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7 ENVIRONMENTAL MANAGEMENT ZONING

The Management Zoning for the mining project "El Pescado" is based on the reference terms for the elaboration of Environmental Impact Studies (hereinafter EIA), which is used for the exploitation of gold deposits through the open-pit mining method and the methodology proposed by ECOPETROL (2014). After generating the environmental zoning (described in chapter 4.4 EIA). This zoning corresponds to the guidelines or proposals for the management of the areas that will be intervened by the project activities, in addition to the strategies for monitoring and the application of technological options:

In accordance with the methodologies used, the following categories are proposed:

- **Areas of exclusion:** Areas that cannot be intervened by the project. The exclusion criterion is considered to be related to the fragility, sensitivity and socio-environmental functionality of the area, besides, the environments self-recovery capacity and the nature of the areas with special regime.

These areas were discarded, because they were not identified in the impact evaluation and anthropogenic activity has made the zone highly intervened, therefore the project does not have areas of exclusion.

- **Restricted areas of intervention:** These are Areas where special management and restrictions should be considered according to the activities, stages of the project and the environmental sensitivity of the area." levels, restriction and conditions must be established for these zones." According to the restriction levels definition, intervention levels were determined as follows:

- **High restriction:** Works and activities can be developed with the implementation of highly complex management, which have a high economic impact and require the obtaining of permissions, concessions or authorizations for the use of renewable natural resources and the procedures for lifting environmental restrictions. The area corresponds to those defined as high in the Environmental Zoning.

- **Average restriction:** Works and activities can be developed with the implementation of management of medium complexity level, which have medium or moderate economic impact and may require the obtaining of permissions, concessions or authorizations for the use of renewable natural resources. For the project, they correspond to the areas defined as medium sensitivity in environmental zoning.

- **Intervention Areas:** Areas where the project can be developed, with socio-environmental management according to the activities and stages of the project. In these areas, conventional management is implemented which has a low economic impact and may require the obtaining of permissions, concessions or authorizations for the use of renewable natural resources. Its definition does not exempt the design and implementation of management and monitoring plans in accordance with the impact evaluated.

After the environmental zoning analysis, the interrelationship of the components (abiotic, biotic and socio-economic), and knowing the sensitivity and importance level of these sectors regarding the intervention or affectation degree for this project, some management measures will be established, in order to have a control element that allows to determine the impact at the beginning of the activity.

In accordance with the sensitivity and importance level established in chapter 4.4 "Environmental Zoning", it is determined, the control and management measures required to mitigate the impact generated by the activity, in order to establish the recovery or resistance capacity for possible affectation to the environment, taking into account that the type of extraction is open-pit; it also allows to establishing the prevention, mitigation, correction and compensation measures.

The following illustration shows the medium and low sensitivity/importance areas to determine possible management proposals.

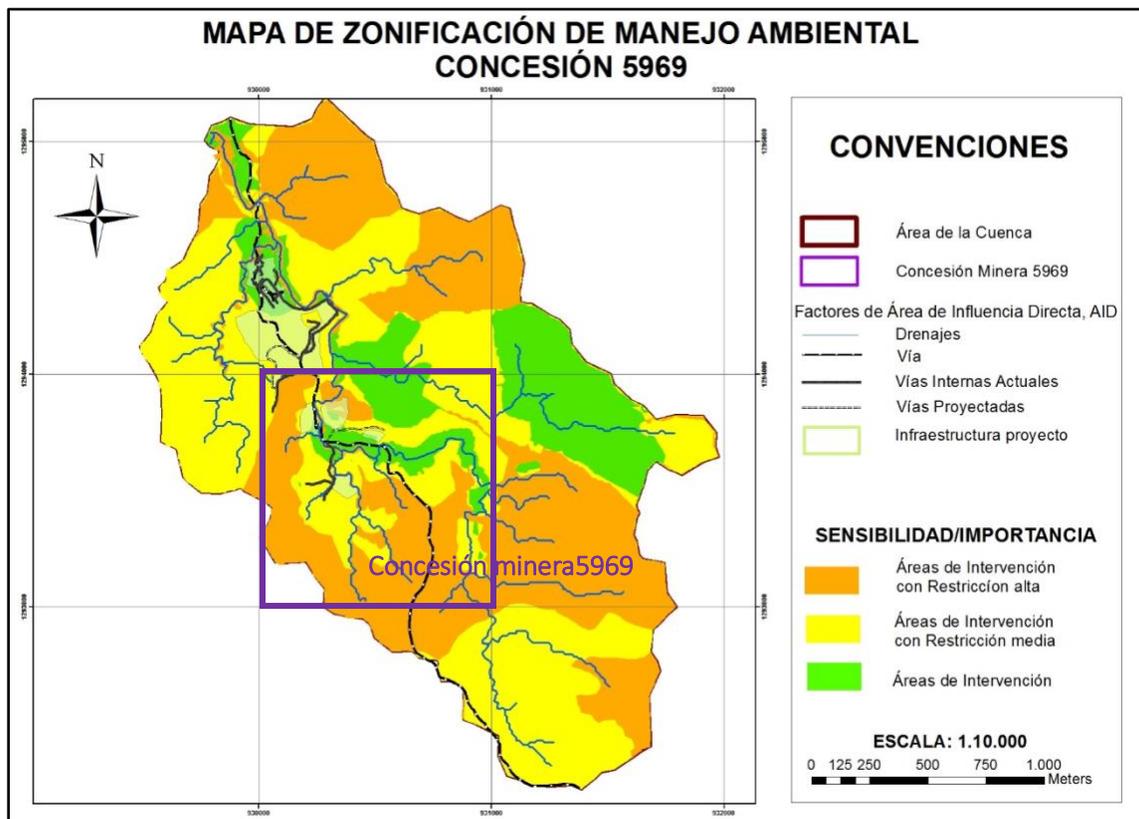


Illustration 7-1 Management Zoning for sensitivity and importance concession 5969.

Source: INGEX, 2016

In accordance with the methodology proposed by ECOPELROL (2014), the relationship between management zoning, sensitivity and importance classification is given in the following form (see Illustration 7 2).



Illustration 7-2. Relationship of the operating zoning and sensitivity/importance level.

Source: ECOPELROL, 2014

Therefore, according to the illustration above, in the area of influence where the mining project is to be established, the following areas are found:

- Areas with high restriction (152.35 ha - 38.57%): These areas cannot be intervened or altered during the development and/or useful life of the project; although they are sensitive areas, some of the zones within it are immersed in dense forest cover, since this is an area located in a forest reserve area, declared in Law 2^o of 1959 (Rio Magdalena Forest Reserve).

Similarly, water rounds of 30 meters will be maintained, in accordance with articles 83, Decree 2811, 1974, art. 3, Decree 1449 and the sources of each of the water effluents from El Pescado Ravine, in the event of using and/or exploiting these areas, environmental management plans must be made. The gradients are more than 50% and the risk of threat is slight.

A great part of the northern open-pit mine is located within this area, so it is important to have each of the permissions granted by the environmental authority, such as logging, waste water discharge, among others. If it is essential to carry out a new work, the preservation of this ecosystem must be guaranteed, without causing instability in the slope or contaminating nearby water sources.

However, the management strategies are listed in chapter 8 "Environmental Management Plan - LDC", for the following means:

- Populations of flora and fauna in the area under study with high conservation value
- For areas susceptible to landslides, geotechnical studies are proposed to minimize the risks (in case it happens).
- For the protection of water courses and/or births, it is foreseen to comply with Decree 1449, 1977 and Law 79, 1986.
- To maintain updated studies during each stage of the project, in order to maintain the limits defined by the Legal Ruling 601, 2006 and 610, 2010.
- In addition to the strategies contained in the WFP, the project also proposes a compensation plan for areas where there is impact on vegetation, as established by the Ministry of Environment and Sustainable Development - MESD.

- Area with moderate restriction (179.22 ha - 45.36%): Corresponds to those areas whose characteristics make them less susceptible to deterioration and its resilience is higher, Therefore, they can be intervened by the activities of the project, as long as the environmental management plans are generated, which will help to prevent, mitigate, correct and compensate each of the impact that may be generated. Similarly, environmental permissions are essential for the exploitation of natural resources.

In addition, proposals for ecological restoration, revegetation and/or recovery of degraded areas should be applied to control any type and impact that may be caused by human intervention. Finally, archaeological prospecting requires measures to carry out the project.

It is important to point out that most of the project's facilities, such as the benefit plant, heliport, laboratories, camp, open-pit mines, dumps, among others, are within this classification and under any circumstances, the forest cover and the ecosystem structure will be endangered.

This is why the Environmental Management Plans (Chapter 8) are proposed to mitigate the impact generated to the biotic, abiotic and social components, in addition to the strategies proposed in the Compensation Plan and the Mining Closure Plan; additionally, permission will be processed individually.

- Areas of Intervention (63.40 ha - 16.05%): Corresponds to those areas where any type of activity can be developed in accordance with the environmental management to be implemented in the project phases and depending on the specific type of use.

These areas are found mainly in flat areas with clean coverage pastures (CP). The main economic activity is extensive livestock, forest resource extraction and mining. These areas correspond to the zones where the camp and the dumps will be established, these areas are characterized by low or very low levels of sensitivity/importance and the socio-environmental management is according to the activities and stages of the zone. These areas do not present any type of intervention and/or affectation for abiotic, biotic and socio-economic environments.

In the same way, each of the Management Plans will be established in order to prevent, mitigate, correct and compensate the impact generated to the environment in the different phases of the project, as well as to process each one of the environmental permissions and authorizations.