Mission: 2-6 September 2005

Dates of request for additional information and of receipt from State Party: None

Consultations: ICOMOS has consulted its International Scientific Committee on 20th Century Heritage and TICCIH.

Literature: Garcés, Eugenio, *Las ciudades del cobre. Del campamento de montaña al hotel minero como variaciones de la company town*, in *EURE (Santiago)* vol 29 no 88, Santiago 2003; Garcés, E. et al. *Sewell asentamiento minero (1904 hasta la actualidad)* in *Arquitectura Panamericana*, 001: 104-117, 1992.

Date of ICOMOS approval of this report: 15 January 2006

3. THE PROPERTY

Description

Sewell Mining town is sited at an elevation of around 2,300 metres in the Andes Mountains, 60 km east of Rancagua, which is 85 km south of the capital Santiago. On the slopes of Cerro Negro Hill, the town overlooks the confluence of the Rivers Coya and El Teniente. The nominated site covers 17.2 ha and is surrounded by a buffer zone of 33 ha.

The town and some of the industrial machinery are in the nominated area. The large, deep underground mine, which is still worked, and its processing machinery are excluded.

Sewell Mining Town is a 20th century mining town developed high in the Andes Mountains to exploit on a large scale extensive natural copper resources with new, cutting edge smelting technologies. It reflects the boom in copper production made possible by the investment of large amounts of American capital that gave Chile its pre-eminence as a copper producer by the 1920s, a role that it still maintains.

Chile hosts about 30% of the world's known copper resources. Copper mining in Chile now accounts for over 35% of global copper production and represents 40% of the country's economy.

Sewell Mining town, together with Chuquicamata and Potrerillos, were developed rapidly in the early years of the 20th century by large American corporations, Andes Copper, the Braden Copper Company and the Chile Exploration company, Chuquicamata.

Sewell was itself developed by the Braden Copper Company. It was named after Barton Sewell, the first president of Braden Copper. At its height, it housed 15,000 inhabitants.

Sewell is a 'planted' town, reflecting architectonic and urban design imported from America. The buildings consist of both mining and domestic buildings constructed by the Braden Company. Sewell, unlike many other mining settlements, thrived continuously throughout its working life from 1904 until it became run down in the 1970s when miners were moved to Rancagua. The orderly withdrawal means that the remaining buildings were not abandoned to become ruinous, as is the case in many mining settlements, and most are still in reasonable condition, with some adapted to other uses.

Underground mining of the rich copper seams still continues in the area, and there is some processing of the ore in the concentrator in the town, but this will cease in

2006. The mine workings are not included in the nomination and there is no access to them through the nominated Sewell Mining town.

In detail the nomination consists of the following attributes:

- Town Planning
- Industrial Buildings
- Non- industrial buildings
- Domestic buildings
- Social and service buildings

These are considered in turn:

Town planning

The town clings to the mountainside which is devoid of vegetation. The model for the town was drawn up by the company in the United States, but had to be modified to cope with the extreme geographical conditions.

The whole town is built around a large central staircase rising from the railway station. Along its route formal squares of irregular shape were established embellished by the company with ornamental trees and plants. These comparatively small spaces were the main public spaces or squares of the town. Off the central staircase, paths ran along the contours leading to smaller squares and secondary staircases linking the many different levels.

The layout of the town was hierarchical with the houses for company workers reflecting three different categories: Class A for executive personnel, mostly north Americans, Class B for staff in supervisory positions and Class C for labourers.

The industrial buildings are largely located on the shadier south slope, while the residential areas cover the west facing slope that was found from experience to be the most stable area, least prone to avalanches and the one catching the most sun. Social buildings are intermixed with residential buildings.

Industrial buildings

The nominated site contains 63 industrial buildings. Of these, five are located in the Rancagua-Sewell railway station and were storerooms, boiler shop and foundry.

The remainder belong to the Concentrator complex which is where ore and minerals extracted from the mine were ground, (either dry through dry triturating or milled, a wet process) and then concentrated, a process which separates the copper from the rest of the ore using chemical reagents in a flotation process, with the copper adhering to air bubbles and floating to the surface. The concentrate is later smelted and refined.

The present concentrator, built of concrete and steel, was installed in 1915 and is still operating, processing 25% of the ore mined in el Teniente. It is planned to shutdown the concentrator in 2006 and turn it into a museum exhibit. All ore will then be concentrated at the Colon concentrator some 9 km from the site.

Ore arrives at the concentrator located at the highest point of the complex on a train from inside the mine. It is processed through the mills. These include grinders and thickening tanks.

Non-industrial buildings

There are a total of 24 non-industrial buildings on the site.

They were built using the platform timber frame system originating in Canada and the United States in the mid 19th century. Each storey rests on the lower storey of vertical diaphragms and horizontal frames. In Sewell, five is the maximum number of stories. Roofs are of galvanised iron and the external walls plastered and painted.

Until the 1940s, the construction drawings for Sewell were prepared in the United States. Initially, even the timber for its buildings was imported, until the company sourced local supplies. The layout, however, had to be modified from the standard grid pattern employed in other towns to suit the almost precipitous terrain.

Domestic buildings

The majority of surviving domestic buildings are in class B – for staff in supervisory positions. These are located in the centre of the town close to the central staircase. Most are double-faced with a central corridor. They are 3, 4, or 5 stories in height and housed many families, each occupying between 60 and 82 square meters of space.

Class C buildings were sited on the outskirts of the town. Of 4 or 5 stories, they provided collective accommodation for labourers with families and for single workers, dormitories with bunks and lockers for six people.

None of the family houses for class A personnel survive, only one class A boarding house which provided individual bedrooms with bathrooms. This sector of the town was demolished in the 1970s (see below).

Social & Service buildings

To the west of the town is the railway station and adjoining warehouses. To the north is the Old Hospital, the largest non-industrial building in the town. Prominently sited near one of the squares is the Industrial School, constructed in 1936 with a curved and stepped façade in the Modernist style. Several social buildings remain, including a Bowling Alley, Social Club, the Teniente club and a Theatre and Cinema, although only a part of the latter still exists. The comparatively small Catholic Church constructed in 1927 lies to the south of the housing.

History

The existence of the el Teniente copper deposits seems to have been known and mined in pre-Hispanic times. During the 15th - 17th centuries, raw materials were exported by the Spanish and then for two hundred years there was little activity. In 1897 the then owner of the mining rights initiated a survey of the copper seams in the area. On discovering the huge potential of the site, and the fact that extracting the copper would require great investment, an approach was made in 1903 to the North American mining engineer William Braden who had taken part in the Great Exhibition in Santiago in 1894.

Braden arrived in Chile the following year, 1904, and begun acquiring the property. Almost immediately a road was constructed to the nearest railway line at Rancagua. Braden joined forces with E W Nash, President of the American Smelting and Refining Company and with

Barton Sewell, the founder and Vice-President, they created the Braden Copper Company.

Over the next two years the infrastructure was developed, customs exemption agreed by the government of Chile for the large amounts of machinery to be imported from the US, and the mine equipped. By 1906, the first mill and concentrator had been erected, a lift established and an electricity generator installed. All these works involved what was then cutting edge technology, but in an extremely remote and hostile environment which initially led to set-backs. However, mining was officially authorised and begun in 1905.

In 1909 the recession in the US led to financial difficulties and fresh funds were injected by a company belonging to the Guggenheim brothers who took overall control in 1915 and the Braden Copper Company became a subsidiary of Kennecott Copper Corporation.

The operation base for the company was located at Rancagua which developed rapidly as a town. In 1917, the old foundry at Sewell was replaced by a more modern one in Caletones, where a new town also developed.

Although the company was prosperous, conditions for the mine workers in terms of industrial safety was not good. In 1945 a major, tragic, disaster occurred which spotlighted the problems: a fire in the entrance to the mine sent smoke to the galleries below choking 355 workers to death. The 'Smoke Tragedy' led to a government investigation and a widespread national debate on the inadequacy of safety legislation and the power wielded by foreign companies. The company responded by developing a large department of industrial safety.

By the 1950s Chile had become the second largest copper producer in the world. As a result of 'Chilenization' in 1967, the Government of Chile gained a 51% share of the mine and in 1971 the industry was nationalised and the company became a division of the Copper Corporation of Chile. This brought changes such as the El Teniente Club becoming the miners' cafeteria and the class A housing and other buildings being demolished.

At this time a decision was taken to move the population of Sewell further down the valley, in order to provide better facilities.

The town was abandoned as a mining settlement in 1980, remaining in partial use as a dormitory for contractors' personnel, and this led to the modification of some of the buildings and further demolition of others.

Demolition was finally halted at the end of the 1980s and in 1998 the town was declared a national monument.

The mine however still functions and el Teniente division of the Copper Corporation now produces 3% of the world's copper.

Protection and Management

The town belongs to the el Teniente Division of the National Copper Corporation.

Legal provision:

The town was declared a national monument in 1998 in the category of Typical and Picturesque zone.

Management structure:

The town is managed by personnel from the National Copper Corporation, Codelco-Chile, under the supervision of their Architecture and Construction unit. In 1999 a cooperation agreement was signed between the National Monument Council and the Codelco-Chile. This was for three years and renewable, and is still in force. Priorities were established as preparing an encroachment plan for the setting of the town; preparing a heritage restoration plan, and sponsoring a nomination for World Heritage status.

The Strategic Plan for the Conservation and Diffusion of Sewell was prepared in 1999. This aimed to develop Sewell's tourist and cultural focus with community participation. It puts in place lines of action dealing with conservation, promotion of knowledge, establishing a museum, economic sustainability, strategic alliances, and the setting up of a Sewell Foundation to optimise the resources of the town – approved in 2004 – to take over the town and its management. This will be functioning in 2006. The Sewell Foundation will be a not-for-profit foundation and unlike Codelco-Chile, will have a mandate to raise funds for the town. Codelco-Chile will be represented on the Board, as will representatives of all other key stakeholders. Codelco-Chile will 'loan' the assets of Sewell town to the Foundation for an indefinite period.

The positive impact of the Strategic plan paved the way for the development of a Management Plan for the site. This was started in 2004 and submitted in January 2006. It is in Spanish. The Plan sets out a detailed Action Plan for the restoration and conservation of the remaining domestic and industrial buildings and the staircases around the site as well as addressing cultural tourism approach to the site.

Currently the National Monuments Council supervises compliance with protective legislation. Starting in 2006, the Sewell Foundation will take over responsibility.

Resources:

The Copper Corporation has resourced the first stages of the Strategic Plan amounting to \$250,000 per annum. From 2006, the Sewell Foundation will take over responsibility and the company has agreed to continue its funding for a further 8 years.

Justification of Outstanding Universal Value by State Party (summary)

The Sewell Mining town is the first of its type in Chile to be associated with copper and so is seen as the birthplace of the copper mining industry. It reflects the impact of globalization on the copper industry and the diffusion of huge investments of capital, from already industrialized nations, with local labour resources.

Sewell is the only permanent (in the sense of families living there year round) mountain industrial mining settlement of considerable size in the 20th century. Its planning of standard company buildings around a series of steep staircases, gives it both uniqueness and standardization.

The settlement testifies to the enormously difficult conditions in which miners work at a high altitude and in a

harsh climate and has come to be imbued with profound significance.

The mixture of cultures of the US company and Chilean workers, created dialogue, understanding but also conflicts which have given the site an emblematic character.

4. EVALUATION

Conservation

Conservation history:

In 1999, a year after Sewell was declared a national monument, the Chile Foundation was commissioned by Codelco-Chile to prepare a Strategic Action Plan for the Conservation of Sewell. This was to deliver a realistic proposal for the conservation of the town as a tourist destination. This plan guided the town's restoration between 1998 and 2004. To achieve this, Codelco-Chile signed a cooperation agreement with the National Monuments Council to conserve copper mining heritage in general and in particular to work at Sewell. In the 6 years, 18 buildings and some external spaces were restored externally, and some buildings such as the Teniente Club, Cafeteria, and Industrial School, now used as a Museum, were also restored internally. The total cost of the work was US \$1.8 million.

State of conservation:

All the mining machinery included in the nominated area is still in working order and is therefore in optimal condition.

A detailed analysis of the state of conservation of the remaining buildings and structures is included in the nomination. This shows that for industrial buildings, 70% are in good condition, 25% are in mediocre condition and only 5% in a poor state of repair.

For non-industrial buildings, 88% are in a good state of conservation, 12% in a mediocre state and none in a poor state.

The state of conservation of the public spaces is stated as mediocre to good.

Protection and Management:

The *Strategic Plan for the Conservation and Diffusion of Sewell*, prepared in 1999, is a very detailed, thorough and involving plan which had a high degree of public participation, particularly from people associated with Sewell as a mining town.

The Plan has been successful in engaging the local community and municipalities in restoration work, and bringing on board tour operators to work in industrial heritage in a very remote location. It led in 2000 to the drafting of a regional tourism strategy.

The Management Plan drafted to follow on from the Strategic Plan is comprehensive and focused on sustainable preservation and rehabilitation for the built heritage at Sewell, through adaptive re-use. This policy is clearly a realistic one and the plan sets out parameters to guide decisions on types of re-use.

In order to ensure that evidence remains of how the buildings were originally used, ICOMOS suggests that a

minimum number of original domestic units should be restored and exhibited to display their original function, as a testimony to the living conditions of the miners.

Risk Analysis:

- Abandonment of the settlement

Sewell is no longer a working town – no one has lived in it permanently since the end of the 1990s. A deliberate decision has been taken to turn it into a museum town. The degree of change brought about by new uses is a potential threat to be countered. The parameters set out in the Management Plan should ensure that an appropriate balance is kept. Sewell was a harsh place to live: the challenge will be to demonstrate this reality in the way that the buildings are adapted.

- Reduction of mining activities

The Sewell Concentrator is due to close down in 2006. This will bring to an end all mining activity in the nominated site. Mining will, however, still be undertaken in the deep mine nearby and the road to the town will be used by the mining company and therefore kept open. Although the removal of mining activity will ensure that development will be controlled, it will take away the last vestige of traditional activity from the town. The whole town will become a museum. The Management Plan will need to direct attention to the re-use of the buildings to ensure that traditional uses can be understood by visitors.

- Development pressures and tourism

Currently there is no development pressure as the town is no longer functioning. Tourism could promote the demand for new buildings, but the Strategic Plan addresses the need to protect the environs of the site. The number of visitors is at a manageable level and most are organised by tour operators. As the town is within a designated mining and industrial area, all visitors must have a permit to visit – something organised by tour operators.

- Environmental

Air pollution from the Caletones copper foundry six km to the west of Sewell was addressed in 1998 by a Government decree which has resulted in the Copper Corporation establishing a decontamination plan and the construction of two gas cleaning plants. Contamination of the Sewell site from this air pollution led to its abandonment for any form of permanent habitation at the end of the 1990s. This could be lifted in the near future.

The hostile climate – particularly snow and avalanches – can cause difficulties. Metal poles have been installed in the hills around to try and break up moving snow.

Although Sewell is sited in an area of earthquake activity – as is the whole of central Chile – there is no history of activity in Sewell.

Authenticity and integrity

Authenticity:

What remains of the town was subject to some internal alterations in the 1980s after the mining community left, to accommodate contractors, but much of these alterations are reversible. The buildings that have survived with the

recent careful restoration work have kept sufficient of their construction, layout and features to give them authenticity as part of the company town. Care will need to be taken with adaptive reuse that evidence of former uses is conserved.

Integrity:

The Sewell mining town reached its zenith in the 1960s. In the two decades that followed a considerable part of the town was destroyed. It is the nucleus that remains. Clearly the town as a whole has not survived as an entity, as complete sectors such as the class housing have been demolished. What remains reflects the hierarchical layout of the mining town, with its circulation staircases and zoned housing, built to a standard model. Many of the service buildings also survive. The structures are reasonably intact, some having been restored. Visitors to the town can gain an understanding of the way the town was structured and the relationship between what remains and what has been lost.

Comparative evaluation

Sewell is a remote 20th century company mining town, formed with foreign capital with the use of local workers, and with distinctive spatial characteristics that reflect social hierarchies and the mountainous nature of the terrain in which it was built.

The nomination draws attention to the fact that it was not promoted by a philanthropist, nor designed by individual architects: rather its development was the result of adapting formal plans to the challenging terrain and climate of the Andes. It thus reflects pragmatic solutions by a company to establishing a functioning urban complex for its workers in a hostile environment.

Within Chile, Sewell can be compared with other copper mining towns such as Chuquicamata and Potrerillos in the Desert of Atacama. Both are larger than Sewell. Because of the different, much flatter, terrain, the towns developed around main squares with rectangular grid patterns. All three were however hierarchical in terms of the way zones for housing were laid out. Chuquicamata and Potrerillos were abandoned in the 1990s and in both cases the buildings have suffered as a result. Sewell now remains the best preserved of these three.

The nomination also refers to the Chilean saltpetre towns of Humberstone and Santa Laura, already inscribed on the World Heritage list. In terms of structures alone the comparison is limited: the value of Humberstone and Santa Laura arises from the fact that much of the machinery survives, but also because saltpetre was only mined in Chile and contributed to an agricultural revolution around the world. In these towns too, the miners contributed to landmark changes in employment conditions. Sewell town on the other hand is one of many copper towns around the world and was not distinguished by battles to change working standards.

Looking outside Chile, comparison can be made with other mining company towns set up by the Sewell Company such as the Kennecott copper mining town in Alaska. This has many similarities such as an isolated situation and wooden buildings, but it is smaller than Sewell and less well preserved.

Around the world, there are many other isolated mining towns set up by companies for various types of mining with significant integrity. Company towns in Queensland, Australia, which recently ceased mining precious metals, are similar in size, social complexity and age to Sewell, and more intact. At the Lake Superior Copper District in Michigan, large complex settlement developed in an isolated area prone to heavy snow. Other mining communities such as Butte and Anaconda in Montana, and Douglas and Bisbee in Arizona also reflect similar characteristics to Sewell such as social hierarchies. These examples underline the fact that mining complexes set up in remote hostile environments and reflecting a corporate mining mentality are a world-wide phenomenon.

Sewell is part of this world-wide phenomena. Its distinctiveness lies in a combination of factors none of which are unique: its location and the way it reflects the adaptation of a standard company town to a hostile environment, its establishment with foreign capital and foreign technologies, the use of a local workforce and the fact that much of it has survived. As a prosperous town, it also contributed to the global spread of large-scale mining technology and the success of the copper industry in South America. As such it is seen as an exemplar of a 20th century company town.

Outstanding universal value

General statement:

Sewell mining town is of outstanding universal value as an exemplar of early 20th century company mining towns, set up with foreign investment and foreign technologies but adapted to the local terrain and employing a local workforce. It reflects the early, global spread of large-scale mining technology and the prosperity of copper mining in South America.

Evaluation of criteria:

The Sewell Mining Town is nominated on the basis of criteria ii, iii and v.

Criterion ii: Sewell as a distinctive mining town was developed through imported technology, investment and building materials. It is difficult to see how the establishment of Sewell has had a significant impact upon practices in other regions – either through town planning, technology or indirect economic benefits. The technology was widely used, the town plan seems to be a unique and practical response to the environment and Sewell was one part of a much larger copper industry around the world. Sewell did not contribute to any exchange of economic, social or cultural capital in other parts of the world.

Sewell does, however, exhibit the influence of foreign capital, foreign equipment and buildings imported from North America. It can be seen as an exemplar of global phenomena, company towns established through a fusion of local labour with resources from already industrialised nations, which contributed to the global spread of large-scale mining technology. In this sense ICOMOS considers that the property meets this criterion.

Criterion iii: To justify this criteria Sewell would need to show that it was a unique part of a cultural tradition or civilisation – from the point of view of technology, social

structures or economic development. Although the spatial layout of the town is possibly unique, this was a response to environmental conditions rather than being part of a wider cultural tradition or reflecting unique cultural traditions. ICOMOS considers that the property does not meet this criterion.

Criterion v: Although Sewell is possibly unique from the point of view of its spatial layout, and has certainly become vulnerable under irreversible change, so too have many mining settlements around the world. Even in terms of copper mines, there are other comparable examples that reflect the way copper mining was organised in the 20th century, such as in North America and Australia. ICOMOS considers that the property does not meet this criterion.

Criterion iv: This criterion was not suggested but should be considered. Sewell is a typical company town that was adapted to fit the hostile, high altitude mountainous environment. Its architecture was thus standardised in pattern, but unique in layout. It cannot be considered to be an exceptional example, other than in terms of its location; rather it is a well preserved example of a company town that is part of a wider global phenomenon. ICOMOS considers that the property does not meet this criterion.

5. RECOMMENDATIONS

Recommendations

ICOMOS commends the State Party for the detailed nomination dossier. In continuing the restoration of the buildings in Sewell, it supports the principle of adaptive re-use, but recommends that a minimum number of dwelling units be restored rather than adapted to display the realities of mining life in the town and to keep sufficient of the internal layout- of the buildings to ensure that their original functions can be discerned.

Recommendation with respect to inscription

ICOMOS recommends that The Sewell Mining Town, Chile, be inscribed on the World Heritage List on the basis of *criteria ii*:

Criteria ii: Sewell town in its hostile environment is an outstanding exemplar of the global phenomena of company towns, established in remote parts of the world through a fusion of local labour with resources from already industrialised nations, to mine and process high value copper. The town contributed to the global spread of large-scale mining technology.

ICOMOS, April 2006



Map showing the boundaries of the property



View of the town



Concentrator



Class C housing