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## Røros Mining Town and the Circumference (Norway) No 55bis

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*Official name as proposed by the State Party:*

Røros Mining Town and the Circumference

*Location:*

Counties of Sør-Trøndelag and of Hedmark  
Norway

*Brief description:*

The history of Røros and the Circumference is linked to the copper mines. Established in the 17<sup>th</sup> century, they were exploited for 333 years until 1977. The proposed extension is a serial site and comprises the Town and its industrial-rural cultural landscapes; Femundshytta, a smelter with its associated area; and the Winter Transport Route. Surrounded by a buffer zone, coincident with the area of privileges (The Circumference) granted to the mining enterprise by the Danish-Norwegian Crown (1646), the property illustrates the establishment and flourishing of a lasting culture based on copper mining in a remote region with a harsh climate.

*Category of property:*

In terms of categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a serial nomination of three sites.

In terms of the *Operational Guidelines for the Implementation of the World Heritage Convention* (January 2008), paragraph 47 and Annex 3, it is an *historic town* and its related *cultural landscape*.

### 1. BASIC DATA

*Included in the Tentative List:* 15 February 2008

*International Assistance from the World Heritage Fund for preparing the Nomination:* None

*Date received by the World Heritage Centre:* 30 January 2009

*Background:* This is a proposal for the extension of Røros Mining Town, inscribed at the 4<sup>th</sup> session of the World Heritage Committee (Paris, 1980) on the basis of criteria (iii), (iv), and (v).

*Consultations:* ICOMOS has consulted its International

Scientific Committee on Cultural Landscapes, several independent experts, and TICCIH.

Comments on the assessment of this cultural landscape were received from IUCN on 18 February 2010 and are related to the following issues:

- The significance of natural values within the nominated property and the buffer zone, in relation to the surrounding areas;
- The management needs related to mining pollution.

The information was carefully considered by ICOMOS in reaching the final decision and recommendation in March 2010, and IUCN has also reviewed the presentation of its comments as included in this report by ICOMOS.

*Literature consulted (selection):*

Anken, L., Snitt, I., Tschudi-Madsen, S. (ed.), *Our Nordic Heritage: World Heritage sites in the Nordic Countries*, Kristiansund N, Kom Forlag, 1997.

Center for Advanced Research Technology in the Arts and Humanities (CARTAH), *The Uthusprosjektet. Preservation of Wooden Buildings in World Heritage Site of Røros 1995-1999: lessons learned*, CARTAH, Seattle, 1999.

Olsen, O.D., *Røros: yesterday, today and tomorrow; an architectural analysis dissertation presented to the Scott Sutherland School of Architecture*, Scott Sutherland School of Architecture, sl, 1976.

Prosch, F., Ways of looking at the Røros Landscapes, OVPM, Québec, 1996, pp. 69–71, In *Proceedings of the 3rd International Symposium of World Heritage Cities*, Bergen, 28–30 June, 1995.

*Technical Evaluation Mission:* 17–22 August 2009

*Additional information requested and received from the State Party:* ICOMOS sent a letter to the State Party on 14 December 2009 concerning the following issues:

- Assessment of the consequences that the envisioned extension of the runway of the airport may have;
- The planned timeframe for the development and implementation of the envisioned joint regional plan for Hedmark and Sør-Trøndelag counties;
- Strengthening of the protection of Femundshytta and its cultural features in order to ensure their adequate protection over time;
- The establishment of the Cooperation Council mentioned in the Statement of Intent;
- The planned timeframe to finalize the Management Plan.

The State Party replied on 23 February 2010. The analysis of this information is included in the present evaluation.

*Date of ICOMOS approval of this report:* 17 March 2010

## 2. THE PROPERTY

### *Description*

The proposed extension of the World Heritage Site includes both an extension to Røros Mining Town covering 16,510ha in total and the establishment of a buffer zone, covering 481,240ha, coincident with the area of privileges conceded by the Danish–Norwegian King Christian IV to the mining company since 1646, the Circumference.

The region has resulted from post-glacial transformations featuring the landscape with long ridges, eskers, moraine hillsides, lakes, dead-ice hollows, and white sand dunes.

The Circumference comprises mountainous and forested areas and includes two national parks and numerous nature conservation areas.

Owing to intensive exploitation, the landscape of the Circumference was substantially altered in a short period of time and left with a denuded imprint due to the severe exploitation of forestry resources in the copper ore processing.

### *The landscape*

The largest site of this serial proposed extension (14,000ha), named the 'Town and Cultural Landscapes' by the State Party, comprises Røros Mining Town, the landscape surrounding it and the area where the main mining fields are located: the Storzartz and the Nordgruvefeltet. Along with the mining town and the industrial and the urban agricultural landscapes, the rural landscape immediately outside the town, with summer grazing farms, the railways and the power station may be found in this nominated area.

The landscape of urban agriculture comprises a number of rural districts (Småsetran, Østerhaga, Djupdalshaga, Stormohaga, Kvitsandshaga, and Kjerkghardsahaga) in the immediate surroundings of the mining town made up of small plots of land and forming a sort of green belt. The plots were used for grazing and haymaking and were dotted by hay barns. These rural districts have undergone various transformations since the end of the 19<sup>th</sup> century, but on the east and west sides of Røros they have maintained to a greater or lesser extent the pattern of subdivisions and their function, whilst the hay barns are still features in the landscape.

### *The mines*

The Storzartz field lies in a deforested hilly landscape. The whole area shows good examples and traces of mining activities from all stages of the history of Røros Copper Works: mineshafts, rock-piles, remains of aqueducts, dams, footpaths, cart tracks connecting the mines and Røros, power transmission lines, cableways, as well as several buildings and technical installations.

Old Storzartz is the oldest mine of the copper works and is also the centre of the Circumference, the area of privileges granted by the Danish–Norwegian Crown to the mining company. Other relevant mines are Lower Storzartz (early 18<sup>th</sup> century onwards), the main mine of the copper works, where a flotation plant was built in 1926 that operated until 1972; Olavsgruva mine (1937–72), today a demonstration site for visitors, where an electric cableway (1899) transported the copper ore to the flotation plant.

The Nordgruvefeltet field contains several mines and bears traces of three centuries of mining operations. Arvedalsbruddet (1657), the King's Mine (1736), the Christianus Sextus, the Muggruva, and the Lergruvbakken mines are the most important in this area. The King's Mine was the first copper mine to be equipped with a waterwheel and power transmission rods for mining operations; a steam engine was installed in 1841. Here the ore was rich in iron pyrites and, when its exploitation became profitable, it allowed a family community to be established, with a school, a shop, and a post-office.

The Christianus Sextus mine (1723–63) was provided with electricity and with a cableway to the King's Mine and subsequently to Røros railroad.

At the Muggruva mine (1770–1919) operations were carried out powered first by horse-driven pumps and then by a waterwheel. Several dams provided the water for the machinery. In 1899 the mine was supplied with electricity and the first electric cableway was erected connecting Muggruva to Tyvoll station on the Røros railroad.

The introduction of electricity was a major technological advancement in Røros copper works. The Kuråsfossen power station supplied the King's Mine, the Muggruva, and the Storzartz mines. Electricity was produced exploiting the water power of the lake, and a dam and diverting channels were built for this purpose. Power was transferred by 24km long high-voltage lines, making this station a highly advanced technological installation and the first of its type in Norway.

### *Femundshytta*

This element of the proposed extension (950ha) consists of bare hillsides around the lake and comprises the ruins of the smelter and of the associated settlement. Femundshytta exemplifies the industrial cultural landscape associated with the smelting activity of Røros Copper Works. Smelters needed a large amount of wood and charcoal to enable them to function and forests around Røros were rapidly depleted. New smelters were built in densely forested areas. As soon as the wood became scarce, the smelters were moved further away. The ore was transported at the smelter by sledge during winter and by barge over lake Femunden in summer. At Femundshytta is to be found an unusual relic: the so-called 'play town,' a miniature town layout resembling

Røros, which indicates the importance of Røros for Femundshytta settlers.

#### *The Winter Transport Route*

This element of the proposed extension (1,560ha), running from Tufsingdal to Røros, exemplifies the form of transport that mainly characterized the Røros mining landscape before the roads and the railway were built. Mining operations and their associated communities needed to transport enormous amount of timber, ore, and goods over considerable distances, and until 1880 most of the transport used horses or oxen and sledges during winter. The transport season began around New Year, when the ice on the lakes was sufficiently thick and there was enough snow for the sledges. There are few physical traces of the path of these routes, and only large farms along them with stables and overnight accommodation testify to the existence of this form of transport. The Winter Transport Route crosses an almost untouched landscape and provides a vivid picture of this transport system.

#### *The buffer zone*

The buffer zone is constituted by the Circumference, which covers the area of the privileges granted to the mining company by King Christian IV. Its centre was Old Storwartz and the radius measured 4 Norwegian miles (equivalent to 45km). The area includes more or less continuously exploited mining areas, smelters, charcoal production areas, transportation routes, and an agricultural landscape associated with the miners. All these demonstrate how the mining town functioned and developed over 333 years of activity.

Dragas, Eidet, Tolga, and Feragen are among the smelting areas where prominent remains of activities carried out there are preserved.

The agrarian landscape in the Circumference is associated with both mining and rural activities. In certain areas agrarian practices have resulted in the enrichment of vegetal biodiversity; for example, Solendet was listed as a nature reserve for this reason.

Old paths and transport roads criss-cross the entire Circumference.

#### *Røros Mining Town*

The present World Heritage Site, Røros Mining Town, covers 51.4ha. The town lies in a post-glacial hilly setting. Mining and copper works were the reasons for the development of the town. Following the discovery of copper ore in 1644, mines were developed in 1646 and exploited for 333 years until 1977. Completely rebuilt after its destruction by Swedish troops in 1679, Røros contains some 80 wooden one- and two-storey houses and a smelting house. The Baroque church with its white-washed walls and the black slagheaps complete the picture of the existing World Heritage Site.

#### **History and development**

When the copper ore was discovered and the first mining activity began there were scattered farms in the region and the areas near Røros were used for summer grazing, haymaking, hunting, and fishing. Sami people lived there and in the 17<sup>th</sup> century, with the start of copper mining, they changed from hunting and fishing to nomadic reindeer husbandry.

Mining activity was encouraged by the Danish–Norwegian king Christian IV who needed the income and the metal to enable him to wage his wars of expansion. Silver works were established in Kongsberg (1623), while copper mining began in Kvikne (1630), Røros (1644), Løkken (1654), Selbu (1717), and Folldal (1748).

The first mine where copper ore was found proved not to be commercially exploitable but mining activities started at Storwartz.

In 1646 the king established an area of privileges to be granted to the mining company. Inside the Circumference Røros Copper Works had the monopoly for exploiting the natural resources, and the farmers living there were obliged to work for the company, in return for some form of payment. Farming activities were encouraged and the working timetable of the copper works included one day per week and one month per year free to allow employees to carry out farming work.

The company was organised as a 'partnership': the copper was distributed among the owners according to the size of their share and they had to make independent arrangements for selling their metal. Operating capital had to be advanced every year, and the company was obliged to provide food supplies and educational and health services to the mining town and its related communities.

The golden age of Røros mining town was between the 1740s and 1814, the date of the end of the privileges when Norway secured its independence.

The operation of copper works remained profitable until the 1860s, when the price of copper fell and operating costs increased. Major technological advances in mining operations were introduced in this period: the construction of the railway (1877), the use of the adapted Bessemer iron-refining process (1887), and the introduction of electricity (1897). All this ensured a further period of prosperity that declined after World War I until the company's bankruptcy in 1977.

Until the 1880s the technology of mining and smelting underwent only occasional and gradual changes and was carried out thanks to animal and water power. To obtain the intermediate product known as copper matte a five-step roasting and smelting process was developed to separate sulphur and iron from copper, which required several days to produce the copper. The introduction of the Bessemer process drastically reduced the

processing time. This equipment had to operate continuously and this led to the definite closure of smelters outside Røros.

After the construction of the railway, the old transport system was abandoned, and the need for timber fell drastically as coke replaced wood as fuel for furnaces. Remote smelters were closed and smelting took place at the main smelter in Røros. Finally, electric power was introduced: electric light, electric pumps and lifts in the mines, and locomotive to transport ore and rock out of the mine.

Technological advancements in copper works also led to changes in the agriculture; with the farmers working full-time in the copper mines and works farming became more specialized. The miner- farmers typical of the economy of Røros almost disappeared.

After the abolition of the monopoly in 1818, a few merchants were allowed to set up businesses in the area; in 1854 Røros Fair was officially inaugurated and remains a lively event. After the closure of the copper works, other industries and tourism have become the economic basis of the town.

### **3. OUTSTANDING UNIVERSAL VALUE, INTEGRITY AND AUTHENTICITY**

#### ***Comparative analysis***

The nomination dossier of Røros Mining Town did not include a comparative analysis as this was required at the time (1980).

The comparative analysis in the present nomination dossier includes mining towns where components of the associated cultural landscape are considered as part of the cultural significance of the sites.

Properties considered in the analysis include Kongsberg and the Silver Mines (Norway) and the following World Heritage Sites: Mining Area of the Great Copper Mountain in Falun, Sweden (2001, (ii), (iii), (v)); Mines of Rammelsberg and Historic Town of Goslar, Germany (1992, (i), (iv)); Blaenavon Industrial Landscape, UK (2000, (iii), (iv)), Cornwall and West Devon Mining Landscape, UK (2006, (ii), (iii), (iv)), Historic Town of Banská Štiavnica and the Technical Monuments in its Vicinity, Slovakia (1993, (iv), (v)); City of Potosí, Bolivia (1987, (ii), (iv), (vi)); Historic Town of Guanajuato and Adjacent Mines, Mexico (1988, (i), (ii), (iv), (vi)); and Iwami Ginzan Silver Mine and its Cultural Landscape, Japan (2007, (ii), (iii), (v)).

The rationale for the comparative analysis is based on the remoteness and harshness of the environment, the type of economic enterprise, age, technological achievements, and interrelation with the landscape.

ICOMOS considers that the nomination dossier has selected appropriate World Heritage Sites and properties for comparison and clearly identifies the differences lying among them. Kongsberg and the properties in Latin America differ from Røros: the first was a royal enterprise whilst the second had a colonial base, while Røros was a 'partnership,' run within a monopoly regime.

The nomination dossier persuasively demonstrates that, despite its lesser technological achievements and its smaller area of wooden housing by comparison with Falun and Rammelsberg, the sites most similar to Røros, Røros and its associated cultural landscapes reflect human endeavour and endurance as well as technical capability in developing a productive settlement in such a remote and severe climatic zone by skilfully exploiting all available resources.

ICOMOS notes that the comparative analysis has been undertaken with properties bearing similar values, inscribed or not on the World Heritage List and at national, regional, and international level.

ICOMOS considers that the comparative analysis justifies the selection of the sites included in the proposed serial extension in that they comprehensively reflect the wide spectrum of activities that sustained the economy and the way of life of the inhabitants of Røros and the Circumference.

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ICOMOS considers that the comparative analysis justifies consideration of this extension for approval on the World Heritage List.

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#### ***Justification of Outstanding Universal Value***

Røros Mining Town and the Circumference is considered by the State Party to be of Outstanding Universal Value as a cultural property for the following reasons:

- Røros Mining Town and the Circumference comprise a unique mining town, established in 1646, built entirely of wood;
- Røros is surrounded by a cultural landscape that shows in an outstanding and almost complete manner how the mining operations, transport, and way of life had to be adapted to the requirements of the natural environment – the mountain plains, the cold climate, the remote location without roads and with marginal growth conditions for forests and agriculture;
- On this basis a unique culture developed that has disappeared in part, but outstanding testimony of the existence of which has been preserved.

The proposed Outstanding Universal Value is defined by the interconnection of the existing World Heritage Site into the wider natural, cultural, social, and economic framework with which it is intimately intertwined. This profound interrelationship is implicit in the wording of the

original inscription and the current extension application as a consequence serves to make explicit what was previously implicit. The application is thus congruent with and complementary to the original inscription, thereby serving to underpin and reinforce the already established Outstanding Universal Value.

Justification for the inscription of Røros Mining Town:

Røros is an extensive mining settlement dating from 1644, when the development of the copper works began. Its physical history has continued without interruption since the town was burned in 1679. Thus the numerous surviving buildings represent the Norwegian tradition of wooden construction that flourished in the 18<sup>th</sup> and 19<sup>th</sup> centuries. The buildings reflect the dual occupations of the inhabitants, mining and farming, the domestic groups being arranged as compact farmyards. These groups are disposed on a regular urban pattern adapted to the mountain terrain, reflecting the particular kind of industrial planning introduced by the Danish kings of Norway in the 16<sup>th</sup> and 17<sup>th</sup> centuries. Røros is a characteristic example of this type of technological and industrial development, as well as being an outstanding survivor of a traditional type of human settlement built using traditional methods of construction. It has, moreover, become vulnerable under the impact of economic change since copper mining recently came to an end after 333 years of continuous activity. Lastly, Røros embodies a strong degree of rarity because of its location. It was built as an industrial community in the mountains (650m above sea level) at very northern latitude (62° 35' N) subject to extremely long winters and low temperatures.

#### *Integrity and Authenticity*

##### *Integrity*

The extent of the urban agricultural landscape surrounding the town has been reduced over the 20<sup>th</sup> century and the plot subdivision has been weakened but the function and structure of the area are still legible.

Storwartz, Nordgruvefeltet, and Femundshytta today are relict industrial cultural landscapes that have remained almost unchanged since the closure of the copper works and they retain buildings, technical installations, and traces of mining activity, transport, and associated communities.

Although the Winter Transport Route has left few traces on the ground, it has been retained in its entirety and passes through areas that have been subject to minor encroachments.

The buffer zone contains cultural landscapes and a wealth of remains that attest to the long-lasting copper mining activity, although the degree of its integrity may vary from place to place.

The elements included in the proposed extension ensure a complete depiction of the unity of this human working presence in such extreme conditions has been preserved. ICOMOS considers that this has necessitated a considerable enlargement of the nomination, which is now adequate to make this cultural landscape fully understandable.

The serial nature of this extension is justified by the State Party on the grounds that the Circumference cannot be nominated in its entirety because certain areas within it would not meet the requirements for integrity. The State Party has therefore selected for nomination those areas that best illustrate how the mining town came into being, developed, and functioned and has adopted the Circumference as the buffer zone.

ICOMOS considers that the justification provided by the State Party is appropriate because the selection of sites proposed as a serial extension to Røros Mining Town comprehensively covers the wide spectrum of operations carried out over the 333 years of copper mining and working which allowed the mining communities to survive in a hostile region and to develop an enduring technological venture.

No adverse effects or evidence of neglect could be observed at the proposed extension.

The integrity of Røros is also shown by its economic and cultural vitality and by the ability to recover rapidly from the bankruptcy of the copper works.

There is no latter-day interference within the visual scope of the proposed extension and so this aspect of integrity is also retained. The roads that access each element have little development along them and therefore complete the ambience of a very low-density human settlement.

In some smelters abandonment has caused deterioration of the mining accessories, and almost no wooden structures remain.

##### *Authenticity*

The elements of the proposed extension, the rural-urban landscape, the smelters and their surroundings, and the transportation routes demonstrate the intentional use of and adaptation to environmental features in order to achieve the goals that were defined.

Material remains of the components of the proposed extension bear credible witness to the history of the area. This also holds good for the buffer zone.

The mining sites are not used, with the exception of Storwartz, which is open to visitors, whilst part of the rural-urban landscape is still being used for the same purposes as it was at the time when Røros was a mining town.

The major activities in the town today are related to tourism (c 1 million visitors per year), although there are still some industrial, agricultural, and forestry activities. However, tourist-related activities have not so far adversely impacted the specific qualities of the place.

Røros was a 'company town' and the copper works were responsible for work, transport, and food supplies, schools, and a few social services. Today all this has come to an end. However, traditions have been maintained in the rural setting and reinterpreted in a contemporary way.

The location and setting of this extension of the Røros mining town have retained most of the features that distinguished the mining landscape and town at the time mining was still active. The deforested hillsides around the mining town and the smelters attest to the copper-ore mining and processing, while low birch trees are a natural regeneration.

The spirit of Røros as a mining town is recognizable even today, and this is also true of the surrounding landscape and the industrial relics, the remote character of which conveys the sense of the past life of Røros and the Circumference.

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ICOMOS considers that the conditions of integrity and authenticity have been met.

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#### *Criteria under which inscription is proposed*

This extension is nominated on the basis of cultural criteria (iii), (iv), and (v), the same criteria under which Røros Mining Town was inscribed on the World Heritage List in 1980. However, the justification approved in 1980 by the Committee was not broken down into the individual criteria. The proposed extension aims at making the value of Røros Mining Town fully explicit.

*Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;*

This criterion is justified by the State Party on the grounds that from the time copper ore was found in the mountains at Røros in 1644 until the copper works went bankrupt in 1977 a unique culture developed in this remote and sparsely inhabited area. This uniqueness resides in particular in the testimony preserved that shows how technology and people could adapt to the remoteness of the location and climatic extremes in order to extract the valuable copper.

Using German mining technology, German, Danish, Swedish, and Norwegian immigrants created a mining community under extreme conditions. The urban agriculture with its specialized system shows in a coherent way how people were forced to exploit all the available natural resources in order to survive and established a community in an ungenerous and hostile area. Transport was mainly on frozen lakes and rivers

during the winter. Evidence of this activity is revealed by the stables and buildings for overnight accommodation for those involved in transport.

ICOMOS considers that the Røros Mining Town and the Circumference complex and its culture are demonstrated by the successful, sustained, and essential integration of virtually all the sciences, professions, and socio-cultural contributions, with each requiring interdependence of one to the other so as to ensure productivity and survival. In such a remote location geological, biological, and meteorological factors dominated the way that architectural, planning, agricultural, industrial, and business needs were successfully addressed whilst at the same time overcoming severe hardships.

The proposed extension significantly reinforces this criterion in that it illustrates the organized range of activities and uses of the natural resources that made it possible for Røros Mining Town to exist and flourish.

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ICOMOS considers that this criterion has been justified.

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*Criterion (iv): be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;*

This criterion is justified by the State Party on the grounds that Røros is an outstanding example of a Nordic town constructed in wood. The original town structure is retained in its entirety with well preserved buildings that bear the stamp of the 1700s and 1800s. The town plan is an example of how European concepts of town planning were adopted and adjusted to local conditions and building traditions in this remote mountain town. Røros is also a well preserved and exceptional example of the town communities that arose in conjunction with the intensive activity in ore mining in the 1600s and 1700s in Europe and the 'New World' of Central and South America. By virtue of its climate and its location, Røros represents the most extreme limits of what was possible at that time, and this is reflected in the building tradition.

ICOMOS considers that the proposed extension significantly reinforces this criterion in that it provides a contextual background which explains that the structure of the town is the result of the conscious adaptation of the most updated European planning models for a town that was founded to be the headquarters of the Copper Works company, that fulfilled a strategic role for the Danish-Norwegian Kingdom, which in that period had undertaken a modernization programme of the urban structures of its capital cities, Copenhagen and Christiania (Oslo). In addition, the integration of farmhouses within the town structure reflects the objective of the mining company of ensuring a diversification/integration of the sources of income for the copper workers and their families through agricultural activity. The bare landscape included in the extension and its buffer zone also illustrate the intensive

exploitation of timber resources, used both for copper processing and the construction of houses and all technical facilities.

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ICOMOS considers that the proposed extension contributes to the expression of this criterion.

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*Criterion (v): be an outstanding example of traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;*

This criterion is justified by the State Party on the grounds that Røros Mining Town and the Circumference constitute an entity that is an outstanding example of traditional settlement and land-use. The various activities that have been carried out in the area constitute a cohesive and interdependent unit. These activities have shaped a cultural landscape that provides a unique picture of how the mines and the mining town functioned as a complex and at times vulnerable system which verged on the limits of what was possible in an inhospitable landscape with a harsh climate. Today these cultural landscapes have been altered to some extent by the closure of the mines and by consequent changes in agriculture activities.

ICOMOS considers that the nature of the Røros townscape and its related cultural and rural landscapes, with its inter-related industrial activity, domestic and agricultural accommodation within an urban environment, illustrates how the people adapted to the extreme circumstances and how they used the available indigenous resources and their technological skills to create shelter, provide food for their sustenance, and contribute to the national wealth of the country.

ICOMOS considers that, taking all these points into consideration, the factors that made possible the development of the mining economy in the area create a remarkable and outstanding example of how traditions evolve in a community that was conditioned and dictated to by its environment.

ICOMOS considers that the proposed extension significantly reinforces this criterion.

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ICOMOS considers that this criterion has been justified.

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ICOMOS considers that the serial approach is justified and that the selection of sites is appropriate.

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ICOMOS considers that the proposed extension significantly reinforces criteria (iii) and (v) and contributes to the expression of criterion (iv) which had already been adopted for the original property and that conditions of authenticity and integrity are met.

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#### *Description of the attributes*

- Røros Mining Town, already inscribed on the World Heritage List;
- The cultural landscape with traces of the urban agriculture system surrounding the town: Småsetran, Østerhaga, Djupdalshaga, Stormohaga, and Kvitsandshaga;
- The industrial cultural landscape with traces of all phases of mining and smelting operations: the Storwartz field, the Olavsgruva Mine, the Nordgruvefeltet field, and Femundshytta;
- The Winter Transport Route and the other traces of transport systems such as old roads, transport routes, and cableways;
- The Kuråsfossen power station and all other power and energy heritage, such as the cableway at Storwartz and at Christianus Sextus Mine.

#### **4. FACTORS AFFECTING THE PROPERTY**

##### *Development pressures*

The proposed extension to the airport is intended to adapt it so as to be able to receive larger charter flights. The Røros local authority expects and promotes an increase of tourism in the area. All this may imply a certain level of conflict which requires development and protection requirements to be carefully weighed.

ICOMOS raised the issue of the consequences of the proposed extension of the enlargement of the airport in the letter sent to the State Party on 14 December 2009. The State Party responded on 23 February 2010 and reported that no extension of the runway had been prioritized by either the State Party or the local authorities and that no funding had been allocated for that purpose. The State Party considers it unlikely that these plans will be implemented in the foreseeable future. In the remote case that this extension plan should take place, the State Party will guarantee that an exhaustive process will be initiated that will safeguard of the values of the property.

The construction of peripheral shopping centres is correctly seen as a weakening factor to the character of Røros.

ICOMOS considers that, while counteracting this trend may be difficult, correcting measures already being implemented should be continued.

Although agricultural activity in the area today is marginal, any definitive abandonment of farming is seen as a threat to the retention of the values of the property. Farming methods that facilitate the maintenance of the

cultural landscape around Røros have been developed and in the buffer zone extraordinary governmental funds have been granted for mowing uncultivated land in the Sølendet nature reserve.

ICOMOS recommends, however, that the measures undertaken to maintain and preserve the historic agricultural landscape, especially those areas that are closest to the town and therefore more subject to development pressure, should be continued and control over building permits ensured in order to retain the character and the historic features reflecting the role of farming activity in sustaining the life of mine workers.

#### *Tourism pressures*

Røros receives 1 million tourists per year, with peak seasons in July, Easter, and during the February winter fair. Tourists are lodged in small hotels in the old urban core or in smaller guesthouses. The number of tourists is currently not considered by the State Party to impact the cultural heritage, although in the main streets some change in trading patterns has been detected. The nomination dossier recognizes that Røros may in the future appear as a "touristified" place. However, there is a countermovement against this tendency that as a first step in taking action to sustain local retail shops.

#### *Environmental pressures*

Although mentioned in other sections of the nomination dossier, the pollution affecting the landscape associated with mining and smelting sites is not addressed in the appropriate section of the dossier.

ICOMOS notes that different approaches have been adopted to counteract pollution from materials emanating from mining activities, in order to seek a balance between the need for decontamination and the cultural values associated with polluted features. However, ICOMOS considers that further information would be helpful on the nature and consequences of pollution in the mining sites and on the future measures that may be undertaken to reduce pollution.

IUCN commented that the need for the management to mitigate mining-related pollution from heavy metals and acid mine drainage is a key issue. However, present and future priorities to reduce pollution have not been explained adequately in the nomination dossier. IUCN observes that there is tension between the presence of the testimony of mining operations and hence there is a need for continued interventions to reduce the impacts of mining pollution.

#### *Natural disasters*

The State Party mentions flood as the first threat to Røros mining town, based on the heavy effects of a flood that occurred in 1934. After that improvements were made to the banks of the river, but it is acknowledged that a severe flood might still be critical to the town.

Fire is the second threat mentioned by the State Party, which also documents the systematic efforts made to protect the mining town from fire. Technical measures have been accompanied by *ad hoc* information to the inhabitants.

ICOMOS considers that the State Party has identified natural disaster threats only for the town, while it would be useful to have a comprehensive understanding of the natural threats to the entire proposed extension.

#### *Impact of climate change*

Besides the increase of overgrowth in the uncultivated fields, it is considered that climate change is causing more attacks by pests on the woodwork.

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ICOMOS considers that the main threats to the property come from development pressures. ICOMOS recommends that the State Party should closely monitor the impact of tourism within the boundaries of the nominated property. ICOMOS further recommends that the measures undertaken to maintain and preserve the industrial and the historic agricultural landscape, especially those areas closest to the town, should be continued, and that control over building permits should be ensured in order to retain the character and the historic features that reflect the role of farming activities in sustaining the way of life of the mine workers. ICOMOS finally recommends that the State Party provides a comprehensive assessment of the natural disasters to which the entire proposed extension may be prone.

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## **5. PROTECTION, CONSERVATION AND MANAGEMENT**

### ***Boundaries of the nominated property and buffer zone***

The entire area comprising the proposed extension, the World Heritage Site and the buffer zone covers 497,750ha. The number of inhabitants of the five municipalities, part of which is included in the proposed extension or buffer zone, is around 13,000.

The boundaries of the proposed extension have been determined by identifying different elements (roads, power lines, mountain tops and ridges) as well as administrative boundaries. They have been drawn on a map by connecting 45 points and describing in detail the limits of each interval. These points and connecting lines are given material form on the ground by recognizable natural elements or infrastructures.

The limits of the buffer zone are represented by the Circumference, an abstract line defined on a map. Its centre, in Stortvartz-gruva, has been given material form by an inscribed stone.



The boundaries of the three nominated sites (Town and Cultural Landscapes, Femundshytta, and Winter Transport Route) that form the series include all the elements that are needed to convey the value of the property as a whole.

Concerning the Winter Transport Route, ICOMOS notes that there is no physical expression of its exact course. Given the extreme conditions under which the route operated, it is possible that its course was very variable and included quite different paths. ICOMOS therefore considers that it would be beneficial to the nominated Route for areas with the potential to reveal traces of alternative paths to be identified and preserved so as to allow future research.

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ICOMOS considers that the boundaries of the proposed extension and of its buffer zone are adequate.

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### **Ownership**

Most of the area in the Town and the Cultural Landscapes is privately owned. Some important sites are owned by the municipality or by the State (Malmplassen square with the smelting house, buildings, and the slagheaps and Stortvart mining field).

The industrial landscape of the Femundshytta smelter is privately owned, forming part of the only farm on the site.

The Winter Transport Route from Tufsingdal valley to Røros town passes mainly over lakes that are located on government-owned land and over some privately owned ground. The buffer zone comprises large mountain areas that are government-owned or locally owned common land. The other areas are mostly privately owned.

### **Protection**

#### *Legal Protection*

According to the nomination dossier, there are several legislative instruments that help to protect and manage the proposed extension. The most prominent are the Cultural Heritage Act (1978) and the Planning and Building Act (1985). The objective of the former aims is to protect archaeological and architectural monuments, sites, and cultural environments. An automatic protection applies to all monuments and sites older than 1537, all buildings older than 1650, all Sami monuments, and sites older than 100 years.

The latter contains provisions by means of which the comprehensive protection of the outstanding universal value of the property as a whole may be ensured. The most relevant plans in force are:

- The Land Use plan for Røros town centre (in the dossier the 1994 Plan is cited, but since then the

new Plan was issued in June 2009).

- The Conservation Area Plan for Røros town centre (1976-1981) includes strict regulations for preserving the buildings and the street patterns; it has been used to conserve the property since the first inscription.
- The Conservation Area Plan for Småsetran is a governmental zoning plan for protecting cultural and natural heritage.
- The regulated recreational area along the Hitterelva River in the town centre forbids any construction except for facilities for recreational activities.
- Stortvart, Nordgruvfeltet, Femundshytta, and the Winter Transport Route, as well as other areas, are located inside areas set aside for agriculture, nature, and recreation (ANR areas), where there is a ban on new construction imposed by the land use plan of the responsible municipalities.

Under the terms of the Cultural Heritage Act (1978), following consultation procedures, the Directorate for Cultural Heritage may issue protection orders for monuments and sites, regardless their age, including a surrounding area, which ensures the conservation of protected monuments in the landscape. Specific provisions are established for each protection order. Before starting any kind of project, the proposer must clarify whether the project will impinge on automatically protected monuments.

Through the Nature Conservation Act (1970) cultural landscapes and cultural heritage sites can be protected against encroachment. The Act defines three categories of properties that are relevant for the proposed extension that can be protected for their natural and cultural aesthetic values or scientific interest: national parks, protected landscapes, and nature reserves.

The area named "Town and Cultural Landscapes" includes Kvitsanden protected landscape, while the Winter Transport Route crosses two nature reserves. There are two national parks, nine protected landscapes and 21 nature reserve in the buffer zone.

Other relevant acts are: the Pollution Control Act (1981), the Concession Act (1974); the Land Act (1995), which protects productive agricultural land; and the Royal Decree (2006), which obliges all sectors of the government that own properties of cultural importance to establish nationwide plans for their protection and management. In the proposed extension and its buffer zone, three national protection plans are in force: the 'Cultural heritage sites in Norwegian power supply,' by means of which the Kuråsfossen I power station is protected; the 'Norwegian State Railways' through which Glamos Station in the proposed extension and Håmålsvoll, Reitan, and Stensli stations in the buffer zone are protected; and the 'Cultural Heritage in the railways' through which Røros station in the proposed extension and Tolga, Håmålsvoll, Reitan, and Stensli stations in the

buffer zone are also protected.

ICOMOS raised the issue of the need for strengthening the protection of Femundshytta in the letter sent to the State Party on 14 December 2009. In its response, the State Party considers that at the present time, having regard to the remoteness of the area and the active presence of the farm owners, the protection of Femundshytta is adequate. However, in view of any potential alterations, which are unlikely in the near future, the State Party has undertaken to strengthen the protection of Femundshytta. The Directorate for Cultural Heritage in conjunction with the municipal and regional management offices has met the owners to explore their intentions and will carry out an assessment in order to identify the best means of strengthening the protection of the cultural heritage and landscape while ensuring the continued operation of the farm.

The nomination dossier also mentions that a joint regional plan for Hedmark and Sør-Trøndelag counties will be formulated for the proposed extension "Røros Mining Town and the Circumference," in conformity with the new Planning and Building Act.

In its letter of 14 December 2009 to the State Party ICOMOS requested further information on the timetable for developing and approving this plan.

The State Party has responded that the work on the regional plan had started in September 2009. The planning programme was sent to the municipalities and other relevant bodies on 20 November 2009 with a deadline for comments of 11 January 2010. The planning programme had been revised and adopted by the two County Councils. The planned schedule establishes that the first draft of the plan will be ready in June 2010 and will be sent for comment to the municipalities with a deadline that will permit the final edition of the plan to be sent to the County Councils for decision in December 2010.

ICOMOS recommends that the timetable for finalising the joint regional county plan should be respected, and that updated information on any progress made in strengthening the protection of Femundshytta and in finalizing the regional plan should be provided to the World Heritage Committee and ICOMOS.

#### *Effectiveness of protection measures*

The Directorate for Cultural Heritage is the professional advisory and executive body for the Ministry of Environment. It makes decisions on protection pursuant to the Cultural Heritage Act and can raise objections to municipal plans that threaten cultural heritage of national importance.

The central area of Røros around Malmplassen and the Storwartz mines are under the responsibility of the Directorate for Cultural Heritage.

Sør-Trøndelag and Hedmark Counties and the Sami Parliament act as advisors to the municipalities in matters pertaining to cultural heritage at the planning level, such as requests for changes to protected buildings, and are responsible for implementing the conservation plans. They manage protected areas and areas for outdoor recreation, monitor the natural environment, the compliance with environmental regulations and planning, the levels of pollution, agriculture and forestry activities, and the development of local agriculture.

Municipalities have general responsibility concerning planning matters within their geographical boundaries, provide advice and follow up maintenance in conservation areas, and process requests for proposed changes to buildings that are worthy of protection. Røros municipality is one of the few that has been granted the authority to issue orders for temporary protection, in accordance with the law in force.

Finally, in all Norwegian World Heritage Sites there is a World Heritage Council with representatives of all levels of public management. Røros Mining Town has its own World Heritage Council with the task of coordinating the management of the town as a world heritage site. If the extension of the property is approved, an expanded Council with representatives of the five municipalities, of the county authorities, and of the government will be established to ensure the coordination of the management of the extended World Heritage Site.

At present, an interim council has been established which will function until the nomination process is concluded.

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ICOMOS considers that the overall legal protection in place is adequate.

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### **Conservation**

#### *Inventories, recording, research*

The nomination dossier provides an overall picture of carried out research and of research information resources. Detailed inventories with description of more 400 buildings in Røros and of all cultural properties and landscape at Småsetran have been carried out. The Røros and the Nordøsterdal Museums conserve documentation of part of the buildings and works under their responsibility. The archival material on Røros Copper Works offers opportunities for the development of further research topics.

ICOMOS considers that future research on the proposed extension might consider the possible different paths followed by the Winter Transport Route and the summer transport systems.

### *Present state of conservation*

The state of repair of the buildings scattered in the landscapes is variable, while the technical installations are generally in poor condition. Almost all the mining and smelting areas reveal pollution problems that appear to have been addressed, while also taking into account considerations for reducing the pollution and preserving cultural heritage.

### *Active Conservation measures*

One of the most important active conservation programmes is the Outbuilding project through which the state of conservation of outbuildings within Røros and the proposed extension are assessed before and after restoration.

A Heritage Fund acting locally has been established to help owners (40% private) to keep their properties in good repair. The average subsidies paid to projects, which must be prepared and approved by technical staff, is around 50% of costs. Work on site is followed up.

Protected buildings within the World Heritage area receive full restoration support for projects and works, and the properties owned by the state are all included in national management programmes: for example, government-owned properties acquired by Røros Copper Works undergo constant repair and maintenance work supervised by Røros Museum.

Several plans and programmes have been launched dealing with tourism and agriculture for sustaining landscapes and rural communities. Other projects are the repair and maintenance programmes of the Røros Historical Society and of the Church and the agreements with local farmers for the maintenance of landscapes.

### *Maintenance*

The condition of the buildings and remains scattered in the industrial and agricultural landscapes is uneven.

### *Effectiveness of conservation measures*

Thirty years of continuous care for the existing World Heritage site demonstrate the effectiveness of the measures undertaken by the State Party to ensure the preservation of the features that show the value of Røros.

The existing programmes for the proposed extension appear to be regularly implemented.

ICOMOS considers that the level of conservation of the property is adequate. ICOMOS considers that it would be helpful for further information to be available about the nature of the pollution. It would also be helpful to have details of the measures undertaken for decontamination in relation to the balance sought with

respect to the nature of cultural features of certain polluted features.

### **Management**

#### *Management structures and processes, including traditional management processes*

The management framework for Røros Mining Town and the Circumference is set out in a Statement of Intent that has been signed by all the responsible bodies for Røros and the proposed extension. It undertakes to commit itself to the preservation of the property and to base development of the area on the cultural values of the property. This framework created the guidelines for the future development of the Management Plan.

ICOMOS sent a letter to the State Party requesting updated information on the establishment of the Cooperation Council.

The State Party replied that an informal council had functioned throughout the entire period of work on the extension of the Røros World Heritage area. This council had been formalized by the creation of an interim council for World Heritage Røros Mining Town and the Circumference, which will function until the proposal for the extension of the World Heritage area has been formally approved by the World Heritage Committee, at which point the interim council will be replaced by a permanent one. The interim council has a political profile and includes the mayors of Røros, Holtalen, Os, Tolga, and Engerdal, and one representative from the Sør-Trøndelag county authority, the Hedmark county authority, and the Sami Parliament respectively. The Directorate for Cultural Heritage will provide funds to appoint a temporary secretary for the interim council.

#### *Policy framework: management plans and arrangements, including visitor management and presentation*

The basis for management relies on the existing Norwegian legal framework, the planning instruments in force, the administrative and private bodies responsible for the property and sources of funding for heritage conservation, agricultural activities in heritage areas, productive and marketing activities based on cultural and natural heritage, and sustainable tourism. The management framework contains an action programme including short- and long-term actions. The programme identifies the subject, the parties involved, and the body responsible for implementation and establishes a time-frame for all identified actions, the major part of which will take place in the next three years.

ICOMOS considers that it would be useful for the State Party to provide a document illustrating the amount and the source of funds that will cover the costs of these actions.

In its letter of 14 December 2009 to the State Party ICOMOS requested information about the timetable for the finalization and implementation of the management plan.

The State Party replied that work on the management plan for the proposed extension will start when the process to prepare the regional plan for the Hedmark and Sør-Trøndelag counties was near completion. The start of the process is scheduled for September 2010 and its completion in June 2011. A first proposal of a ten-year plan for the proposed extension was presented at the interim council meeting on 27 January 2010: this proposal will be the base for further work on a long-term plan for the property.

ICOMOS considers that the management system in place for the proposed extension and its buffer zone is adequate and recommends that the State Party provide update information on any progress made in the finalization of the management plan.

#### *Risk preparedness*

The major threat to the nominated property is fire, and the measures undertaken to prevent and counteract this threat appear adequate in that they combine technology with education and awareness.

However, ICOMOS notes that the measures implemented only relate to Røros. It is important to develop measures that ensure prevention and prompt reaction in case of fire, especially in uninhabited places.

#### *Involvement of the local communities*

The several programmes activated by the authorities responsible for the World Heritage Site and by NGOs demonstrate that local communities have been involved to a considerable extent in the protection of the property and that they are well aware of the implications of commitment required in case of approval of the extension.

#### *Resources, including staffing levels, expertise and training*

The nomination dossier documents in a detailed manner that Norway possesses several grant schemes that could be relevant for World Heritage Sites. The Ministry of Environment through the Directorate for Cultural Heritage has allocated funds for the buildings acquired by the government from Røros Copper Works in Stortvart mines and Malmplassen square; funds have also been given for the maintenance of Småsetran district. The county authorities receive funds from the Directorate for Cultural Heritage to maintain protected buildings. The Ministry of Agriculture and Food maintains grant programmes that help preserve cultural landscapes and has launched a separate World Heritage programme. In the event of inscription grants from this source may also be used for the proposed extension.

The sources of expertise have also been demonstrated to be varied and to exist at the national, regional, and local levels of administration, also including groups and associations active at the local level.

#### *Effectiveness of current management*

The nomination dossier provides very clear evidence of the competence and professionalism of State Party authorities at national, regional, and local levels in the management, protection, and conservation of the existing World Heritage Site.

ICOMOS considers that the existing protected areas and national parks that cover a large part of the buffer zone provide national and regional effective control over the landscape. The staffs of the responsible bodies are firmly committed to this course of action and current participatory management strategies for the site are working successfully at the local level.

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ICOMOS considers that the management system for the property is adequate but recommends that the State Party provide update information on any progress made in the development of the regional plan for Hedmark and Sør-Trøndelag counties and the management plan for the proposed extension. ICOMOS also recommends that measures should be developed to ensure prevention and prompt reaction in case of fire in uninhabited areas.

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## **6. MONITORING**

The nomination dossier states that regular reporting on the condition of the proposed extension will be developed and includes a list of effective and measurable indicators (the number of historic and protected buildings or technical/industrial sites restored, the number of areas with maintenance contracts to prevent overgrowth, the number of old roads being tended, analysis of aerial photographs to monitor overgrowth, construction of holiday homes, and growth of urban settlements), each associated with the agencies responsible for the monitoring (municipalities, county authorities, Directorate for Cultural Heritage). Monitoring will be carried out every six years, linked with the Periodic Reporting exercise.

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ICOMOS considers that the proposed monitoring system is adequate and should be implemented as soon as possible.

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## **7. CONCLUSIONS**

Since the Røros Mining Town was inscribed on the World Heritage List in 1980, conservation thinking and ideology has moved on considerably, and the shortcomings of the original Nomination are openly identified in this context. The extension proposal links logically and persuasively to the area already inscribed

on the World Heritage List, by creating an integrated expression of the original World Heritage Site within its wider socio-economic context. This provides a significantly enhanced record of the evolution of the mining-farming culture.

### ***Recommendations with respect to inscription***

ICOMOS recommends that the extension of Røros Mining Town to include the Circumference and become Røros Mining Town and the Circumference, Norway, be approved on the World Heritage List on the basis of **criteria (iii), (iv), and (v)**.

### ***Recommended Statement of Outstanding Universal Value***

#### **Brief synthesis**

Røros Mining Town and the Circumference consist of three sites within the Circumference, i.e. the area of privileges awarded by the Danish-Norwegian King to Røros Copper Works in 1646.

The town and the cultural landscapes cover a large continuous area which includes the landscape surrounding the mining town, the urban agricultural areas, and the most important mining landscapes where agricultural practices and copper works operation were carried out.

Femundshytta is a largely relict landscape which includes the industrial cultural landscape with the remains of a smelter, water management systems, and the community that grew up around them. The Winter Transport Route is made up of a sequence of lakes, rivers, and creeks in an almost untouched landscape. It was used from November to May.

Røros Mining Town, established in 1646, is unique. It is built entirely of wood, and interlinked with a cultural landscape that shows in an outstanding and almost complete manner how mining operations, transportation, and the way of life had to be adapted to the requirements of the natural environment – the mountain plains, the cold climate, the remote location without roads and with marginal growth conditions for forests and agriculture. On this basis a unique culture developed that has partly disappeared, but an outstanding testimony of the existence of which has been preserved.

**Criterion (iii):** From the time copper ore was found in the mountains at Røros in 1644 until the copper works went bankrupt in 1977, with German mining technology as a starting point, employing German, Danish, Swedish, and Norwegian immigrants, a unique culture developed to extract the valuable copper in a remote and sparsely inhabited area. Today there is no mining in the area, but Røros Mining Town and the traces of mining, smelters, transport, and water management systems bear unique

witness to the adaptation of technology to the requirements of the natural environment and the remoteness of the situation.

**Criterion (iv):** Røros townscape and its related industrial and rural landscapes, with their interlinked industrial activity and domestic and agricultural accommodation within an urban environment, illustrate in an outstanding manner how people adapted to the extreme circumstances in which they had to live and how they used the available indigenous resources to provide shelter, produce food for their sustenance, and contribute to the national wealth of the country. Technologically, their buildings and installations evolved through the use of available indigenous materials to functionally satisfy the combined approach of mining and agrarian practices whilst at the same time accommodating the consequences of dealing with extreme climatic conditions.

**Criterion (v):** Røros Mining Town and the Circumference constitute a totality that is an outstanding example of traditional settlement and land-use. The various activities that have been carried out in the area constitute a cohesive and interdependent unit. These activities have shaped a cultural landscape that provides a unique picture of how the mines and the mining town functioned as a complex and at times vulnerable system that verged on the limits of what was possible in an inhospitable environment with a harsh climate.

#### **Integrity and Authenticity**

The nominated property contains all elements that convey the Outstanding Universal Value of the property and its most relevant features present a high or good level of integrity. The mining landscape is relict in nature, but almost no transformations or encroachment occurred after the closure of the copper workings.

The authenticity of the property is expressed in almost all its aspects and features. All the remains bear credible witness to the history and development of the site. This is also reinforced by the rich archive documenting the copper company's history.

#### **Management and protection requirements**

The most important legislative instruments that help to protect and manage Røros Mining Town and the Circumference are the Cultural Heritage Act (1978) and the Planning and Building Act (1985).

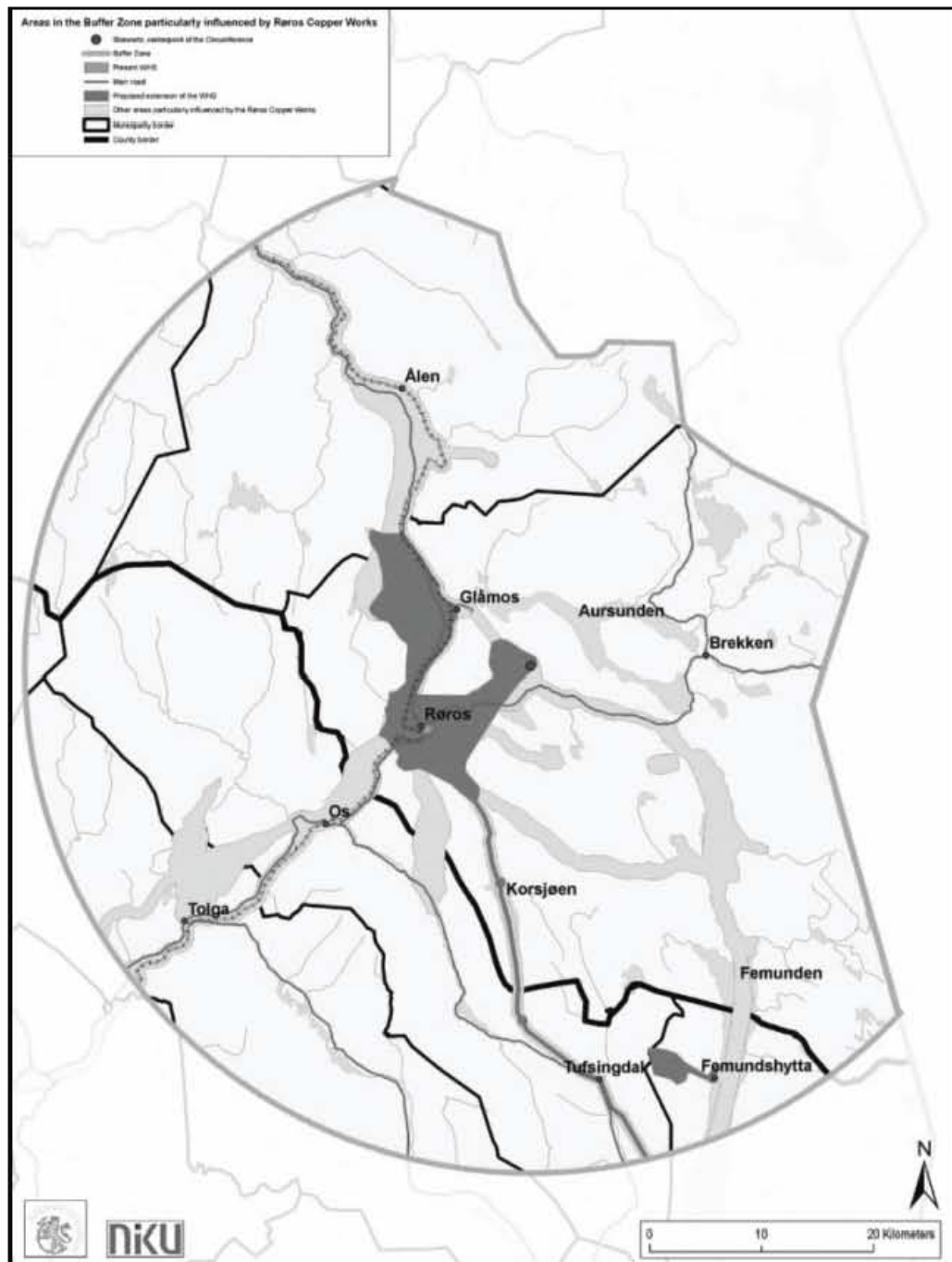
The management framework for Røros Mining Town and the Circumference is embodied in a Statement of Intent which has been signed by all responsible bodies for the nominated property.

The basis for management relies on the existing Norwegian legal framework, the planning instruments in force, the administrative and private bodies responsible for the property and sources of funding for heritage

conservation, agricultural activities in heritage areas, productive and marketing activities based on cultural and natural heritage, and sustainable tourism. The management framework contains an action programme including short- and long-term actions.

ICOMOS recommends that the State Party give consideration to the following:

- Providing the World Heritage Committee and ICOMOS with updated information about any progress made in the process under way for strengthening the legal protection of Femundshytta;
- Respecting the proposed timetable for the development of the regional plan for Hedmark and Sør-Trøndelag counties and for the management plan for the proposed extension and its buffer zone and providing the World Heritage Committee and ICOMOS with updated information on any progress made in this direction;
- Continuing to implement the measures undertaken to maintain and preserve the industrial and the historic agricultural landscape, especially those areas that are closest to the town and therefore more subject to development pressure, and guaranteeing control over building permits in order to retain the character and the historic features reflecting the role of farming activity in sustaining the way of life of mine workers;
- Monitoring the development of the tourism industry within the boundaries of the nominated property;
- Extending the assessment of the natural disaster threats to the entire proposed extension;
- Collecting and providing further information on the nature and consequences of pollution in the mining sites and on future measures that may be undertaken to reduce pollution;
- Ensuring the protection of a wider area surrounding the Winter Transport Route for purpose of research and possible future extension of the Route path;
- Developing measures to ensure prevention and prompt reaction in case of fire in uninhabited areas;
- Keeping the World Heritage Committee informed of the enlargement of the airport, should these plans be put into effect, in accordance with paragraph 172 of the *Operational Guidelines*.



Map showing the boundaries of the nominated property





Aerial view of Røros Mining Town and its surroundings



Lower Storwartz and the flotation plant





Kuráfossen power station



The Winter Transport Route