Domain	LANDSCAPE
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	232
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Cluj Napoca, 07.08.2006
RMGC internal unique code	MMGA_0471

Proposal	What will happen to Corna stream, because the TMF is going to be built over it and it is not mentioned in EIA what is going to happen?
Solution	The development of the TMF on the Corna Valley will result in a permanent alteration of the landscape by creating an elevated, flat land surface reaching approximately 363 ha at the most. The construction of the above-mentioned facility is estimated to generate the following types of landscape potential impacts: - alteration of the natural setting; - change in the the proportion natural landscape/ human influenced landscape; - change in the land use categories proportion; - change of the landscape aesthetic value. With regard to the first two forms of potential impacts anticipated, it is to be said that according to results of the EIA Study, both the landscape and habitat structures have been heavily influenced by previous human activities. The deterioration of the area is the result of two categories of processes, namely deterioration through landscape structural changes and deterioration through changes at ecosystem level. These changes have been attributed to: historic mining operations and their related pollution (including acid rock drainage); the transformation of natural systems into meadows, human settlements and planted forests; the development of semi-natural systems (e.g. man-made lakes) and the exploitation of renewable resources (such as the wood). All these disturbing factors have generated significant changes of the flora, fauna and natural habitats in the area leading to a permanent transformation of the landscape. This landscape deteriorated as a result of mining operations alternates with islands of natural landscape, which amplifies the overall landscape deterioration. With regard to the last two forms of anticipated impact (change in the land use categories proportion and the change of the landscape aesthetic value) it must be said that the construction of the dam and of the embankment will lead to a significant change in the topography of the Corna valley, consequently the use of the related land surface will be modified for good. However, during the closure phase, the dam will be covered with a layer of topsoil, it will be revegeted, thus ensuring the necessary conditions for the development of vegetation and for the stabilization of the land. Moreover, forest shelter belts will be planted (their plantation began as soon as 2006) in order to minimize the visual and aesthetic impact. It is to be mentioned that the impact on the landscape is obvious only at local level both from the visual-aesthetic point of view and from the point of view of the changes of the land use categories and of the natural setting elements. The Corna Valley basin is surrounded by mountain crests. Consequently the landscape changes in the Corna valley cannot be perceived from the adjacent, whereas the visual impact from the Gura Corna village will be reduced as a result of the revegetation and forestation of the facility and of its related perimeter. Diversion channels will be built in the Corna valley in order to minimize the volume of clean water that would enter the TMF and occupy the capacity that would otherwise be reserved for processing tailings storage. The North and South diversion channels will be built in order to collect unimpacted waters from the hillsides around the TMF and Secondary Containment System. The diversion channel located northwest of the TMF is designed to capture and convey these water flows into the Corna valley downstream of the secondary containment system. The southeastern diversion channel will be built in order to collect unimpacted waters coming from the hillsides southeast of the TMF and the secondary containment system and route them into the Corna valley as well. Exhibits 2.3 to 2.9 in Chapter 4.1 Water of the EIA report indicate the location of these channels during various phases of the project development.

These channels are designed to collect and divert two thirds of the flow they collect. The storm waters downstream (down-slope) of the channels are not intercepted by these channels and will be collected in the tailings management facility.

During the post-closure phase, all excess rainfall on the closed and covered TMF will be collected at the lowest point of the re-designed runoff slopes and diverted via the re-modeled diversion system below the TMF dam.

In the Corna valley, the average flow rate is 487.4 m3/h (135.3l/s), the minimum flow rate is 59.5 m3/h (16.5l/s), while the maximum flow rate amounts to 5,909.7 m3/h (1,642l/s).

The Corna valley also collects significant mine outflow (16.2 m3/h, 4.5 l/s) which account for approximately 3% of the average stream flow. The RM project commits to maintaining the environmental flow on the Corna creek to 25.2 m3/h (7 l/s). This level is estimated as a baseflow for the biological compensation (environmental flow) that can ensure ecological sustainability once the quality of the water in the Corna stream has improved enough to provide appropriate conditions for the aquatic flora and fauna.

Waters discharged through the Corna valley during the closure phase will include waters from the unimpacted hydrographical basins and the runoffs from the topsoil that covers the TMF and the TMF dam. In case the seepage flow is treated in the Corna valley, this can also be discharged into the Corna stream; but the main circuit for this flow will be through the treatment system in the Roșia Valley.

In short, the overall water management strategy for the Corna valley during the closure phase comprises the following aspects:

Once the processing operations are completed, the volume of water in the TMF will increase due to a positive water balance. In case the volume of water needs to be reduced, the water can be discharged with anticipation in the pit lakes system through the treatment system for cyanide waters.

Seepage water collected into the secondary containment pond will continue to be pumped into the TMF as long as the latter still operates. Once the TMF is decommissioned, seepage water will be pumped into the Cetate pit. If necessary, this water will be treated before being discharged into the pits. Alternatively, the water may be treated in the treatment lagoons located downstream of the secondary containment dam and tested during the operational phase of the project and discharged in the Corna stream (provided it meets the discharge limits imposed by the standards in force).

Seepage flow from the Cârnic waste rock stockpile will be pumped into the pit lakes system, in case it subject to acidification, then it will be treated in situ or in the wastewater treatment plant. Thus, water can be discharged in the Corna basin.

The water management strategy during the post-closure phase is illustrated in Figure 3.6 of *Chapter* 4.1-Water from the EIA Report.

During the post-closure phase, the TMF and the TMF dam will be covered with a layer of topsoil; consequently, runoffs will be discharged directly into the Corna Valley. The diversion channels will continue to discharge into the Corna valley. With these measures, there will be no longer necessary to increase the flow of the Corna valley in order to maintain its environmental flow.

The semi-passive treatment lagoons, which were used for trials, will be finalized in order to be used as a long-term solution. The surface of the lagoons can certainly be reduced due to the material used to cover the tailings, which will eventually lead to a decrease of the seepage flow. If the treatments system fails to meet the levels allowed for discharge, the water can be pumped back into the wastewater treatment plant and then released to the environment. If necessary, the additional stage of removing the residual cyanide can be maintained in operation in order to reach the discharge standards of 0.1 mg/l of CN.[1]

In short, the overall water management strategy for the Corna valley during the post-closure phase comprises the following aspects:

The lake resulting from the sedimentation in the TMF will no longer exist in the post-closure phase.

Runoff waters from the basin will be directed around the TMF, at a distance from it and they will be discharged in the Corna stream, downstream of the secondary containment dam.

Same as in the other phases of the project, the dilution level will be enough to reduce the concentration of the substances in the TMF to levels below the discharge limit, in case rainwaters from the secondary containment dam need to be discharged.

Seepage flow collected into the secondary containment pond will be pumped into the mine pits. If necessary, this water will be treated before being discharged into the pits. Alternatively, the water may be treated in the semi-passive treatment lagoons located downstream of the secondary containment dam and then discharged into the Corna stream.

During this phase, the Carnic waste rock stockpile will be revegetated and runoff waters will consequently be discharged into the Corna stream. Seepage flow from this stockpile will be much lower. In case, the quality and quantity of the seepage flow require additional management measures, the water will be pumped into the mine pits.

The diversion channels will be located North and South of the TMF and of the secondary containment dam and of the TMF sink. These channels will collect unimpacted waters from the hillsides of the Corna basin and divert them downstream of the secondary containment pond. These channels will be lined with rockfill. They are designed to withstand a 24-hour precipitation event with a 1 in 10 years return period.

A possible failure of these channels is considered in case of major flood events when most of the volume of water would enter the TMF. This additional volume of water was taken into account when calculating the flood storage capacity of the TMF.

References:
[1] (see Plan J-Mine Closure and Rehabilitation Management Plan of the EIA)

Domain	LANDSCAPE
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	241
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	Cluj Napoca, 07.08.2006
RMGC internal unique code	MMGA_0487

Proposal	Which is the connection between the development of the Zonal Urbanism Plans and of the impact study, and the stipulations of the European Landscape Convention adopted at Florence in 2000 to which Romania adhered?
Solution	Romania is a party to the European Landscape Convention (signed in Florence on October 20, 2000), which was subsequently ratified by *Law* no. 451/2002. The Florence Convention applies to both landscapes, which may be considered as outstanding as well as to everyday or deteriorated landscapes and it aims to promote landscape protection, management and planning and to set up European cooperation on landscape issues. Under the Florence Convention, landscape is defined as an area whose character is the result of the action and interaction of natural and /or human factors. Landscape plays a key role for the public interest in the cultural, ecological, environmental and social fields and represents a resource favorable to economic activity and whose protection, management and planning can contribute to job creation (Council of Europe, 2000). The Signatory Parties undertake to comply with the following principles and provisions: 1. to recognize 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; 2. to establish and implement landscape policies aimed at landscape protection, management and planning; 3. to 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 landscape policies; 4. to integrate landscape into their regional and town planning policies and in their cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape. Starting from the provisions of the European Landscape Convention, we can notice that urban plans and environmental impact assessments are used to implement its principles. Moreover, both the zonal urban plans and the environmental impact assessments are the most efficient and most frequently used means for the implementation of European Landscape Convention.

Domain	LANDSCAPE
MMDD's item no. for the question which includes the observation identified by the RMGC internal code	1391
MMDD's identification no. for the question which includes the observation identified by the RMGC internal code	No. 110599/25.08.2006
RMGC internal unique code	MMGA_1195
Proposal	Nature will be affected as the project will cause the destruction of 235 hectares of forests, 740 ha of pastures, 12 ha of watercourses and lakes;
Solution	The figures mentioned in the question are inaccurate, and the term of "disappearance" is misused, as new land surface will be re-vegetated. Table 3-1 (page 20, Chapter 4.7 Landscape from the EIA Report) indicates the surfaces covered by different land use categories within the RM project site (approximately 1,646 ha), prior to the implementation of the project: hay fields account for the highest proportion (60%), followed by forests (17.7%) and by built areas (12%). The remaining area is covered by non-productive land (5%), roads (3%), arable land (1%), cemeteries (0.5%) and waters (0.8%). The following aspects have to be considered: 1. the mining project is not going to affect the entire area covered by the land use categories mentioned in the question; 2. From the percentages point of view, as compared to the project site, the changes in the surfaces covered by the categories of land use are limited for waters (0.5%) and forests (approximately 12%) and more significant for pastures (approximately 37.5%); 3. According to the mine closure and rehabilitation management plan, 335 ha will be planted with forests during the closure phase so that, at the end of the closure phase, the surface covered by forests will be larger than the initial one. The surface covered by waters will be rather equal to the initial one given that the Cetate pit will be flooded at the end of the project. The pastures surface will be restored through the gradual rehabilitation and revegetation program, thus this surface will increase as compared to the initial one. According to all these aspects, the percentage of the surface covered by different land use categories will not undergo significant changes. The proportion covered by different categories of land use at the end of the project will be similar to the one existing prior to the implementation of the RM project.