4.7. Landscape
# Table of Contents

1. Introduction .................................................................................................................. 5

2. Methodological Approach ............................................................................................. 6
   2.1 Connection with the other sections of chapter 4 ................................................... 6
   2.2 Theoretical Approach ............................................................................................ 8
   2.3 Practical Approach ................................................................................................ 8

3. Baseline conditions ........................................................................................................ 11
   3.1 Regional Context ................................................................................................ 11
   3.1 Local Context ...................................................................................................... 11
   3.2 Geomorphology of the Study Area ...................................................................... 12
   3.3 Geology of Study Area ........................................................................................ 14
   3.4 Hydrology of Study Area ..................................................................................... 14
      3.4.1 Surface Water ................................................................................................. 15
      3.4.2 Groundwater .................................................................................................... 16
      3.4.3 Hydrological Conditions ................................................................................... 16
   3.5 Forests and lands with forestry vegetation ......................................................... 17
      3.5.1.1 Land Use Categories ............................................................................... 19
      3.5.2 Natural Protected Areas .................................................................................. 21
   3.6 Landscape Character .......................................................................................... 22
      3.6.1 Historical changes in the landscape character ................................................ 23

4. Assessment of the anticipated landscape impact ...................................................... 27
   4.1 Impacts to landscape character .......................................................................... 27
   4.2 Activities generating impact and anticipated impacts .......................................... 31
      4.2.1 During construction ......................................................................................... 31
      4.2.1.1 Activities generating impact during Project construction ......................... 31
      4.2.1.2 Landscape impact anticipated during the construction phase .............. 31
      4.2.2 During operations ............................................................................................ 32
      4.2.2.1 Landscape impact anticipated during the operations phase .................. 32
      4.2.3 During closure ................................................................................................. 33
      4.2.3.1 Activities generating impact during the closure phase ............................. 33
      4.2.3.2 Landscape impact anticipated during the closure phase ....................... 33
   4.3 Visual Impact on Project Facilities ...................................................................... 34
      4.3.1 Views from dwellings ....................................................................................... 34
      4.3.2 Views from roads ............................................................................................. 34

5. Landscape Impact Mitigation Measures ..................................................................... 35
   5.1 Alternatives and measure to avoid impacts ........................................................ 35
   5.2 Rehabilitation of Lands ......................................................................................... 36

6. Legislation .................................................................................................................. 37
   6.1 International Regulatory Framework ................................................................... 37
   6.2 Romanian Legislation on Landscape Protection ................................................. 37
   6.3 Special Provisions for Mountain Areas ............................................................... 38

7. References ................................................................................................................. 39
List of Tables
Table 3-1. Land Use in the Project Area ................................................................. 19
Table 4-1. Take up of land by the proposed facilities ........................................... 28
Table 4-2. Impacts on Project Development Phases ............................................. 31

List of Figures
Figure 2.1. Factors shaping the landscape; attributes and interdependent relations 
(Zonnenveld, 1972) ............................................................................................ 7
Figure 2.2. Schematic representation of an ecological socio-economic system (as per 
Messerli and Messerli, 1978) ............................................................................ 8
Figure 2.3. Landscape ecotops tide-up according to the energy, substance and information 
entrance from bio and tehnosystems. (after Naveh, 1994). ......................... 10

List of Exhibits
Exhibit 4.7.1 Geographical Location of Roșia Montană
Exhibit 4.7.2. Project location from a territorial-administrative standpoint
Exhibit 4.7.3. Topographic Relief
Exhibit 4.7.4. Landscape characteristics
Exhibit 4.7.5. Forest distribution within the Project site
Exhibit 4.7.6. Land farming use

Annexes
Annex 4.7.1. Roșia Montană Project site pictures - Current conditions
Annex 4.7.2 Visual landscape impact due to Cetate and Cîrnic open pit operations - 
simulation
1 Introduction

This section describes the landscape-related impacts associated with all phases of the Roșia Montană Project, in accordance with Section 4.6 of Ministerial Order (M.O.) No. 863 dated 26.09.2002 on Approval of the methodological guidelines applicable to the stages of the environmental impact assessment procedure. Information on landscape baseline conditions along with a discussion on aspects related to the main environmental components is presented herein. Data regarding the land use as per Table 4.7.1.of M.O. 863, the Project maps and photographs in the annexes, respectively associated with the report to the environmental impact assessment is also presented.

"Landscape" means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors (Council of Europe, 2000). Landscape has an important public interest role in the cultural, ecological, environmental and social fields, and constitutes a resource favourable to economic activity and whose protection, management and planning can contribute to job creation (Council of Europe, 2000)1.

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2 Methodological Approach

2.1 Connection with the other sections of chapter 4

The landscape represents the features, patterns and structure of the specific geographic area including the biological composition and its physical media as well as the anthropogenic and social patterns characterizing it. In the investigated area, the interaction systems are grouped and replicate in a similar way.

The previous sections in chapter 4 (4.1 - 4.6) discuss the impact assessment on biotic (Biodiversity - 4.6) and abiotic factors (Geology - 4.5; Soil – 4.4; Water – 4.1; Air - 4.2) while the following sections (4.8 – 4.9) discuss the impact assessment on the social and economic environment (4.8) and cultural and ethnic conditions and cultural property (4.9). To avoid overlapping of the information provided in this chapter, the section highlights the connections with the other sections in chapter 4, with distinct discussion on the visually perceptible effects on the landscape character.

Due to this structure of the report, the section regarding the landscape introduces the relation between the biotic and abiotic factors on one hand and the human factor on the other hand (Exhibit 2.1). The interdependent relations between the landscape shaping factors, illustrated in Exhibit 2.1, are presented below.

| Interdependent relations between landscape shaping factors (Legend – Exhibit 4.1) |
|---|---|
| 1 17 | Engineering, Requirement, Operation  | Destruction, Protection, Hunting, Fishing, Animal Husbandry |
| 2 18 | Drainage, Irrigation, Damming in, Impoundment  | Erosion, Sedimentation |
| 3 19 | Influence in development  | Storage, Run off |
| 4 20 | Geographic Barriers  | Aquifers |
| 5 21 | Influence in development  | Cultivation, Requirement, Conservation, Destruction |
| 6 22 | Reproduction, Extermination, Migration  | Sedimentation |
| 7 23 | Air pollution  | Slope, Exposure, Drainage (climate and water) |
| 8 24 | Evaporation, Precipitation  | Sedimentation, Disaggregating |
| 9 25 | Nutrients, Support, Water  | Sedimentation, Basis |
| 10+11 26 | Cultivation, Destruction, Consumption  | Origin, Material, Drainage |
| 12 27 | Urbanization, Planning  | Beavers |
| 13 28 | Organic Matter  | Termites |
| 14 29 | Organic fixation and sediments  | Structure, Homogenization, Humification and Organic Matter |
| 15 30 | Consumption, Manure  | Ores |
| 16 | Protection, Destruction  | |

Section 2, Methodological Approach
Figure 2.1. Factors shaping the landscape; attributes and interdependent relations (Zonnenveld, 1972)

Landscape shaping factors, functions and interrelationship between it (after Zonnenveld, 1972)
2.2 Theoretical Approach

In assessing the landscape baseline conditions, the factors of the natural system (resources and ecosystems) were analyzed in interaction with the factors of the socio-economic system (anthropogenic influence) under the influence of the external factors induced by the Project development. The impact prevention or mitigation included protective measures for all the components of an ecological socio-economic system, as described in the sections of chapter 4. The components of the ecological socio-economic system and interactions between these components under pressure by external factors are presented in Exhibit 2.2.

Figure 2.2. Schematic representation of an ecological socio-economic system (as per Messerli and Messerli, 1978)

2.3 Practical Approach

The potential landscape impacts and associated mitigation measures are described in the chapter's sections and will be assessed from the following perspectives:

- potential impacts to landscape character in the local and regional setting.
potential impacts to the environmental components (i.e. new waste rock dumps and tailing dams) and ecosystems;
potential impacts on public roadways, homes.

The presentation of baseline conditions and the assessment of potential impacts were conducted through a qualitative analysis of the existing landscape setting through study of the following:

- topographic mapping;
- site photos;
- draft project description of site development and operations;
- draft mine reclamation and closure plan.

The study area covers 1663.89 ha and was delimited based on the Roșia Montană Project Industrial Zone. The total surface area is 1646.32 ha however the study does not cover for the balance of 17.57 ha that represents the area where water supply and electrical power lines will be developed after having excluded the area from the agricultural and forestry land uses.

Initial field surveys undertaken considered the nature, extent and quality of the following components:

- existing landscape features in the project area such as landform, vegetation, land use patterns, settlement, roads, and skylines;
- potential views of the site from the new principal road networks and inhabited areas.
- location of certain facilities and protective screen in the local landscape setting.
Figure 2.3. Landscape ecotops tide-up according to the energy, substance and information entrance from bio and tehnosystems. (after Naveh, 1994).

Landscape ecotops tide-up

according to the energy, substance and information entrance from bio and tehnosystems. The major goal of the landscape ecology is representing the achievement of a new balance between the left and right poles of this tide-up (after Naveh, 1994).
3 Baseline conditions

1.1 Regional Context

The Project site is located within the Alba county territory, geographically located in the Metaliferi Mountains, at a distance of 135 km from Cluj Napoca, 100 km from Turda, 81 km north-west of the city of Alba Iulia, 50 km from Brad, 15 km from the town of Cîmpeni and 10 km from the town of Abrud. (Exhibit 4.7.1 Geographical Location of Roşia Montană). Roşia Montană has a long history of mining and has been the most important gold producing region in Europe for over 2000 years.

3.1 Local Context

The Roşia Montană Project area is located within the Roşia Montană village area. The area is approximately 1645.15 ha, with the project footprint of 1050.08 ha and contains the existing and proposed mines and associated facilities, presently operated by the state-owned company and project partner Minvest. The main access way in the area is DN 74 Abrud – Câmpeni.

The Roşia Montană village covers an area of approximately 42 km² and is located at an altitude of 700 - 800 m, N 46°19'0" latitude and E 23°08'0" longitude (Exhibit 4.7.2. Project location from a territorial administrative standpoint).

The largest locality of the village is Roşia Montană which houses the Gold Mining Museum, entrance to the Roman galleries, archeological sites dating back to the Roman times (Photo 1.), churches, houses and associated structures.

The Roşia Montană village comprises two areas which are delineated by the streets pattern. The first area extends from the western limit of the village to an square area called Roşia Centru. The arrangement of the area is linear with the houses located in one row alongside the road that connects the Roşia village to Abrud and Câmpeni. The second area of Roşia Montană extends from the eastern side of the first area to its north and east limits and is called Roşia Piată. The houses in the plaza and adjacent area are bigger than in the other areas of Roşia Montană (Annex 4.7.1, Photo 6A).

The Corna village is located along the Corna Valley near the Cîrnic and Cetate Mountains. The architecture of the village houses is characteristic to other localities in the Apuseni Mountain are (Photo 2, Annex 4.7.1, Photo. 4A.)
Section 3: Baseline Conditions

3.2 Geomorphology of the Study Area

In terms of a general localisation, the investigated area is part of the Carpathian Subprovince, district of the Trascău-Metaliferi volcanic and flysch mountains. The topographic relief in the Roşia Montană Project area is typical for the mountainous landscape in the Metaliferi Mountains region (Exhibit 4.7.3. Topographic Relief, Exhibit 4.7.4 Landscape Characteristics), having high elongated ridges that separate deep valleys, steep slopes with peaks rising above the ridge tops at the upper end of the valleys. Ridge tops tend to be well rounded with occasional craggy outcrops in the upper part of Roşia and Corna Valleys or ridges adjacent to the site (Photo 4, Annex 4.7.1. Photo 10A) and slopes are usually steep.

Photo 2. Corna Village

Settlement is generally restricted to the valley floors with only farm buildings and occasional domestic dwellings higher up the valley sides. In the Roşia Valley, smaller settlements are located west of the Roşia Montană village: Balmoșești and Ignatești, and in the Corna Valley is located the Bunța village (Photo 3.)

Photo 3. Bunța village, right slope of Corna Valley
The relief immediately to the west of the Project Area is organised around the main south-north valley of the Abrud River, which receives the three following valleys of right-bank tributaries flowing from the east: Roșia, Saliste and Corna. The ridges between these valleys and the peaks to the east effectively form a natural bowl around Roșia Montană, isolating it from the wider landscape to the east, north and south. The western ridgeline of the Abrud Valley provides further isolation of the Project Area to the west (*Exhibit 4.7.3, *Topographic Relief*).

The relief units in the area are the slopes, ridges, valleys, with the lower and middle slopes having the largest predominance.

The terrain configuration is frequently undulated and it becomes uneven – rough in the valley area with fairly significant gradients (*Annex 4.7.1. Photo 3A.*). Under these rough relief conditions brittle, superficial soils (i.e. bruni eumesobazic lithic, bruni podzolic lithic) with surface skeleton and rock, exposed to erosion occurred.

In terms of altitude, the area is located between 600 m and 1300 m. On the north and north east limit the following ridges are highlighted: Țânoaga (1054.8m), Rotund (1191m), Vârșii Mari (1282.9m), Ghergeleu (1156m). These peaks delineate the investigated area along the N – NW side.

The terrain slope is mainly steep (between 16° and 30°) and very steep (between 31° and 40°) however abruptness with gradients exceeding 40° is also encountered.

The overall exposure of the area determined by the course of the main streams is south west and west. The rich hydrographical network that contributed to the land fragmentation determines a diverse range of exposures, from sunny to shaded and even over-shaded on the steep northern slopes or valley bottoms.

The Abrud Depression encompasses a rippled area which appears like a tectonic and erosion basin (Bucium, Abrud, Roșia Montană).

The Roșia Montană depression basin stretches out along the Roșia Valley as an elongated corridor framed by a number of “hills” i.e. Rotunda, Cîrcic, Dealul Cetății, which are in fact old volcanic cones in whose depths are encountered various non-ferrous ores.

What is noteworthy is the anthropogenic micro-relief (galleries, mine portals, waste rock dumps) which attests the historic mining in this area of the Apuseni Mountains (*Photo 5.* Geological formations with a remarkable aspect that are classified as protected areas are also present, i.e. Piatra Despicată and Piatra Corbului.)
Over the years, the relief in the area has suffered various changes, which are the result of the combined influences of natural and anthropogenic factors of the last 2 millennia.

3.3 Geology of Study Area

The geological setting of the area is characterised by crystalline foundation (bed) of Precambrian - Palaeozoic age and sedimentary cover of Permo-Mesosoic age.

The crystalline foundation was structured by two orogenetic and metamorphic cycles (V. Ivanovici and col. 1969), namely: pre-Hercinic crystalline cycle (Precambrian – lower Palaeozoic) represented by mesometamorphic and epimetamorphic series, Hercinic crystalline cycle (middle and upper Palaeozoic) represented by epimetamorphic and anchimetamorphic series.

From a geological point of view, two distinct zones may be identified within the territory covered by the Roşia Montană mining operation, namely:

- Abrud – Corna zone formed of conglomerates, limestone, calcarenite and marble schists;
- Roşia Montană zone where limestones and gritstones with islands of dacite and quartz conglomerate prevail.

The micro-relief determined by the presence of the igneous rocks gives the study area a distinct appearance.

Although the rock disaggregating and weathering process occurs relatively easy, the physiological soil width ranges from superficial (30 cm) to medium - deep (60 cm) depending on the land slope which is generally steep and very steep. The high skeleton content in soils (poorly skeletal, semi-skeletal and even skeletal) significantly reduces the edaphic volume of the soils, which is a limiting factor in vegetation development. Outcropping of the rocks may result even in the disappearance of forestry vegetation in the respective sections, which has a negative impact on the landscape.

3.4 Hydrology of Study Area

The study area is part of the Abrud watershed, which receives the right bank tributaries to the Roşia Valley and Corna Valley, which in turn receive smaller tributaries. The Roşia Montană Project site is located in the Corna and Roşia Valley watersheds.
The valleys are characterized by rapid runoff of surface water. The streams are fed by slope springs and flow radial to the high crests in the Project area, especially east of the proposed site and west and northward flowing into the Abrud river. Their flow is highly variable and dependent on the season and amount and timing of precipitation.

### 3.4.1 Surface Water

The permanent streams are Roșia and Corna.

The Roșia stream originates from Tâul Țarina, Tâul Mare and Tâul Brazi, crosses the villages of Roșia Montană, Balmoșești, Iacobești and flows into the Abrud river at Gura Roșia. The stream collects water from adits gaining the yellow – reddish colour due to the igneous rocks it flows through. The stream was named after the water colour. The Corna stream originates from Tâul Corna, crosses the village with the same name south-westward towards the town of Abrud. The Corna stream has a watershed of 973 ha and flow into the Abrud River. At the end of the valley there is a lake fed by the stream. The Sâliște stream is located between the Roșia and Corna streams and is tributary to the Abrud river. Rosiamin’s tailings management facility is constructed on this stream. The Sâliște stream watershed covers an area of 451 ha and is the smallest of the five streams. The majority of the stream water comes from the tailings dam associated with the existing ore processing plant.

The anthropogenic changes which are the result of mining activities led to the development of a few man-made lakes on the upper slopes of the Roșia and Corna valleys. These lakes were created to operate the stamp mills.

At the moment there are five significant lakes in terms of size, namely:

- Tâul Mare, near the Roșia stream springs, $S = 32,120 \ m^2$, $V = 160,600 \ m^3$, maximum depth = 10m (Photo 6, Annex 4.7.1. Photo 11A.).

- Tâul Brazilor, on the southern side of the Upper Roșia, $S = 7,800 \ m^2$, $V = 22,000 \ m^3$, maximum depth = 5.5m (Photo 7).

- Tâul Anghel, on the southern side of the Upper Roșia, $S = 4,250 \ m^2$, $V = 8,500 \ m^3$, maximum depth = 4.5m (Photo 7).
Tăul Țarina, on the northern side of the Upper Roșia, $S = 10,480 \, m^2$, $V = 27,300 \, m^3$, maximum depth = 4.5m
Tăul Corna, at the Corna stream springs, $S = 8,830 \, m^2$, $V = 15,930 \, m^3$, maximum depth = 3.6m (Photo 8., Annex 4.7.1. Photo 15A.).

3.4.2 Groundwater
Due to the geological structure, Roșia Montană area, formed of low fissure degree rocks, is not rich in groundwater. Active springs occur, which dry up in summer, and are present on contact between sedimentary rocks and compact massive rocks. Groundwater occurs as captive water streams that emerge in colluvium deposits following accumulations resulting from climatic water.

3.4.3 Hydrological Conditions
The hydrologic conditions of these streams are generally balanced with the usual fluctuations during snow thaw and heavy rainfall or long drought periods. The water supply to the hydrographical network is pluvial and underground. Following extensive or heavy rainfalls, even if short term, the hydrologic conditions become random with fluctuating flows. In this context, the sediment discharge increases too, all the more that the lithologic sublayer is fairly friable and the slopes are steep.
Most streams, especially in middle and lower reaches, are characterized by poor water quality as a result of water emanating from old mines, drainage from spoil and waste rock, and untreated discharges from farms, dwellings and industrial operations. Their aesthetic value is also greatly reduced by the disposal of large amounts household refuse. Furthermore, pollution from mining operations causes ochreous staining of the water and streambed, which has been long noted in historical records and is reflected in the toponym Roşia, which means red.

3.5 **Forests and lands with forestry vegetation**

The Roşia Montană area encompasses a wide range of landscape and vegetation types. The forests are scattered throughout the area along with the secondary meadows forming a mosaic (*Exhibit 4.7.5. Distribution of forests within the Project site*). Presently, the forests take up an area of 275 ha within the site, of which there will be cleared approximately 197 ha after the implementation of the Roşia Montană Project, representing 5.6% of the current 17.7%.

The large scale post-glacial changes of the vegetation cover in the mountainous regions of the Western Carpathians resulted in the forests being the prevailing type of ecosystem with the exception of wetlands and rock outcrops. The beech woods represent the basic natural type of forestry vegetation towards which the majority of the current ecosystems tend to develop. Mixtures of beech with coniferous trees and even combinations of coniferous trees occur on small areas (*Photo 9.*).

![Photo 9. Coniferous forests in Cârnic area](image)

As a result of the millenary anthropogenic impact, the current vegetation cover structure differs from the potentially natural one, with the prevailing type of ecosystem being secondary meadows and grazing forests. The beech forest takes up large areas on the slopes in the lower half of the Roşia valley (*Photo 10.*) and along the Corna Valley. The coniferous forests occur in an islanded pattern and are concentrated in the Cârnic area.
The lower sections of the Corna and Roșia valleys are generally covered by secondary vegetation. These include intensively grazed pastures and meadows (Photo 11.), cultural thickets and smaller or larger patches of cultural woodlots, in an increasing order of anthropogenic use (Photo 12.). The thickets, often present as extensive patches, are dominated by a number of species, most importantly alder, hazel and hornbeam.

From the above discussion it may be noted that the forest plays an important role in the definition of the landscape giving the area a characteristic aspect with anthropogenic impacts of the mountainous landscape.
### 3.5.1.1 Land Use Categories

Mining and associated activities have led in time to changes in the land use due to the construction of houses, development of agricultural land and extension of logging areas. Presently, in the Roșia Montană Project area the main land uses are: forestry, animal husbandry, agriculture and mining with the associated infrastructure. In addition there are community constructions with the associated roads (Exhibit 4.7.6., Agricultural Land Use).

#### Table 3-1. Land Use in the Project Area

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Surface Area</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior to Project implementation</td>
<td>During Project operational phase I</td>
<td>Revegetated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ha</td>
<td>%</td>
<td>ha</td>
<td>%</td>
<td>ha</td>
</tr>
<tr>
<td>Arable Land</td>
<td>16.9</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hay land</td>
<td>987.75</td>
<td>60</td>
<td>468.54</td>
<td>29</td>
<td>572.61</td>
</tr>
<tr>
<td>Forests</td>
<td>289.22</td>
<td>17.7</td>
<td>92.4</td>
<td>5.6</td>
<td>335</td>
</tr>
<tr>
<td>Roads</td>
<td>48.76</td>
<td>3</td>
<td>17.77</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Built Zones</td>
<td>198.25</td>
<td>12</td>
<td>1061.61</td>
<td>64.4</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>14.2</td>
<td>0.8</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cemeteries</td>
<td>8.87</td>
<td>0.5</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-productive</td>
<td>82.37</td>
<td>5</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcrop Habitat</td>
<td>154</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Area</td>
<td>1646.32</td>
<td>100</td>
<td>1646.32</td>
<td>100</td>
<td>1061.61</td>
</tr>
</tbody>
</table>

Note: the balance from 1061.61 ha that represents the area taken up directly by the Project facilities up to 1646.32 ha (total surface area of industrial zone plus buffer zone) represents the total area of lands not taken up by facilities located in the buffer zone (the protection area of the industrial zone).

As indicated by table 3.1., the land use categories prior to the implementation of the Roșia Montană Project cover the following percentages of the allocated area of 1645 ha. Hay lands have the highest proportion, i.e. 60% of the total areas, followed by forests with 17.7% and constructed areas with 12%. The rest of the area up to 100% is taken up by non-productive land - 5%, roads - 3%, arable land - 1%, cemeteries - 0.5% and water - 0.8%.

The land use type poses an important influence on the landscape character. Consequently, the rough terrain with low fertility soils restricts the land use to low productivity practices this essentially being grazing and mowing. Therefore, the arable area in the region is small (16.9 ha) and fragmented being localized near villages. Due to the low edaphic volume, modern farm machinery cannot be used and most land work is conducted by hand with transport by horse drawn cart. As a general rule, fertilizers, pesticides and commercial agricultural supplements are not employed.

The plateaus and hillsides contain, in many places, extensive areas of forest cover (289.22 ha), primarily comprised of native hardwood but also with some conifer plantations. These forests are a source for wood that is used as firewood and for constructions.
Areas with herbaceous vegetation may be split in two categories: pastures and hay meadows. Pastures are composed of species tolerant of various levels of grazing and, depending on the intensity of use they are characterized by dense, compact sods. Meadows are present in all sectors of the investigated area covering approximately 65% of the total area covered by herbaceous species.

The high intensity of use, in conjunction with drier and hotter microclimate on these slopes, has resulted in impoverished and low-productivity meadows. Sections of these slopes, which, for one reason or another, have been partially removed from grazing, are currently undergoing secondary succession with regenerating shrub communities dominated by hawthorn, rose, blackberry (Photo 13) and forestry vegetation.

Hay meadows cover an area of 987.75 ha and are characterized by their extraordinary species richness, especially when occurring on mesic, north-facing slopes. In addition, they display distinct aspects related to successive spring, summer and fall maturation and dominance by groups of species (Photo 14).
This simple form of agriculture within the network of wildflower-rich meadows, hedgerows and forest patches, studded with traditional wooden buildings and hay stukes, create the pleasing pastoral landscape of the area, as is the case virtually across the entire country (Annex 4.7.1. – Photo 1.A).

3.5.2 Natural Protected Areas

By way of Decision no. 20 of 27 October 1995, the Prefecture of Alba County established and nominated as protected areas certain geological, spelaeological, palaeontological and botanical reserves as well as several flora and fauna species protected within the County. In the Roșia Montană Project area there are two protected geological monuments which are listed in the natural monuments list provided in Law No. 5/2000. These are Piatra Despicată (a block of isolated andesite rock) located at the southern boundary of Napoleon open pit on the interfluve between the Roșia and Corna Valley streams and Piatra Corbului (an outcrop that suggests a raven head and which resulted from historic mining operations) located east of the Piatra Despicată between Ghelaru and Curmătura Hills.

These rock outcrops are relatively small in the overall landscape and their aesthetic quality is minimized by their location on the degraded slopes of Cetate and Cîrnic. The waste rock dumps developed in time closely surround both outcrops.

Piatra Despicată: is located in the Metaliferi Mountains, on the interfluve between the Roșia and Corna Valley streams and covers an area of 0.25 ha (Photo 15.). The protected andesite block was formed in a final stage of the late subsequent magmatism of the upper Pannonian. There are three crystallization cycles in the magmatism development. The second cycle is considered to be the most active and long term, starting with the Upper Badedian up to the Pannonian. The basalt andesite rock at Rotunda belongs to the Volcanism of the third cycle. Piatra Despicată belongs to these effusions and it is now an isolated erosion resistant block. The rock is formed of feldspar, hornblende, phenocryst and a microcrystalline matrix of volcanic glass and microlith.

Piatra Corbului is located between Ghelaru and Curmătura Hills and covers an area of 5 Ha (Photo 16.).
The protected area is located at an altitude of 1,100 m - 1,150 m and belongs to the Metaliferi Mountains. The name Piatra Corbului derives from the dark colour, which is the result of the weathering of the pyroxene andesite, and its special shape. The area lacks herbaceous vegetation and is sporadically covered with forestry species. In terms of geology, Piatra Corbului belongs to the volcanic structures formed in the second eruption cycle which starts with the Quaternary and ends in Pannonian.

![Photo.16. Piatra Corbului at the top of the slope](image)

The most important protected area is the old square of the village, which is an area of local architectural interest (Exhibit 4.7.4, Landscape character).

### 3.6 Landscape Character

The landscape in the Project area is very diverse with geomorphologic elements represented by crests, slopes and valleys covered by meadows and forests with small patches of crop fields and non-productive areas, as a consequence of mining operations, characterized by anthropogenic degraded landscape.

Valea Roșia comprises rock outcrops, wooded and open upper slopes, and the current Cetate mine operation dominate the skyline. The village of Roșia Montană, nestled at the head of the Roșia Valley, is surrounded by wooded, mountainous terrain and exposed mine operations. Small man-made ponds are found on the upper slopes. Derelict terrain resulting from historic mining activities is evident on the middle and upper slopes of the valley.

Churches and historic buildings are the backbone of the cultural heritage of Roșia Montană. Corna Valley: Hamlets and scattered homesteads in the upper Corna Valley are surrounded by meadows and woodlands, the churches in the village of Corna being visual landmarks. On the upper slopes there are small man-made lakes, the Piatra Despicată and Piatra Corbului outcrops on the south-facing slope. Derelict lands resulting from historic mining operations are obvious throughout the area due to the presence of waste (waste rock dumps, tailings dams, silted dams, etc.).

The outcrops at Tâul Mare (Photo 17.) are located east of Roșia Montană, the northern boundary extends to Taul Mare and the southern boundary reaches Taul Corna. The prevailing vegetation cover is subalpine meadow, both for pastures and for hay use.
The main water body is Tâul Mare, the largest man-made lake in the project area, which support several wetland communities on its south bank. The most outstanding feature of the area is, however, a series of rock outcrops that crown several small but distinct hills to the west of Tâul Mare, between Tâul Mare and Ghergheleu, as well as south of Ghergheleu. The rock faces of the outcrops are generally south exposed, which determines their unique microclimatic, ecological and vegetation characteristics. In addition to its biodiversity values, this area is also unique for its landscape attributes. The hills and rock outcrops, and the network of meadows, woodlands, lakes and wetlands, form a self-contained setting of natural beauty. From a biodiversity and landscape perspective, this area represents the most significant ecological feature in the Project Area.

3.6.1 Historical changes in the landscape character

The landscape has suffered major changes throughout the years due to the numerous stamp mills, galleries and man-made lakes required for mining activities. These activities kept extending and were in conjunction with changes in settlement structure and relief due to the development of waste rock dumps. For example, the Cetate Massif was intensely mined and the waste rock piles have become actual hills – Cetate, Hop, Gauri, Rakosi, Valea Verde, Vekes, Iuliana, Afinis, Aurora, 23 August, Galerie 910 Carnic, Napoleon 984, Napoleon 959, Manesti, Galerie 887, Galerie 938, Piatra Corbului 960, Piatra Corbului, Orlea dumps.

The decline in family type mining back in the 50’s and gold mining private property as well as the undertake of surface mining in the 70’s resulted in changes in landscape, population structure and occupation, in abandonment and degradation of traditional industrial constructions, degradation and even demolition of constructions or structures of which some were of actual heritage asset value. Undiscerning location of collective housing (blocks of apartments) contributed further to the alteration of the pastoral landscape of the area. Baseline results indicate that both the landscape and habitat structure has been significantly influenced by human activities. The deterioration of the area falls into two broad categories, namely deterioration through landscape structural changes and deterioration through changes at the ecosystem level. These changes are attributed to: historic and current mining activities and related pollution (including acid rock drainage), transformation of natural systems to meadows, human settlements and planted forests, development of semi-natural systems (e.g. man-made lakes), and the exploitation of renewable resources (e.g. logging).
All these disturbance factors have resulted in significant changes to the local flora, fauna and natural habitats leading to a permanent landscape change. In addition, the landscape suffered major historical changes around areas located on the valley bottoms, where access was easiest, terrain flatter and soils best. The villages of Roşia Montană and Corna, together with their satellites or extensions, such as Balmuşeşti, Ignăeşti and Bunta, are the best examples, and they are surrounded by smaller and more scattered settlements located on slopes and plateaus. Within their boundaries, almost no natural vegetation remains, however, they provide habitat for a multitude of ruderal vegetation communities, composed of weedy species, that thrive along roadsides, fences and paths, in neglected gardens, old cemeteries, and remnant shrub thickets and woodlots (Annex 4.7.1. – Photo 2A, 3A and 4A).

The type of agriculture, logging, hunting, and modes of settlement seen in Roşia Montană have resulted in a significantly human-influenced landscape that is seen in much of Romania. In addition, Roşia Montană’s landscape has been further impacted by mining activities that date back as far as the Roman era (Annex 4.7.1 - Photos 5A and 7A), all these posing in time significant alteration of the landscape.

Historic and present mining operations have involved disposal of waste rock and overburden by uncontrolled tipping over the valley sides into Roşia Valley on the north and Corna Valley on the south. This has resulted in exposed scree slopes and the burial of much of the former vegetation. The valley side landform and landscape character has been significantly altered by these operations.

The higher sections of the old mine workings, which have left bare rock faces, waste piles and scree slopes, are visible from both settlements (Corna and Roşia Montană). This has resulted in severe degradation of the existing landscape setting of the upper sections of the Roşia and Corna Valleys (Photo 18.).

In the Corna Valley, the degraded landscape is confined to the south-facing slopes. In the Roşia Valley, however, mining activity is more extensive with historic workings evident on portions of south-facing slopes and current workings (Cetate) on the north-facing slopes. In addition to being visible from the locality of Roşia Montană, the current workings at Cetate are visible from a distance of up to 3 kilometres down valley, depending on the vantage point. Some of the historic mining areas have undergone partial re-vegetation with pioneer trees such as aspen and birch. This vegetation, however, differs from the natural beech-hornbeam cover, further emphasizing the altered character of the landscape (Annex 4.7.1 - Photo 5A and 6A).

In conclusion, the overall landscape’s aesthetic value is offset by the presence of several degraded areas that dominate views in the upper Corna and Roşia Valleys, namely:
Cetate Open Pit Mine with its haul roads, equipment, and exposed rock (*Photo 19., Annex 4.7.1, Photo 8A*);

![Photo.19. View from Cetate pit (MINVEST Deva)](image)

Exposed scree slopes on the sides of Cetate and Cîrnic (Photo 20, Annex 4.7.1. Photo 7A);

![Photo.20. Cetate and Cîrnic Slopes](image)

Exposed regenerating scree slope at Orlea (Annex 4.7.1, Photo 9A) where the natural reforestation of an old waste rock dump may be observed.

Gura Roșiei Processing Plant and Tailings Management Facility (Photo 21.).
Section 3: Baseline Conditions

Chapter 4.7. Landscape

Photo. 21. Gura Roșia Tailings Management Facility

- TMF in Săliște valley (Photo 22.);

Photo. 22. Săliște Tailings management pond and dam


This landscape degraded due to mining operations alternates with islands of natural landscape, which amplifies the overall landscape degradation. The functional interrelations that establish between environmental units degraded by human activities and natural environmental units facilitate the development of impacts to the natural units by dust deposition resulting from blasting, by polluted surface water and existing groundwater contaminated by acid mine drainage, adversely impacting the development of natural ecosystems.
4 Assessment of the anticipated landscape impact

4.1 Impacts to landscape character

The Roşia Montană Project, although considered to be the largest proposed mining projects in Europe due to its 13 Mtpa throughput, the relatively small area taken up by the Project site, its isolated location and small viewsheds determine a minor landscape impact at regional level.

On a local scale (within Project Area boundaries), the impact on landscape character will be significant and will be a direct result of the loss of traditional land uses, topographic relief, vegetation, and several settlements. The current character of the Valea Roşia and Corna landscape will be significant and permanently changed due to the continuation of the mining operations at large scale.

The land use subject to the proposed facilities is presented in table 4-1.
## Table 4-1. Take up of land by the proposed facilities

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</table>
The Roșia Montană Project encompasses the following main facilities that will pose direct impact to the landscape:

- **ore processing plant**, which will be constructed on an area of 51.34 ha between Săliștea and Roșia Valleys, affecting 0.2 ha of arable land, 8.6 ha of forest land and 29.08 ha of hay land. The balance represents areas of land taken up by human activities.

- **Cetate and Cârnic open pits** will cover an area of 141.92 ha, of which 25.19 ha of forest land and 46.78 ha of hay land.

- **Cetate and Cârnic waste dumps** (177.37 ha) will replace an area of 1.07 ha of arable land, 30.61 ha of forest land and 120.73 ha of hay land. The balance represents areas of land taken up by human activities.

- **Jig and Orlea open pits** (63.49 ha), the change in land use will cover a small size area of arable land (0.15 ha); when works will commence in the Orlea pit there will be 10.26 ha of forest cleared and 24.06 ha of hay land will change use; in the Jig pit, 15.98 ha of hay land will change use. The balance represents areas of land taken up by human activities.

- **the tailings management facility** will be raised in stages in the Corna Valley, south of the processing plant site and it will ultimately take up 363.13 ha. The construction of the TMF will change the landscape and will result in land use change over 88.7 ha of forest land and 208.03 ha of hay land. The balance represents areas of land taken up by human activities.

- **rockfill quarries**, located in Valea Porcului and Șulei and covering 15.86 ha will change land use over small areas of arable land (0.1ha) and hay land (13.22ha). The balance represents areas of land taken up by human activities.

- **topsoil stockpiles** will be located in areas where topography facilitates development of a stable stockpile, will cover 43.79 ha and influence 0.1ha of farm land, 15.85 ha of forest land and 36.62 ha of hay land. The balance represents areas of land taken up by human activities.

- **secondary containment dam and pond** associated with Cetate pit and waste dump (16.83 ha) designed for protection purposes, will be located in the narrowest point of Roșia Valley and will collect the ARD from Roșia valley stream. It will result in land use change of 0.01 ha of farm land and 7.36 ha of hay land. The balance represents areas of land taken up by human activities.

- **explosives storage facility** (0.2ha) will be located adjacent to the TMF access road at around 1 km south of the processing plant on a land in a relatively isolated area and will decommission an area of 0.2ha of hay land.

All in all, the facilities and mining activities to be carried out during the operation of the Roșia Montană Project will lead to changes in land use as follows:

- non-productive land areas (anthropogenic degraded) will increase from the original 5% to 64.4%
- hay lands will be reduced from 60% down to 22.5%
- forest lands following clearing will be reduced from 17.7% down to 5.6%
- roads will be reduced from 3% down to 1%
- built areas will be increased from 12% down to 64.4%
- waters from 0.8% to 0.3%
- agricultural land will be the least affected, i.e. as from 1% down to 0.9%.
This analysis highlights the extent of the anthropogenic impacts on the overall landscape of the area and the way in which the land use categories will be changed due to the Project implementation.

Land uses in the area will change. Small areas of farming land will remain unaffected by the project although access to the entire Project area will be limited during its the Project life. In Roşia Valley, severances to existing wildlife corridors will result from the development of the access road, the Cetate waste and mine drainage dam and the diversion channel. Connectivity between the north and south slopes of the Roşia Valley is currently severed by the existing access road and steep terrain on the south side of the road. As such, further development of the road will not result in significant additional impacts to wildlife corridors in the Roşia Valley.

Outside of the Project site, traditional land uses will continue for as long as such agricultural practices remain in that part of Romania. This will ensure that key attributes of pastoral landscape, such as juxtaposition of wooded and open meadow areas dotted with human settlements will be still seen from numerous vantage points and will continue unaffected both in the area surrounding the mine site and in the region.

Overall, impact on existing land use will only be significant on a local scale (the Project Area). Also, the significance of the impact is further reduced given that a large proportion of the existing land has been directly impacted by historic mining activities and the majority of soil fertility is considered to be low. Considering that the Project has a local geographic extent, the impact on regional land use and landscape will be insignificant except for the increase in the traffic to and from the proposed facilities.

In areas immediately adjacent to the Project Area, the relocation of local inhabitants from the Project Area will likely result in some pastureland no longer being used. From a biodiversity perspective, this overall decrease in human activity in areas adjacent to the Project will be beneficial. Over time, unhindered by grazing, cultivation and wood cutting, vegetation succession will result in meadows changing to shrub communities, and shrub and sparsely treed woodlands changing to closed-canopy forest. The same process will connect the presently isolated forest patches.

In other areas, the increased economic prosperity from the Project will result in increased agricultural and forestry activity outside the Project Area to support the local population and workers employed directly and indirectly by the Project. Specifically, forestry activities and animal grazing will impact remaining forests and small areas of meadows.

Within the Roşia and Corna valleys, potentially significant local views may exist for all components of the proposed mine. However, mine development requires the relocation of the settlements and thereby removes potential observers. Whilst landscape visual and aesthetic value disturbance would be significant for any dwelling remaining in the valleys or for any visitors to Roşia Montană, this represents a very small number of people. In conclusion, considering the Project implementation and construction of the above mentioned facilities, the following landscape impacts are anticipated:
- change of the natural setting;
- change in the natural/human influenced landscape proportion;
- change in the land use categories proportion;
- change of the landscape aesthetic value;
- impact on protected areas.
Table 4-2. Impacts on Project Development Phases

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<th>Operational Phase</th>
<th>Closure Phase</th>
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<td>YES</td>
<td>YES</td>
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<tr>
<td>- change in the natural/human influenced landscape proportion;</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>- change in the land use categories proportion;</td>
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<td>YES</td>
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<tr>
<td>- change of the landscape aesthetic value;</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>- impact on protected areas.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
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4.2 Activities generating impact and anticipated impacts

4.2.1 During construction

4.2.1.1 Activities generating impact during Project construction

- Construction of the access road to the process facilities;
- Development of rockfill quarries;
- DJ 472 Diversion
- Construction of overhead electrical network;
- Installation of pipelines;
- Construction of the processing plant;
- Development of topsoil stockpiles;
- Construction of tailings dam (main embankment);
- Storage and handling of construction waste;
- Transport of materials and raw materials for construction works;
- Forest clearing;
- Change in land use (hay land, meadows, agricultural land).

4.2.1.2 Landscape impact anticipated during the construction phase

Due to the construction of the processing plant, the use of a small arable land area, forest land and hay land will be changed with the landscape impact being permanent. The installation of buried pipelines, overhead transmission lines, and the construction of access roads and buildings will result in the removal of vegetation and alteration of topography. We may say there is a positive impact too because the transmission lines and some roads may be used after the Project completion to the benefit of the regional development.

The construction of the Cetate waste dump, waste and mine drainage pond, dam, and diversion channels will truncate the natural fall of the Roșia Valley and will result in a diversion of Roșia Stream posing permanent negative impact to the environment. The proposed Cîrnic waste pile, tailings impoundment, dam, lagoons and pond, spillway, and secondary containment dam will truncate the natural fall of the Corna Valley and will result in a diversion of Corna Stream.

The development of the Şulei andesite quarry will result in changes to the Corna valley upper slopes and the impact will be permanent due to the change in the geomorphologic landscape of the area.
Development of a sandstone quarry at Pârul Porcului will generate a major impact similar to that of the Șulei quarry.

Construction of the low grade ore stockpiles will change the existing landforms on the upper slopes and generate a temporary impact until year 14 when these stockpiles will start being processed.

By stockpiling the removed topsoil, the shape of the slopes will be altered for a period of 20 years.

Piatra Corbului with the small ponds and rock outcrops will remain on the upper slopes because there will be a 5 ha protection area established around them. The impact will be minor and temporary.

Piatra Despicată will be relocated from its natural location, which is a permanent negative landscape impact however the impact will be mitigated by having moved and preserved Piatra Despicată in another location.

The land used during the construction phase to stockpile the topsoil will temporary change the landscape however after the operations phase it will be moved onto the pit berms which are to be vegetated.

In conclusion, the negative impact on the environmental components in the Project construction phase is in some situations temporary while the permanent impact overlaps on areas significantly impacted during the Project operations phase.

The majority of the areas impacted in the Project construction phase are located within the Project footprint. Areas impacted outside the Project footprint will mainly be used for the Project infrastructure and also for future community development.

4.2.2 During operations

- Activities generating impact during operations
- Open pit mining
- Development of waste rock dumps
- Development of Corna Valley TMF
- Construction of tailings dam (main embankment)
- Decommissioning of low-grade ore stockpile
- Transport of materials and raw materials
- Continuation of forest clearing works

4.2.2.1 Landscape impact anticipated during the operations phase

The continuation of the Cetate pit mining operations (currently mined by Minves) will and development of the new pits i.e. Cîrnic, Jig and Orlea will result in exposed rock faces and ledges on the west-facing slope. The intensive mining of these massifs will lead to significant reduction in their altitude, which will pose a primary impact on relief (Annex 4.7.2. Visual landscape impact due to Cetate and Cîrnic open pit operations – simulation) resulting in a permanent and definitive landscape change of degradation nature.

As a result of the mining of the Șulei and Valea Porcului rockfill quarries for materials to be used during the Project facilities construction phase, the anticipated impact is permanent in terms of the landscape change. These quarries will have a much smaller operational area than the mining pits and their life will be short, i.e. 2 years.

The Cetate secondary containment dam (which is currently operational) will have a beneficial effect because it will mitigate the contamination of the water resulting from historic and current mining activities. The negative impact on the use of the land taken up by Cetate pond will be compensated by the mitigation of water pollution in the area.
Due to the construction of the tailings management facility, the Corna Valley will fill up with tailings, which will generate a drastic and permanent landscape change by creating an elevated, level floor of around 363 ha. The two rural settlements in the Corna valley (Bunța and Corna) will be relocated, which will do away with the rural component of the landscape and generate a major permanent impact.

The operations phase of the Project poses the most significant impact on all environmental components including the landscape by permanent changes and in some cases irreversible changes in the relief geomorphology. The impact is low only at local scale and does not influence from a landscape point of view the regional, national and transboundary context.

### 4.2.3 **During closure**

#### 4.2.3.1 Activities generating impact during the closure phase

- Closure and landscape rehabilitation of open pits
- Closure and decommissioning of processing plant and implementation of another type of activity
- Decommissioning of mine roads
- Decommissioning of topsoil stockpiles
- Implementation of environmental rehabilitation and restoration of affected areas

#### 4.2.3.2 Landscape impact anticipated during the closure phase

During Project closure will prevail the works related to the rehabilitation of the affected areas: disposal of materials resulting from facility decommissioning, stabilisation of all man-made landforms resulting from Project activities, rehabilitation and revegetation of affected land. During the later years of mine life, the pit will be partly backfilled with waste rock, with subsequent topsoil cover. The long-term closure strategy proposed for closure of mining activities is to allow each pit to flood, creating an area of open water covering the waste rock and rock outcrops. No formal use is defined for these areas but closure will aim to enhance the ecological value of the site. The stockpiled topsoil will be used to cover the exposed pit benches in a 30 cm thick layer allowing vegetation restoration on the pit berms by planting trees and herbaceous vegetation.

On closing the processing plant, all plant and machinery will be removed should new alternative activities not be found. Pursuant to this operation, soil will be placed and the levelled and rehabilitated processing plant site will allow for new more useful destinations for this site than the original sloping terrain. The construction and reclamation of the processing plant site will result in changes in the landforms by having levelled a portion of the ridge, west of Cetate.

All waste rock disposal sites will remain in situ at closure and will be progressively restored to an appropriate after use during the operational and post closure phases. Final restoration strategy will be designed to allow the re-establishment of alternative land uses. The TMF accounts for the single largest area of project land requirement. At closure the dam and impoundment will significantly alter the landscape in the Corna Valley and will permanently alter the land use potential of the site constituting a permanent source of pollution with cyanides and acid water. At closure after neutralisation of contaminants, the site will be covered with soil which will ensure a favourable environment for development of vegetation cover.

In conclusion, following the reclamation and revegetation activities, the landscape value will increase due to vegetation restoration, mine pit flooding and creation of man-made lakes on the Project site.
4.3 Visual Impact on Project Facilities

The following visual impacts within the Project Area may result from site development:

- visual disturbance during operations as a result of trucks, heavy machinery and mining activity;
- existing views may be obstructed by temporary and permanent structures or man-made landforms;
- the aspect of the area will be permanently transformed due to the alteration of a number of landforms.
- new views will be created by alteration of landform (i.e. removal of central ridge) and the removal of existing vegetation (Annex 4.7.2. Visual landscape impact due to Cetate and Cîrnic open pit operations - simulation).

Views are considered to have varying degrees of sensitivity dependant on the type of observer. Sensitive views are considered to be those from residential dwellings, business premises, and/or roads. The overall impact of a development is recognized to decrease with distance (objects appear smaller at a distance) and climatic factors (which restrict views at certain times of the year).

4.3.1 Views from dwellings

Two factors have a major influence on the scale of visual impact on the residential areas within the Project Area: these are the visibility of the development zone and the community relocation requirements.

The visibility of the operations is limited in extent by virtue of the high mountain ridges surrounding the area and the fact that all operations occur within the confines of the two main valleys. Review of topographic relief mapping would suggest that the only views that exist are from settlements within the Roșia and Corna valleys. The potential exists for limited, distant views from the hills that form the western fringe of the Abrud Valley.

Views of the Project Area from dwellings will be limited as a result of the resettlement of residents from Roșia Montană and Corna.

4.3.2 Views from roads

Only temporary site views will be possible from the Alba Iulia - Abrud – Cîmpeni road and the negative visual impact will occur in the Gura Cornei and Gura Roșia Poieni villages area.

Within the Corna Valley, the public road that leads over the main eastern ridge to Roșia Poieni will be closed. Public access will be maintained to the protected zone, but all other access will be restricted once mining is underway.

The existing road in the bottom of the Corna Valley will be removed. A new southern by-pass road will be constructed in the Corna Valley. Views of the tailings management facility will be visible throughout the Project, although this feature will be vegetated upon mine closure. The view of the open pits will be progressively obstructed by the Cîrnic waste rock stockpile. It is likely that there will be unobstructed views of the proposed mine and related facilities from the new road due to their high elevation.
5 Landscape Impact Mitigation Measures

5.1 Alternatives and measure to avoid impacts

In the long-term, mitigation of both visual and landscape character impacts will be achieved via the implementation of the closure plan. This includes the establishment of a grass cover and (depending on agreed end use) development of a meadow system on the tailings impoundment surface, the partial flooding of the open pits to create lakes with rock cliffs around the perimeters and the revegetation of the rock dumps to re-establish the pre-mining land use on the disposal area.

The excavation of the open pit and the level floor of the tailings facility will create a major and permanent change to the local landscape character, however the site will be fully re-vegetated in the post-closure period using native species and aiming at re-creating the natural plant communities and patterns. Although there will be permanent alterations to the existing landform, traditional landscapes will be re-established through revegetation and reintroduction of similar land uses where possible.

The topographic changes generated by the Roșia Montană Project are permanent. The impact generated by these structures to the landscape may be mitigated to some extent by an architectural design capable to integrate the respective structures within the local environment, as in fact recommended by the standards in force. During construction the visible disturbance factors such as dust clouds from the construction sites may be mitigated by implementing certain measures such as sprinkling the unsealed sections with water.

The construction sites reclamation measures will equally serve for restoring the attractiveness factor of the landscape. Additional measures that may be employed during the construction, operation and closure phases of the mine to further minimize visual impacts on the landscape may include the following:

- strong conformance with all approved basic engineering designs, authorized technologies and regulations in force for all project activities.
- maintain continuous landform features where possible (such as ridge lines) and minimize topographic changes where possible;
- use natural colours and colours to blend built elements into the natural landscape;
- maintain existing vegetation where possible, particularly on steep slopes to ensure slope stability;
- plant indigenous species in mixed groupings to mimise the natural setting and screen mining operations;
- develop closure plans to allow for vegetation cover restoration in the disturbed landscapes,
- green areas will be organised within the facilities to provide continuity with the natural landscape in which there are no other interventions except for forest cleaning operations;
- all proposed sites will be addressed as landscape restoration areas and the constructions and facilities as insertions in the natural landscape.
- the protected areas will be introduced in the tourist circuit and natural resources will be preserved and rehabilitated.
5.2 Rehabilitation of Lands

The main impact relates to the tailings management facility from the western side of the Abrud Valley and from a short section of National Road 74. The main view from the west will be that of the embankment. This will be a rock fill structure constructed with overburden. To mitigate this impact, progressive rehabilitation (topsoil placement and revegetation) will be initiated by planting protection curtains as from the construction phase. This green cover will greatly reduce the impact from the small number of distant views.

Since there will be very few public observers and the visual impacts are contained within the Project Area, no specific operational phase measures are considered appropriate or necessary within the Roșia Valley although the option for areas of off-site planting to screen views from farmsteads on the upper valley slopes will be reviewed as the development proposals are progressed.

The main method of mitigating visual impacts will be the on-going progressive rehabilitation throughout the operation, closure and reclamation phases of the project as presented in the Mine Rehabilitation and Closure Plan. Ultimately, upon closure, soil and vegetation cover will be re-established, buildings, power lines, pipelines, equipment and haul roads will be removed, waste management sites will be rehabilitated, stockpiles will be stabilized and rehabilitated, open pits will be flooded, and disturbed sites will be recontoured and revegetated (Annex 4.7.2. Visual landscape impact due to the Cetate și Cîrnic open pit operations - simulation).

Upon completion of project activities, areas impacted by the Project within the Project Area will be revegetated to pasture and woodland with the exception of steep-sided pit walls and pit lakes.
6 Legislation

6.1 International Regulatory Framework

Romania is a party to the European Landscape Convention (signed at Florence, 20 October 2000), as it ratified the Convention by Law No. 451/2002. The Florence Convention applies to landscapes that might be considered outstanding as well as everyday or degraded landscapes and aims to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.

The Convention requires that signatories undertake the following:

- recognise landscapes in law as an essential component of people’s surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;
- establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of specific measures;
- establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies;
- integrate landscape into its regional and town planning policies and in its cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.

Romania also signed the Framework Convention on the Protection and Sustainable development of the Carpathians (Kiev, 2003), but has not yet ratified it. The Convention provides a set of main requirements and obligations regarding: spatial planning, water/river basin management, agriculture and forestry2, transport and infrastructure, tourism, industry and energy3, cultural heritage and traditional knowledge.

The Convention also requires that signatories ensure a high level of protection and sustainable use of natural and semi-natural habitats, their continuity and connectivity, and species of flora and fauna being characteristic to the Carpathians, in particular the protection of endangered species, endemic species and large carnivores.

6.2 Romanian Legislation on Landscape Protection

Although Romania has acted actively on the international arena, ratifying or signing the instruments aiming at landscape protection and conservation, the legal measures taken at national level are seriously underdeveloped.

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2 “The Parties shall maintain the management of land traditionally cultivated in a sustainable manner, and take appropriate measures in designing and implementing their agricultural policies, taking into account the need of the protection of mountain ecosystems and landscapes, the importance of biological diversity, and the specific conditions of mountains as less favored areas.”

3 “The Parties shall pursue policies aiming at introducing environmentally sound methods for the production, distribution and use of energy, which minimize adverse effects on the biodiversity and landscapes, including wider use of renewable energy sources and energy-saving measures, as appropriate. “Parties shall aim at reducing adverse impacts of mineral exploitation on the environment and ensuring adequate environmental surveillance on mining technologies and practices.”
The main framework for the protection of landscape is provided by the Environmental Protection Act, which requires reconstruction of damaged land, and ensures its integration into the local landscape, and, to this effect, a bond shall be established according to law. However, it should be noted that the legal definition of the term environment comprises “issues specific to landscape”, hence any reference – in any normative act, including Mining Law – to environment protection, conservation, improvement, reconstruction actually implies the landscape protection.

The Mountain Law No. 347/2004 requires that policy developed for mountainous areas should aim at landscape and biodiversity conservation, but does not bring any other details on how this policy should be implemented in terms of landscape conservation.

6.3 Special Provisions for Mountain Areas

The mountain area in Romania is subject to a specific regulatory framework stipulated by Law No. 347/2004 (“Mountain Law”) that regulates the sustainable use of mountain resources and landscape and biodiversity conservation.
7 References

22. Malită M (coordinator, 1979), Systems in nature science, Ed Academiei, Bucharest.
26. Muntean, O., L., (2000), Environmental considerations on Tarnava Mare Corridor (Tarnavelor Plateau), Studia UBB, Geographia, no. 1, Cluj Napoca.