Biodiversity Management Plan

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1 Objectives of Biodiversity Management

RMGC's Biodiversity Management Plan involves an integration of programs within the project area with the priority areas of the *National Strategy and Action Plan for the Biological Diversity Conservation and Sustainable Use of its Components in Romania*. Where practical, it also applies the principles and actions identified by the Biodiversity sub-component of the *Mining, Minerals and Sustainable Development* project.

2 Approaches and Techniques for Biodiversity Management

The Biodiversity Management Plan addresses requirements throughout the construction, operation and closure phases of the Project. As such, the approaches prescribed under the plan are intended to correspond with project activities. The BMP incorporates three integrated approaches:

- Ecological Protection, Restoration and Rehabilitation;
- Habitat and Wildlife Monitoring; and,
- Promoting Stewardship Ethic.

The following sections describe the three approaches. Specific techniques to be used in implementation are also provided. Where applicable, the techniques will be defined within RMGC's Standard Operating Procedures as a means of providing consistent, high-quality performance. Standard Operating Procedures will be finalized in the Pre-Construction Period.

2.1 Ecological Protection, Restoration and Rehabilitation

Impacts on biodiversity resources will vary throughout the construction, operations, and closure phases of the project. As a result, the level of effort afforded in implementing management activities geared towards restoring and rehabilitating natural habitats must reflect needs at that point in the project life cycle. Throughout the life of the project, the following will be the primary foci of RMGC's ecological restoration and rehabilitation activities:

- *Environmental Protection Zones (EPZs):* Establishment of a network of EPZs that provide conservation for priority habitats, as identified through the ecological baseline studies, with an emphasis on protecting rare or unique habitats within the project area.
- *Wildlife Corridors:* Establishment of a network of vegetated corridors within and between selected EPZs that allow for species migration. Where gaps exist, habitat planting may be required.
- *Riparian Planting:* The planting of native species along degraded stream banks and other watercourses that provide breeding habitat and migration corridors for wildlife, and provide shade and nutrients to enhance stream quality.
- *Micro Habitats:* The installation of nest boxes for birds, roost boxes for bats, and areas of habitat for reptiles and amphibians (e.g. decaying logs, pond coverage, basking areas).
- *Habitat Plots:* Habitat plots, mostly located within the EPZs, and managed as seed banks, nurseries for plants used for rehabilitation of project-affected and/or degraded land, or sites into which selected plants from affected areas could be transplanted.
- *Stream Rehabilitation:* The ability of degraded streams in the Project area to support healthy aquatic communities will be enhanced through the installation of riffles, runs and pools that promote oxygenation and habitat for aquatic biota.
- The locations for the implementation of these conservation opportunities in the Project area are shown in *Figure 3*. The following Sections describe the relative effort allocated to each activity during the construction, operation and closure phases of the

Project. Upon the completion of each activity, a Record of Conservation Activity should be completed. The Standard Operating Procedure for completing a Record of Conservation Activity will be developed.

2.2 Ecological Restoration and Rehabilitation Management During Construction

Environmental Protection Areas

As described in *Section 5.6*, there are six areas of ecological significance in and in vicinity of the Project Area. Two of these sites are located entirely outside of the project area, while the remaining four will by affected o varying degrees. These areas should be designated as EPZs, and development should be limited in the sites situated within the project footprint. The locations of the six EPZs are shown on *Figure 3*. During construction, tree clearing may be required from the EPZs. A minimum amount of tree cutting should be undertaken in these areas for which a Standard Operating Procedure for tree cutting will be developed. If rare flora are encountered that will be damaged by construction activities, they should be relocated according to a Standard Operating Procedure to be developed.

Wildlife Corridors

Prior to construction, existing and potential corridors will be identified, catalogued and prioritized for management during the operations phase. The locations of potential wildlife corridors between the EPZs are shown on *Figure 3.* The corridors will serve to connect forest and other natural vegetation patches. Preference will be given to the existing links, such as wide hedgerows or riparian vegetation. The primary strategy will be to enhance the value of the corridors by plantings of suitable, habitat-adapted native shrub and tree species.

Riparian Planting

Prior to construction, riparian habitats that require restoration will be identified, catalogued and prioritized for management. Sites where riparian vegetation is presently best preserved will be replanted first. At each site, only native and preferably locally sourced stock will be used. The plantings will be modeled on the natural vegetation zonation so that the rehabilitated sites blend into the natural framework.

Micro Habitats

Prior to construction, habitats that support target species will be identified, catalogued and prioritized. Habitat requirements to sustain species viability will be determined through background research, and species- and habitat-specific designs will be developed for implementation during the operations phase. Potentially best sites for microhabitat development are large forest patches and these are shown on *Figure 3.*

Habitat Plots

Section 5.6 identified six EPZ sites that contain the best examples of representative or rare habitats in the project area. Within these EPZs, habitat plots may be developed that will function as seed banks and nurseries for indigenous species to be used in restoration activities. Because of the high internal diversity of habitats, the EPZs may also serve as sites for relocating selected or sensitive flora from affected habitats in the project area. Potential sites for habitat plot development are shown on *Figure 3*

Stream Rehabilitation

Prior to commencing the construction works, the degraded stream segments will be identified, catalogued and prioritized. Specific stream modifications (in the form of riffles, runs, and ponds) will be identified and mapped for implementation during the operations phase.

2.3 Ecological Restoration and Rehabilitation Management During Operations

Environmental Protection Areas

The EPZ network will be completed during the operations phase of the project, and managed as a four separate units (i.e. those that are located wholly or partially within the project area: Taul Mare/Taul Corna Rock Outcrops, Tarina Valley, Cirnic Fir Forest and Lower Rosia Valley Beech Forest). Where possible, habitat plantings within and/or between EPZs will be undertaken to improve landscape continuity. Standard Operating Procedures will be prepared for planting and habitat restoration and to control introduced and invasive species.

Wildlife Corridors

During operations, vegetated wildlife corridors will be established where appropriate. In some cases, plantings will be required to restore severances made to wildlife corridors during construction, and to establish new corridors between remaining woodlots.

Riparian Planting

Habitat planting along selected watercourses will be undertaken in accordance with needs identified in the construction phase; Standard Operating Procedures will cover working in and adjacent to watercourses.

Micro Habitats

During operations, nest boxes for birds, roost boxes for bats, and areas of habitat for reptiles and amphibians (e.g. decaying logs, pond coverage, basking areas) will be installed according to Standard Operating Procedures.

Habitat Plots

In order to promote healthy populations of native species, introduced and invasive species will be controlled according to Standard Operating Procedures.

Stream Rehabilitation

Stream improvements will be made by the installation of riffles, runs and pools.

2.4 Ecological Restoration and Rehabilitation Management during Closure

Environmental Protection Areas

During closure, the EPZ network will be managed as priority areas within the larger regional network of habitats. Management activities initiated during the operations phase will continue.

Wildlife Corridors

During closure, wildlife corridors will be maintained in the larger regional network of natural habitats. Management activities initiated during the operations phase will continue.

Riparian Planting

During closure, riparian habitats will be maintained in the larger regional network of natural habitats. Management activities initiated during the operations phase will continue.

Micro Habitats

During closure, micro habitats installed during the operations phase will be maintained. Where repairs are required, facilities will be repaired or replaced.

Habitat Plots

During closure, habitat plots will continue to be managed as integral part of EPZs within the regional network of habitats. Management activities initiated during the operations phase will continue.

Stream Rehabilitation

During closure, streams will be maintained as part of riparian habitats in the larger regional network of natural habitats. Where necessary, repairs or replacements will be performed.

2.5 Habitat and Wildlife Monitoring

This program is intended to monitor changes in biodiversity at the community and ecosystem levels. It is concerned mainly with the effectiveness of maintaining the extent and quality of habitat, and of maintaining ecosystem processes. As the maintenance of ecosystem processes directly affects the success of biodiversity conservation, it is desirable that these processes should be monitored. This section describes four tasks that have been identified by the World Bank as reliable means of monitoring biodiversity at the community and ecosystem levels (World Bank, 1998).

The ecological baseline reports (*Ecological Baseline Reports for the Roşia Montană Project*): *Report 7*) describe the biological diversity conditions prior to commencement of the project (although mining has been ongoing in the area for the past two millennia, and has shaped the landscape and ecological features contained therein). This comprehensive study serves as a benchmark against which management-induced changes can be identified and measured. However, it is important to note that future monitoring generally does not need to update the full data set gathered during the baseline studies. In most cases, management is concerned with trends rather than absolute values. Absolute values (total number of species, exact densities, etc.) are generally not needed on a day-to-day basis. Changes in relative indices of these parameters (trends) will provide the information that environmental

managers need to show progress is being made, or if indicators are falling dangerously close to unacceptable levels.

The following sections summarize the monitoring activities to be undertaken as part of the Biodiversity Management Plan. **These monitoring activities should be undertaken on an annual basis.**

2.6 Habitat Mapping

Habitat mapping should be undertaken on an annual basis, and will focus on:

- Habitat Distribution
- Vegetation Structure

Habitat Distribution

Habitat distribution will be monitored by mapping changes of habitat boundaries, including riparian habitats. The location of habitat boundaries can show expansion or retreat of crucial habitats, and can be determined through annual surveys/fixed point photography of permanent plots or transects.

Changes in riparian vegetation can have significant effects on aquatic biodiversity through direct (e.g. change in water temperature and light availability) and indirect (e.g. increased runoff and siltation) impacts. The use of remote sensing combined with surveys of plots or transects, can be used to measure the area and boundaries of riparian vegetation.

Vegetation Structure

Vegetation structure will be monitored by the change in the percent of crown cover in the upper canopy level (whether it is tree, shrub, grass, etc.). This is accomplished through standard canopy cover measurement methods, conducted seasonally, or at least annually in the same season. Significant habitat disturbance is generally indicated by changes in canopy cover and dominant species. However, records need to be taken over an extended time period to take into account short-term fluctuations due to factors such as fires and weather patterns.

A Standard Operating Procedure will be developed for undertaking habitat mapping.

2.7 Wildlife Monitoring

The change in the number, composition, and distribution of wildlife species (birds, mammals, reptiles, fish and benthic invertebrates) can indicate changes in ecological processes, particularly the ability to support sustainable populations of keystone species. Monitoring of local wildlife will be undertaken through surveys along transects and/or in strategic sites (depending on the type of wildlife being surveyed) on an annual basis. Monitoring of nest boxes, roost boxes and other measures intended to provide habitat opportunities for wildlife, can be used to evaluate the effectiveness of these initiatives.

Standard Operating Procedures will be developed for undertaking wildlife monitoring.

2.8 Rare Species

Occurrence records of any rare species encountered in the project area will be kept. These records will include rare species that are encountered both during the formal wildlife

monitoring programs and from casual observations. A Standard Operating Procedure for recording rare species will be developed.

2.9 Indicator Events

Natural events, which are related to biodiversity health at the community/ecosystem level, will be recorded and mapped as they occur. Examples of such occurrences include landslides, floods, forest fires and wildlife mortality. A Standard Operating Procedure for recording such events will be developed.

2.10 Promoting Stewardship Ethic

Community participation in conservation activities from an early stage in the Project will sow the seeds of environmental responsibility, and eventually a responsible stewardship ethic that will extend beyond the life of the project. Community involvement in conserving biodiversity resources will develop trust and foster open dialogue between the community and the project. Two critical components for the success of the Biodiversity Management Plan are:

- Increased awareness of environmental issues by residents in the Roşia Montanã area; and,
- Promotion of research and cooperative efforts with non-government organizations, universities and Romanian conservation institutes.

Local awareness of environmental issues will be increased through the adaptation of an environmental extension program supported by RMGC. The scope and complexity of the extension program should be defined through a participatory consultation process including RMGC, local government agencies, and interested stakeholders. Specific activities undertaken as part of the extension program can range from simple (such as naming new streets, buildings and other facilities after local flora and fauna) to more complex (such as volunteer wildlife monitors, guidebooks and newsletters).

RMGC will endeavor to make formal agreements with relevant non-government organizations, universities and institutions to undertake research, and implement management activities in the project area. This transfer of knowledge and skills will provide improve knowledge both in the project area and throughout Romania.

3 Evaluation of the Biodiversity Management Plan

Annual evaluations of the BMP should be conducted to monitor the progress of implementation, and to ensure that the desired results are being attained. This section outlines the logic and practical framework for the evaluation process.

3.1 Evaluation Framework for the Management Plan

The evaluation framework utilizes a Logical Framework Analysis to establish indicators for each of the objectives of the Biodiversity Management Plan. The Logical Framework Analysis is an organizational framework, typically a 4 by 4 matrix that identifies the components for a program or project in its planning, monitoring and evaluation phases. The Logical Framework Analysis was developed by USAID in the late 1960s and early 1970s and has become a common tool for development project planning and management. The traditional Logical Framework Analysis employs a double logic – the horizontal logic and the vertical logic – presented in the four rows and columns of the matrix, forming sixteen 'views'. The key principle to the Logical Framework Analysis is the interconnected cause and effect and non-overlapping relationships between elements of the vertical logic, which represent the linkages between the four hierarchical levels (Goal, Objectives, Outputs, and Inputs). These levels are described as follows:

Goal: The highest level in the hierarchy, located in the top row of the Logical Framework Analysis. It is the major purpose of the plan.

Objectives: Objectives are the desired effects from the production of outputs. They are the operational results against which success is normally judged and contribute to the achievement of the goal.

Outputs: Outputs relate to the achievement of particular activities that result from the use of inputs, and are meant to be the cause of achieving the objectives.

Inputs: Inputs refer to the baseline conditions and stakeholder resources that initiate output. Given the nature of the Biodiversity Management Plan, only inputs related to biodiversity in the project area are considered.

Table 3-1. shows the Logical Framework Analysis used to evaluate the Biodiversity Management Plan.

This section provides a description of the vertical and horizontal logic applied by the Logical Framework Analysis for this study. The horizontal logic, as presented in the column, deals with three main elements: the Narrative Summary, which describes the levels; the Objectively Verifiable Indicators of the study levels; and the Means of Verification for the measurement of these indicators. It also identifies Critical Assumptions that are beyond the control of the study, but could affect the measurement of indicators at the four levels, as well as the accuracy and validity of the study. These assumptions include the context in which the study takes place, and the risks that may be inherent in that context. Specific indicators for the BMP have been described in *Section 6.2*. Means of verification have been incorporated into RMGC's Standard Operating Procedures, and are referenced accordingly.

Table 3-1. Evaluation Framework for the Biodiversity Management Plan

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Critical Assumptions
View 13: Goal	View 14: Goal Indicators	View 15: Impact Measurement	View 16: Goal Assumptions
Conservation of Biodiversity Resources	Levels of habitat, species and stewardship compared to baseline conditions	Analysis of monitoring program	Project area is an integral component of regional biodiversity (i.e. it is not an island unto itself).
View 9: Objectives	View 10: Objective Indicators	View 11: Objective Measurements	View 12: Objective Assumptions
Rehabilitation of terrestrial habitats	Change in area of terrestrial habitats and species	Habitat Mapping Wildlife Monitoring	Stable socio-economic and political environment will extend beyond the life of the project
Rehabilitation of riparian habitats	Change in area of riparian habitat and species		
Protection of rare species and habitats	Change in area of rare habitats and species	Habitat Mapping Rare species records	
Reducing risks to biodiversity	Change in frequency of indicator events	Indicator events records	
Promoting Stewardship Ethic	Change in levels of awareness and participation	Awareness surveys	
View 5: Outputs	View 6: Output Indicators	View 7: Output Measurements	View 8: Output Assumptions
Environmental Protection Areas	Establishment of EPZs throughout the Project site	Tree cutting and woodlot clearing Relocating specimen flora and rare plants guidelines Controlling introduced and invasive species guidelines Planting and habitat restoration guidelines	Existing conditions have not surpassed critical 'point of no return'
Wildlife Corridors	Area of vegetated corridors planted		
Riparian Planting	Area of vegetation planted along stream courses		
Micro Habitats	Numbers of bird boxes, bat roosting boxes, and areas of habitat for reptiles and amphibians erected		
Habitat Plots	Area of protected habitat plots		
Stream Rehabilitation	Number of riffles, runs and pools in place Improved water quality	Working in and adjacent to watercourses guidelines Regular water sampling and analysis	
Environmental extension program	Activities by RMGC staff and participants implementing BMP	Records of conservation activities	
View 1: Inputs	View 2: Input Indicators	View 3: Input Measurements	View 4: Input Assumptions
Existing ecological conditions	Existing area of natural habitats	Ecological baseline study and annual updates from monitoring program	Data are available, current and accurate
	Composition and populations of existing flora and fauna communities		
Resources provided by stakeholders	Funds and personnel provided by RMGC Funds and personnel provided through partnerships Plans and staff provided by Government	Agency management reports	

4 Responsibilities, Budgets and Schedule for Implementation

This section consists of Tables 4-1 and 4-2 below, which specify the responsibilities, budgets and schedules for ecological restoration and rehabilitation activities, and habitat and wildlife monitoring, respectively.

Table 4-1. General Responsibilities for Ecological Restoration and Rehabilitation Management

Issue	Action	Location	Responsibility	Estimated Cost ($US)
Tree cutting and woodlot clearing	Implement BC-01	Throughout the entire Project site.	RMGC Personnel	To be determined
Working in and adjacent to watercourses	Implement BC-02	At locations where stream crossings are made, or where construction/operational activities are conducted within the top-of-bank of watercourses.	RMGC Personnel	To be determined
Controlling introduced and invasive species	Implement BC-04	In areas that are being actively managed for conservation, including habitat plots and riparian habitats.	RMGC staff, supported by environmental extension program participants.	To be determined
Planting and restoring habitat	Implement BC-05	In areas that are being actively managed for conservation or rehabilitated, including EPZs, wildlife corridors, habitat plots and riparian habitats.	RMGC staff, supported by environmental extension program participants.	To be determined
Recording conservation activities	Implement BC-11	Each location and occasion that an activity takes place.	RMGC Personnel	To be determined

Table 4-2. General Responsibilities for Habitat and Wildlife Monitoring

Issue	Action	Location	Responsibility	Estimated Cost ($US)
Habitat Mapping	Implement BC-06	Throughout the entire Project site.	RMGC Personnel	To be determined
Wildlife surveys	Implement BC-07	In areas that are being actively managed for conservation or rehabilitated, including EPZs, wildlife corridors, habitat plots and riparian habitats.	RMGC staff, supported by environmental extension program participants.	To be determined
Recording rare species	Implement BC-08	Throughout the entire Project site.	RMGC staff, supported by environmental extension program participants.	To be determined
Recording indicator events	Implement BC-09	Throughout the entire Project site.	RMGC Personnel	To be determined
Awareness surveys	Implement BC-10	Throughout the entire Project site.	RMGC staff, supported by environmental extension program participants.	To be determined

5 Protection and Restoration of Biological Resources

During construction and Operations, access to the Roşia Montanã Industrial Zone will be restricted. As such, exploitation of biological resources by local communities will not occur. Upon closure, traditional land uses will be re-established and exploitation can continue. Protection and restoration activities undertaken as part of the *Biodiversity Management Plan* should ensure that key biological resources are conserved, and that stocks are improved in terms of quality and quantity.

The control list (non-exhaustive) with examples of environmental functions derived directly (flora and fauna) or indirectly (services supplied by ecosystems) from the biological diversity that will be considered within the Biodiversity Management Plan in the post-closure phase.

- Production functions
    - Natural production
        - timber production
        - firewood production
        - natural vegetation harvestable for use in constructions and handicraft production
        - natural production of fodder and manure
        - exploitable peat
        - (minor) by-products
        - game meat (as food)
        - production of fish, mollusks and shellfish
        - drinking water supply
        - irrigation and industrial water supply
        - water supply for electricity
        - water supply for other areas/landscapes
        - groundwater supply for other areas
    - Human production base don natural resources
        - productivity of farming crops
        - productivity of tree and shrub plantations
        - productivity of cultural forestry vegetation
        - productivity of husbandry farms
        - productivity of aqua culture – fresh water
        - productivity of Mariculture - sea and saline water
    - Support functions
        - applicable for constructions
        - applicable for indigenous settlements
        - applicable for rural settlements
        - applicable for urban settlements
        - applicable for industry
        - applicable for infrastructures
        - applicable for transport infrastructure
        - applicable for navigation – water transport
        - applicable for road transport
        - applicable for railway transport
        - applicable for air transport
        - applicable for electricity distribution
        - applicable for recreation and tourism activities
        - applicable for nature conservation
    - Terrestrial regulating and processing functions

- breakdown of organic matter deriving from land
- natural desalination of soils
- development/prevention of soil pollution with acid sulphates
- biological control mechanisms
- seasonal freshening of soils
- capacity of water storage in soil
- river bank flood protection
- coastal stabilization (against depositions/erosion)
- soil protection

- Aquatic regulating and processing functions
  - water filtration function
  - contaminant dilution function
  - contaminant discharge function
  - washing/cleaning function
  - water physical, chemical, biological purification
  - contaminant retain function
  - flow regulation for flood control
  - water stream flow regulation
  - water storage capacity
  - groundwater reload capacity
  - sedimentation/retain capacity
  - protection against hidric erosion
  - protection against waves
  - prevention of groundwater saline infiltrations
  - prevention of surface water saline infiltrations
  - reducing the spread of diseases
- Atmospheric regulating and processing functions
  - air filtration
  - airborne transport to other regions
  - air photo-chemical processing (smog)
  - wind control
  - spread of diseases
  - carbon impoundment
- Regulating functions generated by biodiversity
  - maintain the genetic composition of species and ecosystems
  - maintain the spatial vertical and horizontal structure and temporal structure
  - maintain key processes for biological diversity structuring or preservation
  - maintain polenisator agents' services

- Significance functions

Cultural, religious, scientific and landscape functions.
The requirement to develop a Biodiversity Management Plan is no longer under question given the following aspects:

- The area to be impacted by the Project remains far from the attributes conferred to natural ecosystems, having suffered a series of major anthropogenic impacts, from industrial to agricultural impacts.
- The rehabilitation of the impacted natural setting (pre- and post-Project) by natural succession remains a very long term process and hence is unacceptable;

The established objectives comprising of the set of measures to be implemented to mitigate the impact are of a pro-active nature and involve investments and sustained efforts to maintain the balance of the environmental components.
The normal question primarily raised refers to the suitability of the investment versus a passive approach at least in terms of the environmental components.

As discussed in the previous sections that describe and list the wildlife in the Project area, it results the significant impact to the entire area, which spans over an extremely long period of time, in the order of millennia.

Such approaches are no longer justifiable anywhere in the world, the investments aiming to meet the increasing demand for natural resources, on one hand and rehabilitate the impacted environmental components, on the other hand.

The sustainable development principle requires that the balance between the natural and built capital be maintained, natural resources be used in an efficient manner and ecological reconstruction measures be imposed to result in strong improvements to the environmental component parameters.

Biodiversity management is present even in designated nature conservation hot-spots such as the Yellowstone National Park. Thus, human intervention restricts the dimensions of certain species (i.e. *Canis Lupus* wolf or North American deer *Cervus Canadensis*) to avoid conflicts (with the farmers in the adjacent areas on one hand and the strong pressure on willow *Salix sp*. species, on the other hand) and prevent occurrence of incidents (domestic animal killings) or catastrophes (river bank erosion). The development of events that is exclusively natural such as periodic floods, forest fires, etc. are also restricted out of the wish to maintain natural systems in high vitally condition and fully benefit from the offered resources, including resulting services.

The justification for these interventions is scientifically supported based on ecology related arguments (maintain biodiversity indices as high as possible, meet the needs of a highest number of species, maintain natural balance, etc) and in addition very often there are subjective arguments too related to the egocentric mentality that human beings hang on to. Thus, the landscape aesthetic, provision of access to resources, etc, all involve biodiversity management, more or less comprehensive, more or less active.

Although there is the quasi-unanimous opinion that it's best for the nature to be left alone and follow its course, experience has proven by way of a large number of tragic experiments and experiences that unfortunately due to human intervention in natural balances dating back millennia, the independent operation of ecosystems is no longer viable due to gaps, missing links, energy mishaps, etc.

The conservation objectives can no longer be met without a suitable biodiversity management entailing permanent involvement of the anthropogenic factor in adjusting certain parameters. Even the areas where this natural balancing system was thought to be functional prove inefficient.

As such, the development of a project of the size of the Roşia Montană Project inherently involves a high quality biodiversity management.

In this sense, the starting point is the intimate dependency between species and their habitats.

Due to the anthropogenic activities, the entire area has suffered dramatic changes that extended over a very long period of time. As a result, an extremely fringed mosaic of

ecosystems dominated by those anthropogenic (roads, settlements, industrial and social facilities, etc.) occur along with semi-natural ecosystems (agro-ecosystems, agro-forestry systems, etc) and to a very little extent natural systems (forests, floodplains, etc), which remain however extremely isolated affecting insignificant areas.

In this case however it is precisely this complex mosaic of amalgamated elements, natural with semi-natural and anthropogenic, respectively, that made the largest part of the Western Carpathians benefit by high socio-economic development, landscape with a series of positive attributes, biodiversity indices preserved at acceptable levels.

Biodiversity hot-spots such as Cheile-Turzii, Rimetea-Piatra Secuiului, Piatra Cetii, Apuseni Natural Park area (particularly the Padis Plateau) as well as areas of major impact such as Zlatna, Roşia Montană, Roşia Poieni, Baia de Arieş, and Câmpeni are present in this matrix of the Western Carpathians.

In our case, the approach will aim to increase the bearing capacity of certain habitats in order to take on the ecological load and compensate losses in bio-strata.

The simplistic approach regarding the development of a compact forestry vegetation cover is entirely wrong and will be avoided in the approach of the biodiversity management in the Roşia Montană area taking into consideration the following:

- The forests to be affected by the Project represent only 18.7% of the total affected areas (compared to hay lands: 58.6%), of which only a few may be considered in a functional condition from an ecological standpoint, healthy;
- There are no forest massifs in immediate proximity, which makes the development of extensive forest areas that provide shelter for potentially affected species useless;
- The sensitivity of the species characteristic to the forested massifs determines them to surely avoid such habitats, even if in an acceptable condition, due to the impacts present in the nearby areas where industrial facilities will be developed.


Agro-systems (Câmpia Aiudului) and anthropogenic urban systems, respectively (Alba-Iulia) located in immediate proximity of the Roşia Montană area


Mosaic of ecosystems characteristic to the Western Carpathians (Aries Valley) and type of human settlements – the lack of agglomerations and laxity of anthropogenic habitats of rural type may be noted

- The extremely long duration of development and functionality of such a system (lack of microrisas, of humus layer, etc.);
- The unlikely success of such an effort considering the multitude of disturbance factors.
- The biodiversity management program primarily considers the restoration of the proportionality of the dislocated landscape elements by way of a compensatory functional ecological network having the following objectives:
- Mitigate the „GAP" effect;
- Take on the affected bio-strata;
- Continue to ensure eco-stability;
- Ensure continuity of services within the natural factors area;
- Mitigate impacts on adjacent ecosystems;
- Ensure successful post-closure re-vegetation.

Definition of the terms related to the proposed Compensatory Functional Ecological Network:

- Network – involves development of an interconnected habitat system to include three-dimensional elements (positive – plants, outcrops, other erect structures) as well as negative (excavations to facilitate establishment of associations and communities that are characteristic to wetlands or superficial underground environment, etc.). This network encompasses the following elements:
    - biodiversity reservoirs represented by target natural habitats of large sizes which will meet the ecological demands (spatial and food) of the key species.
    - the corridors are elongated habitats similar in terms of structure with the biodiversity reservoirs and which facilitate the movement of the elements characteristic to the respective habitat alongside it;
    - the nodes occur at the intersection of ecological corridors and can be either of the same type or heterogeneous, when the overlapping ecological corridors are different.
    - the matrix is represented by the assemble of habitats on which the reservoirs, corridors and nodes overlap.

The key attribute of an ecological network is the connectivity. This attribute ensures the movement of the elements between the ecological network points and communication inside it as well as outwards, providing the link with other such networks or habitat massifs in natural state.

Apart from connectivity, the ecological network has an extremely high edge effect due to the multiple contact zones with the matrix's habitats, which form the so called ecotone zones, characterized high biodiversity (possibility to house both the matrix species and the network) but which are subjected to high destabilizing pressures, which requires implementation of ongoing management that meets the environmental requirements of the criteria species.

Ecological – is the attribute that outlines the purpose for network development, namely to maintain natural balances and positive environmental parameters;

- Functional – involves the development of a number of elements that meet the topographical – climatic conditions and are accepted by the characteristic flora and fauna species and which on one hand support these species and on the other hand play the role of services associated to natural habitats;
- Compensatory – outlines the additional role that this network will play within this Project, namely to mitigate the "GAP" effect in biostratum and take on the burden occurred due to the deterioration of habitats, giving the flora and fauna the possibility to survive.

Given that from a substrates perspective, the environmental component soil is extremely limited where the Rosia Montana Project is concerned, the employed strategy will focus on increasing the support capacity of the habitats in immediate proximity of the Project area in keeping as accurately as possible with the principles that rule the sustainable development concept.

Only the elements belonging to local natural habitats will be included for replication within the functional ecological network, avoiding the introduction of native species or extra-zonal elements.

Starting from the regional matrix, the major impact locations, medium impact sites as well as the habitat sites that are in an acceptable conservation condition have been identified

In the beginning, the focus will be on developing a buffer system to isolate the medium impact area, within which the major impact areas will be contained.

Protective screens and bio-structures that mitigate the impacts will be developed between the medium impact areas and buffer zones in order to mitigate the effect of the disturbance factors on the network itself. The protective screens will be constructed of strong elements with high vitality and euribiont, but with easily controlled dynamics, which is a mandatory condition in the post-closure phase when they will be replaced by elements belonging to the Compensatory Functional Ecological Network.

The adjacent compact natural habitats such as the reservoirs will undergo intensive rehabilitation and restoration management in order to compact and where possible enhance them and reduce the fragmentation to mitigate the edge effect and increase natural stability. The entire area will gain in connectivity by developing ecological corridors both within the buffer zone and between the buffer zone and “reservoirs”.

Links with the buffer zone will be outlined inside the medium impact area that will be included in the Project implementation site, which will be gradually revegetated in a centrifugal manner, with the created gap being ultimately closed in the post-closure phase.

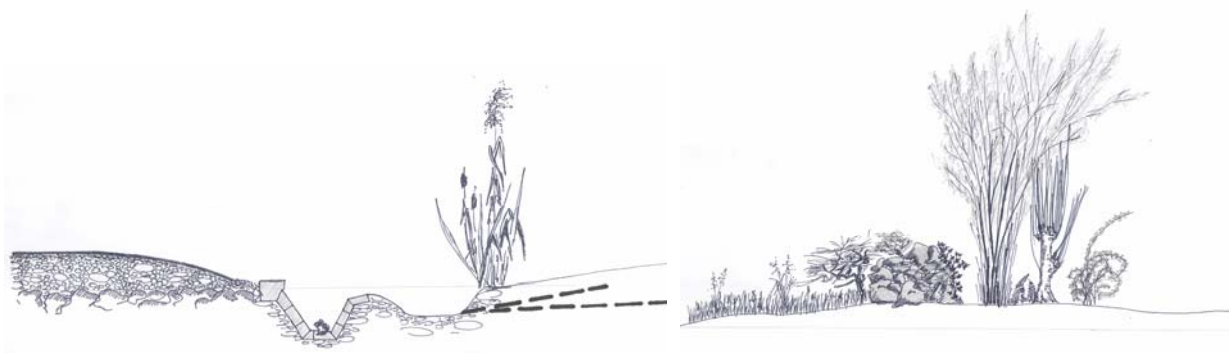
In this sense, a number of likely connectivity areas were identified based on the detailed analysis of aerial photograms and a functional model to develop such corridors was selected (see Exhibit 2).

The focus will be on developing a diverse overlapped habitat system within the ecological network thus ensuring enhancement of habitat diversity in order to support a large number of species.

Several models of such ecological corridors are proposed, of which the most often used will be those along the access ways, the property boundaries type existing in the Rosia Montana area, respectively.

The ecological corridors along the access ways will have the following structure:

- A wide belt of up to 0.5m of limestone gravel will be placed in immediate proximity of the roadway, which apart from enhancing visibility (particularly at night time) of the roadway (be it bitumen or gravel) will also retain much of the influx of substances onto access ways having been retained by the porous rock.
- Excess water will report to ditches on which bottom will be placed a bed of rocks which will reduce the water velocity and retain much of their load, thus forming a buffer media on the ditch bottoms, which by periodical clean up will prevent silting of wetlands or pollution of streams;
- A system of polders is designed in conjunction with the ditches, which will take up the excess water "overflow" on heavy rainfalls or floods. These polders will be seized depending on land availability and their width will range from a few tens of centimetres to several meters. This measure will ensure the rehabilitation of wetlands, which significantly increase the biodiversity indices and provide a set of services of significant value (i.e. thermal buffer, particulate retain system, excess water containment, de-nitrification role, etc.);



Type of proposed ecological corridors: along access ways, of traditional local property boundaries type, respectively

Ecological corridors of property boundaries type:

These ecological corridors have a complex morphology and encompass a series of representative habitats of special relevance for the flora and fauna species. This model was created following site observations on habitats developed on property boundaries, many of them delineated a long time ago, which facilitated the development of a distinct eco-system, which is a local feature of the Roşia Montană area. The particularities of this type of eco-system comprise of the possibility to repeat some of the main constituent modules.

The main constituent modules of this type of corridor are:

- grass vegetation belt such as hay lands and rich meadows, their configuration being governed by the management type, i.e: late grass cutting, rational level of grazing, respectively; the width of these area should preferably have minimum 3 m, with an optimum of 6-7 m;
- ruderal vegetation belt, dotted with hawthorn (*Crataegus monogyna)*, blackthorn (*Prunus spinosa*) or hornbeam shrubs (*Cornus mas*) which develop in immediate proximity of the mural component;
- the mural component encompasses agglomerations of stones and boulders which become fences with heights ranging between 30 and 90 cm and widths between 30 and 60 cm, with voids and occasionally cave ins, providing a multitude of ecological niches, bioschene and synusy of special value for vertebrate and invertebrate microfauna species. Subject to the exposure, the mural component is complemented by etrophyle, schiaphyle, shade loving and even hygrophyle vegetation (mosses, bracken ferns, etc), consolidated by vegetation such as ivy. The association of this component with sempervirescent species (*Buxus sp., Ligustrum sp., Juniperus sp*.,) in the critical suspended particles impact locations functions extremely efficiently in retaining dust particles and also represents an important barrier against wind (prevents gusts of wind, snow piling during winter, etc) and more importantly a valuable shelter for bird species throughout the year.
- the nemoral component encompasses diverse species of local spontaneous flora of shrub species (*Corylus avellana*) associated with tree species (*Tilia cordata, Quercus sp., Fagus sylvatica, Carpinus betulus, Betula pendula, Alnus sp.,* etc.). The ash (*Fraxinus excelsior*) and willow (*Salix sp*.) species are of significant importance on wetter lands, which by pollarding provide extremely valuable habitat for nesting, roosting, etc. The nemoral component may be completed by bringing in species of native aspen (*Populus tremula*) of which rapid growth ensures increased wind protection.
- the shrub component ends the forest edge with the rose (*Rosa canina*) species being preferred.

The initiatives regarding the biodiversity management will be centralised by RMGC throughout all phases of the Project in order to minimise impacts to biodiversity and thereby conserve biological diversity in the Project area.The proposed initiatives have also been developed in accordance with the legal and regulatory framework pertinent to biodiversity conservation in Romania (including international conventions).

Detailed baseline analyses conducted as part of pre-construction activities revealed that the area is of low conservation priority. The intent of the Biodiversity Management Plan therefore extends towards improving the existing ecological conditions, which have been degraded by centuries of mining activity.

The Biodiversity Management Plan addresses requirements throughout the construction, operation and closure phases of the Project. As such, the approaches prescribed under the plan are intended to correspond with project activities. The Biodiversity Management Plan incorporates three integrated approaches. These include:

- Conservation, Restoration and Rehabilitation;
- Habitat and Wildlife Monitoring;
- Compiling a local biodiversity database;
- Promoting Stewardship Ethic;

- Evaluation of the environmental conservation, restoration and rehabilitation measures;

Phasing of activities related to the implementation of the Biodiversity Management Plan

The creation of the proposed Compensatory Functional Ecological Network takes into consideration the divided ideas regarding the suitability to create (or rather, in our case, re-create) a network of ecosystems within a given matrix of LOS and SLOSS, respectively type. This concept refers particularly to the size selected for environmental restoration.

The LOS type refers to the suitability to create a habitat that is as continuous as possible, with no interruptions caused by anthropogenic factors, which is very adequate for fauna species like those from inside the forests, mega-charismatic species such as large carnivores or herbivores that need large areas of favourable habitat. This type, of which name derives from the Large-or-Small collocation, wishes to highlight the strengths of a strategy that aims to restore an area, as large as possible, of natural habitats versus restoration of a habitat on a smaller area.

The second type, i.e. SLOSS derives from the Single-Large-or-Several-Small collocation which assesses the strategy in case of environmental restorations of which suitability hesitate between one single large restored area or several smaller areas.

The table below summarizes the attributes of each of these strategies.

LOS	SLOSS
Increase of quality of environmental component water and high protection of aquifers and surface water	**"Stepping-stones" habitats which facilitate dispersion of species and re-settlement of new areas**
Low connectivity	**High diversity of species**
Continuous habitats (sometimes singular) that support populations of "interior" species	Significant population of ecotone and eurobionte species
Key habitats and shelter for vertebrates requiring large areas	**Ensures heterogeneity of local matrix and refuge against predators**
Valuable species reservoir–source for adjacent matrix	Diverse habitats supporting species strictly adapted to such conditions
Favourable for ecotone species occurring in proximal habitats	**Efficient protection of small habitats or rare species**
Cycles similar to the natural ones	**Easy management**
Buffer zones for major environmental impact	**Low management requirement**

In the table above, the attributes which in our opinion are relevant for the Roşia Montană area have been written in bold letters.

As one can see, there are points of interest for approaching either one of the strategies. However, our approach will focus on developing a strategy that will combine these elements in order to achieve as many benefits as possible.

Accordingly, an extremely important aspect was considered, namely the fact that the Project will be developed in a highly impacted area, in the form of a lax matrix, where the natural elements have a limited, timid presence, very similar to the SLOSS type.

The strategy of the Management Plan will focus on maintaining the proportionality between the existing habitats and developing a complex, stable and much more efficient SLOSS system, to which to have at least two LOS nucleus connected, which would thus increase the stability of the network and give it an increase efficiency in reducing impacts and mitigating the GAP effect.

Accordingly, from the list of species outlined in the Roşia Montană biodiversity assessment process, the interior species (forest species) or the species with special requirements for continuous, large habitats occur only occasionally and are not characteristic to the area. Thus, setting targets that exceed by far the ecological reality of the area is entirely speculative and unrealistic.

The creation of the Compensatory Functional Ecological Network in relation to the Roşia Montană Mining Project will involve approaching some steps that are pre-determined as a result of a priority analysis regarding the conservation of the environmental components, particularly biodiversity.

In this sense, the development steps of the Compensatory Functional Ecological Network were correlated with the Project development phases.

The structure for the first development years was considered, as follows:

Year “0”:
In year "0", which coincides with the commencement of the Project and implementation of the main elements of the haulage roads infrastructure, the actions for developing the protective screens along the main haulage routes will be initiated.

The functionality of the protective screens will focus on the dust retain capability of the considered bio-structures and also the capability to retain and assimilate suspended particles carried by storm water, surface water, etc.

Thus, by year 2, double protective screens will be established (located each side of the access ways) and also protective screens around the main operational sites, in total length of 23,872.55 m and estimated average width of 4 m.

Thus, the total area covered by protective screens will be around 9.54 ha, which will actively and directly undergo environmental reconstruction.

The monitoring and biodiversity assessment procedures will also be established in this stage, starting from a complex of key species.

Selection of key species
The key species to be subjected to environmental monitoring and assessment will be selected from the lists of existing and potential species in the Roşia Montană area, with consideration given to the following aspects:

1. relevance to the local/regional bio-ecocenotic system;
2. affiliation to complex food systems, chains and pyramids;
3. ecological plasticity – both eurobionte and stenobionte species narrowly adapted to habitats of major local relevance will be considered;
4. protective character, rarity, scientific or economic relevance;
5. easy identification by field operators;
6. practical possibility of the populations in question to be subjected to statistical interpretation;
7. bio-indicator capacity, etc.

The set of key flora and fauna elements is estimated to include approximately 100 taxa. For efficient monitoring, interpretation of the information in real time and modelling of the development of the Compensatory Functional Ecological Network, a database system will be developed using the GIS application connected to the national biodiversity monitoring system BIMS.

Thus, the means to transparently access biodiversity data, the objectivity based on scientifically supported data to be included in the decision making process and also development of a baseline system will be ensured.

The Biodiversity Monitoring Plan will include protocols dedicated to each major taxonomic group, i.e. plants, invertebrate, vertebrates/fish/herpetofauna/birds/micro-mammals/large mammals.

Year 7:
Towards year "7" the completion of the protective screen developed along the roads and near the sites that suffer major impacts is anticipated.

In some areas, the protective screens will be complemented by ecological corridors which will enhance their functions and the two, together, will constitute a well established system leading to an increase in connectivity.

It is anticipated that the ecological corridors will be distributed along the contour of structures developed by the Project. Apart from the functional role in ensuring support for and dynamics of flora and especially fauna elements, given the selected sites, their spatial configuration and intimate structure, the ecological corridors will also play an important role in mitigating the environmental factors that pose negative impact.

As such, the location of these structures along the contour line of the dumps to be stabilized will contribute to the establishment process, stopping torrential runoff and slope erosion. In addition, the “hedge” aspect will restore the typical local landscape where this matrix is clearly present.

The development of ecological corridors aims primarily to increase connectivity between elements of “island” and “reservoir” types of the proposed Compensatory Functional Ecological Network, constituting actual live arteries of the system.

The total length of the ecological corridors will be around 57km which considering an average height of 4 m will represent cca. 22.8 ha.

The structure of the ecological corridors was addressed previously and the aim is to replicate pre-existing local models.

However, the intimate structure of each ecological corridor sector will be carefully selected in order to ensure the spatial ecological niche for the target species the niches had been developed for.

The main key populations will be identified and their dynamic and connectivity requirements are determined based on the interpretations of the biodiversity database.

Thus, the methodology through which the most suitable responses to the requirements of the key species are to be found will be developed.

Basically, each ecological corridor sector will be created individually, following a careful analysis of the specific ecological requirements which will lead to an ensemble of alignments of linear eco-systems that will meet the requirements imposed by the impact factors on one hand and the dynamic needs of the flora and fauna elements on the other hand.

The prevailing type of ecological corridors will be the nemoral type in which composition the central element will be represented by tree species of local primary spontaneous flora.

However, subject to the key species the corridor is destined to, eremic or wetland elements will also be included.

Apart from the ecological corridors, small size islands will also be selected and developed in areas protected from impact and towards which there is no momentary possibility for direct connection to the proposed Compensatory Functional Ecological Network and which will function as "stepping stones" thus contributing to connectivity improvement and providing small refuge areas.

Special attention will be given to developing man-made connective structures such as ecoducts, particularly under crossing systems which will allow for drainage of storm water and transversal movement of the fauna elements on the access ways.

A number of actions for environmental rehabilitation of forest lands will be initiated towards year 7, by experimentally addressing a number of practical aspects regarding the strength of some species, types, diversities of local spontaneous flora and not only existing impacts in the area or by developing a composition model that will fully meet the ecological flora and fauna requirements and also ensure high functionality in terms of impact mitigation.

The target structure will focus on the primary structure of the nemoral ecosystems, that is particularly on beech forest types, beech mixed with other types of deciduous species, on the type of deciduous mixture forest (dominated by beech) and conifer species (mainly fir and spruce), respectively.

Year 10:
In year 10, the forest restoration action will be initiated in the Roşia Montană area, which will be one of the largest and most compact refuges for biodiversity, fulfilling however related functions also, such as: provide secondary natural resources and certain ecological functions, key destination for local tourism, etc.

This action aims to develop a network node dominated by forested massifs alternating with meadow ecosystems and wetlands around existing lakes, i.e. Tăul Mare, Tăul Anghel and Tăul cel Mare.

In addition, an educational ecological route will be developed within this site for ecological education purposes. This initiative will be developed in relation to the work programme with the local communities and its purpose is to promote tourism practices.

A first evaluation of the efficiency of the ecological corridors and protective screens system will be done at this phase along with a comprehensive rehabilitation, restructuring and restoration programme of the strongly impacted sites.

An inventory of lands that are either degraded or are favourable for forestry vegetation development will also be done at this phase.

Existing forest gaps and connecting forest corridors between existing forest sections will be filled at this phase.

Year 14:
Phasing and prioritisation of the actions will be done based on the previous evaluation of areas available for forest development.

The program for forest development in certain areas aiming to rehabilitate, establish and compact a number of massifs will be initiated and will use the experience gained in the

previous stage as well as the experimental data supplied by the environmental rehabilitation actions.

The final purpose of this action will be the development of biodiversity reservoirs in areas adjacent to the Project implementation site which will be linked with the Project Compensatory Functional Ecological Network. A first drawing of the areas of maximum interest for forest development is proposed within the drawing issued for year 14 of Compensatory Functional Ecological Network development.

The environmental restoration of riparian habitats, which during the peak of the mining operations will take on a significant part of the impacts, will also be addressed.

Thus, a new major type of ecological corridor will be created, dominated by ecosystems characteristic to riparian areas, which apart from water streams rehabilitation and restoration actions will also aim to develop typical forest screens comprising of species such as willow, aspen, ash and especially alder.

Year 16:
The environmental rehabilitation of the outcrop areas of the dams (tailings, containment, etc. dams) will be addressed in year 16.

The strategy will include the rehabilitation of pre-existing outcrop habitats by developing insular covers, sedimentary material (limestone) covers and resettlement with patches of specific, petrophyle and calciphyle vegetation.

In terms of the uncovered benches of the pit operations the strategy will include insular topsoil re-covering and development of vegetation channels in potentially torrential areas for erosion control.

Structures that will facilitate development of wetland habitats will be established on the bottom of the mining pits where the sedimentation and bio-filtration and bio-treatment processes are to become dominant

Year 19:
The Compensatory Functional Ecological Network becomes complete, with the majority of the nodes becoming biodiversity shelters, the reservoirs are well established and having an enhanced support capacity.

In this stage, when the mining operations will have been completed and impacts cancelled, the strategy will include network filling and development of a so called eco-blanket that should be similar to the primary stages of the local landscape.

The revegetated surface of the TMF will be able to fulfil multiple functions in relation with the development of sustainable development eco-tourism (construction of a golf course) or economic (Christmas fir tree plantation) practices.

There will be focus on promoting secondary natural resources operations, which should be able to take on at least partially the pressure for local employment.

Species of local spontaneous flora to be included in the Compensatory Functional Ecological Network:

Type	**Species**
Fraxinus	*excelsior*
Corylus	*avellana*
Spiraea	*vanhoutei*

Spiraea	*ulmifolia*
Spiraea	*salicifolia*
Cornus	*mas*
Cornus	*sanguinea*
Rosa	*canina*
Crataegus	*monogyna*
Quercus	*robur*
Quercus	*petraea*
Populus	*tremula*
Tilia	*cordata*
Prunus	*spinosa*
Prunus	*cerasus*
Ligustrum	*vulgare*
Fagus	*sylvatica*
Pinus	*sylvestris*
Salix	*capraea*
Salix	*fragilis*
Salix	*viridis*
Picea	*abies*
Abies	*alba*
Betula	*pendula*
Carpinus	*betulus*
Alnus	*viridis*
Alnus	*glutinosa*
Alnus	*incana*
Sorbus	*aucuparia*
Rhamnus	*frangula*
Pyrus	*pyraster*
Malus	*sylvestris*
Sambuccus	*nigra*
Acer	*pseudoplatanus*
Acer	*campestris*
Ulmus	*laevis*
Evonymus	*europaeus*
Hedera	*helix*

Native or extra-zonal species considered for completing the protective screens along with the species of local spontaneous flora:

Type	**Species**
Buxus	*sempervirens*
Robinia	*pseudaccacia*
Hippophaes	*rhamnoides*
Ailanthus	*altissima*
Juniperus	*communis*

Annex 1. Relevant Biodivesity legislation and International Conventions

Romania has demonstrated its interest in, and commitment to, the conservation of biodiversity and natural areas through signing of international agreements, the passage of national regulations and the designation of a large number of protected areas. The following section describes relevant World Bank Group Operational Policies, International Conventions, European Directives, and Romanian legislation, policies and plans, as they apply to biodiversity conservation at the project level. Despite these efforts, Romania has experienced difficulties in implementing policies and strategies to achieve effective biodiversity conservation. There is a lack of a comprehensive conservation management strategy as well as appropriate institutional arrangements for biodiversity conservation. Coordination among the various governmental organizations involved with nature protection activities is often inadequate and the public participation into the decision-making process often occurs on an ad-hoc basis.

World Bank Group Operational Policies

The contents of this Biodiversity Management Plan have been designed to meet the overall documentation requirements of the World Bank Group for Category “A” projects. This section describes the applicable Operational Policies of the World Bank Group as they relate to biodiversity conservation.

Operational Policy 4.04 Natural Habitats

This policy affirms World Bank Group’s commitment to promote and support natural habitat conservation and improved land use, and the protection, maintenance, and rehabilitation of natural habitats and their functions in its project financing. The World Bank Group does not support projects that involve significant conversion or degradation of critical natural habitats.

Operational Policy 4.36 Forestry

World Bank Group involvement in the forestry sector aims to reduce deforestation, enhance the environmental contribution of forested areas, promote afforestation, reduce poverty, and encourage economic development. World Bank Group does not finance commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests (although neither of these instances apply to the Rosia Montana Project). This policy is now under review.

International Conventions

Since 1990 Romania has ratified several international conventions relating to biodiversity and nature conservation.
The following are the conventions ratified by the Romanian Government:
 Convention Concerning the Protection of the World Cultural and Natural Heritage (1972), accepted by decree 187/1990;
 Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971), ratified by law 5/1991;
 Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 1979), to which Romania adheres to by law 13/1993;
 Convention on Biological Diversity (Rio de Janeiro, 1992), ratified by law 58/1994;

European Union Directives

In meeting the objectives of international conventions and legislation of the European Union, Romania has approximated its national legislation with the requirements set by:
 Directive 79/409/EEC on the conservation of wild birds (Birds Directive), and,
 Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna (Habitats Directive).
The aim of Directive 92/43/EEC is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild flora and fauna. Measures taken pursuant to this Directive are designed to maintain or restore at a favourable conservation status the natural habitats and flora and fauna of interest; while taking into account economic, social and cultural requirements and regional and local characteristics.
No transition period was requested by the Government of Romania (therefore, no implementation plan prepared); hence all requirements must be complied with on accession date (2007).

Romanian Legislation

General Framework

The Constitution of Romania provides a regulatory framework for all legislation pertaining to the conservation of biodiversity in Romania. Revised in October 2003, the Constition includes specific references to the following:
 The State recognizes any person's right to a healthy and ecologically balanced environment.
 The State shall ensure the legislative framework for the exercising of this right.
 Natural and legal persons shall have the duty to protect and improve the environment
The general framework for the conservation of biodiversity in Romania is the Environmental Protection Law No. 137/1995, as amended, as amended by EGO No. 91/2002, approved by Law No. 294/2003. It contains a special chapter on protection of natural resources and conservation of biodiversity (chapter III). Priorities of the law include protection of wildlife species and habitats, as well as creating protected conservation areas. This law also states the requirement that environmental protection authorities be notified regarding any accidents or activities that may affect terrestrial ecosystems. It also places the fiscal responsibility of project remediation on the project sponsor.
A number of subsequent secondary legislation and technical norms supports Law No. 137/1995 and relate to ecosystem protection and for the conservation and sustainable use of biological diversity components, and for ensuring human health.
Law No. 13/1993 provides for Romania's accession to the Convention regarding wildlife and natural habitats protection in Europe.

Forest protection

Forest protection requirements are outlined in Law No. 26/1996 – Forest Code; Governmental Ordinance No. 96/1998 on forestry regime and administration on the national forest fund, approved by Law No. 141/1999 and amended by Law No. 513/2004; EGO No. 226/2000 on the regime of juridical circulation of forest lands, approved by Law No. 66/2002; Law No. 289/2002 on the legal regime of forest curtains for protection.

The Forest Code establishes administration of the forest fund and forest vegetation. Goals include biological diversity conservation and woodland scenery through the creation of national parks and other protected areas.

Bird Protection

Romania transposed the EU Habitat and Birds Directives into national legislation through Governmental Emergency Ordinance No. 236/2000 (Nature Protection Act), as approved, with amendments and additions, by Law No. 462/2001. Several pieces of subsequent legislation have been adopted to support the implementation of the above-mentioned regulations.
Additionally, Law No. 89/2000 for the ratification of the Agreement for the protection of the European-Asiatic migratory water birds that was adopted in the Hague on June 16, 1995

Fish stock protection and preservation

Aquatic wildlife protection in Romania is governed by Law No. 192/2001 on fish stock, fishing and aquaculture, republished in 2003 and subsequently amended by Law No. 481/2003, Law No. 298/2004 and EGO No. 69/2004.
Special provisions are provided under the Forest Code for the conservation of fish 'stock' in mountainous waters.

Game wildlife

The Law of Hunting Fund and Protection of Game (Law 103/1996) provides for the conservation of wildlife diversity and maintaining the ecological balance of game species. This law established annual harvesting quotas, technical rules on hunting, and wild fauna that are protected. In 2000, the Emergency Ordinance of Romanian Government No. 69/2000 was passed regarding the modification and completion of the Law on Hunting Fund No. 103/1996.

Special Provisions for Mountain Areas

The mountainous area in Romania is subject to a specific regulatory framework provided by Law No. 347/2004 ("mountain law"), which provides for the sustainable use of mountain resources and landscape and biodiversity conservation.

Brief assessment of provisions in Mining Law in relation to nature protection requirements

The most critical provision in Law No. 85/2003 in regard to nature protection and conservation stipulates that mining activities may not be carried out in natural reserves, interpreted to include all established protected natural areas.
The license holder is also obliged to submit bi-annual or annual reports that should also contain the works and expenses made for environmental reconstruction.
In determining the location of the project, consideration must be given to special protection areas, appointed by Law No. 462/2001 for approving the Ordinance of emergency of the Government No. 236/2000 on protected natural areas regime and conservation of natural habitats and flora and wild fauna or areas in which determinations are made in order to include them in the areas classified as protected areas.

Brief notes on land use planning legislation

All legal acts provide for obligations, competencies and the procedure for obtaining the development consent, in accordance with the land use and urban planning documentation.

If constructions are to be made within protected natural areas reflected in the approved land use and urban plans, it is necessary to obtain The Ministry of Environment's prior approval, which is given through actually the environmental agreement. If the protected natural areas are of local/county interest, the approval must be obtained from the local public

administration authorities.
It also needs to be corroborated with art. 14 (3) of the Law on natural protected areas stipulating that the administration of the protected natural area shall authorize the activities carried out within the protected natural areas and in their vicinity.
According to the general urban planning rules, no constructions or works can be permitted to be carried out on forested land, but for constructions that are necessary for forest protection and wood collection or forest breeding, with the endorsement of the specialized competent public authority.

Other legislation relevant for nature protection

In the field of **biosafety**, Romania has ratified the Cartagena Protocol through Law No. 59/2003 and transposed the EU Directives 90/219/EEC and 90/220/EEC through Government Ordinance No. 49/2000, as approved, with amendments and additions, by Law No. 214/2002. Subsequent legislation is needed for the implementation of the existing law.