

I. General Characteristics of the Proposal



Fig. 1. Map of Taseko mines. Source: web

Taseko Mines Gold-Copper Mine, located in Canada, British Columbia, 125 km south-west of Williams Lake. The project is running by the mining company *Taseko* which focuses on operating and developing copper and gold metals. It includes three key assets, located in British Columbia, Canada (Fig.1): 1) *Gibraltar* copper-molybdenum mine, 2) *Prosperity* gold-copper, 3) *Harmony* gold, 4) *Aley* niobium.

The company was established in 1977 and now has more than 30-year experience in mining at a milling rate of 70,000 tonnes per day. The mineral reserves of the company consist of 7.7 mln ounces gold and 3.6 billion pounds recoverable copper. The mine type is open-pit.

It is now one of the leading and prosperous mining companies in Canada with proven and probable reserves of 830 million tonnes grading 0.41 grams gold and 0.23% copper per tonne. The Taseko mine *Gibraltar* is the second largest open pit copper mine in Canada.



Fig. 2. Mining process at the Taseko mines

Since 2009 the company Taseko started the provincially led *Environmental Assessment (EA) project*. The result was the 9-volume, 3,000 pages EA reports that included technical analysis, scientific data and experts' opinion representing scrupulous examination and effort in the areas of geography, geology, ecology, sociology and archaeology, biotic and physical environment. This report is the most thorough and comprehensive environmental assessment performed for any project in provincial history

of British Columbia (9-volumes, 390 figures, 664 tables, etc).

Taseko proposes to develop the *Prosperity Project* located ca 125 km southwest of Williams Lake on the Fraser Plateau in South Central BC (Fig.1). Mineral deposits at the site are estimated to contain 9.2 million ounces of gold and 3.9 billion pounds of copper. The Project would have an estimated life of 22 years; involve over this period a capital investment of up to \$800 million; and have the potential to generate 550 direct and 1280 indirect jobs annually.

The key players of the environmental proposal are the followings: 1) *Taseko* company (Shareholders); 2) The Government of the BC, Canada; 3) The Canadian society, people; 4) Environment & Nature

The purpose of the proposal focuses on the following aims:

- 1) Utilization of the proven mineral reserve of the Prosperity deposit to create value and opportunity for the people of British Columbia and Canada and for the shareholders of Taseko.

- 2) Alternative assessment of environmental effects of the company's activities and analysis of Project planning
- 3) Environmental protection within the mining area and surroundings; maintenance of the sustainable development of the region



Fig 3. Surroundings of the Taseko. Source: web

In 2010 the company invested more than \$300 to modernize its mines and to increase mining scale, yet at the same time *Taseko* is in the final stage of the environmental approval: in January 2010, *Taseko* received the *Environmental Assessment Certificate for Prosperity* from the government of the Province of BC.

II. Discussion of the significant environmental and social impacts and proposed mitigation measures

Environmental impacts of Taseko: The Prosperity Gold-Copper Project consists of four main elements as follows: **1.** Mine **2.** Transmission Line: A 125 km long, 230 kV power transmission line to the transmission corridor in the vicinity of Dog Creek **3.** Access Road and Transportation Corridor is established for transportation of goods and services (only 3km of new road is required additionally) **4.** Fish Compensation. To compensate for the loss of Fish Lake and upstream and downstream spawning habitat, fish compensation works will be developed to be consistent environmental policies and legislation.

The *EA* report also includes careful analysis of the hard rock large-scale mining in *Taseko* which may cause ecological threats and disrupt environment, such as: mining waste acid mine drainage as a result of sulphide oxidation, erosion and sedimentation, chemical and toxic constituents released into groundwater, dust emissions and water pollution. These drawbacks of mining activities were investigated in the *EA* report, yet the *Taseko* mining enable maintain sustainable development of the region. To avoid disruption of the hydrogeology and changes of topography, the alternative variant of the potential mine site was designed on the layout and analysed in the *EA*.

Social impacts: Despite environmental potential threats, increased *Taseko* mining in BC will be evidently beneficial for the social development due to the creating working places and increasing financial budget of the province. The community infrastructure, services and network is involved in the changes within the region, as increased mining scales of *Taseko* necessarily demands for more developed infrastructure. In turn, the increased concern about environment in the society improves quality of social life through the sense of security in the future. The mitigation of possible ecological dangers will attract new workers (e.g. from neighbouring states like Alberta) and stabilize the employment in the *Taseko* and society in general. Other possible social impacts would be increased population dynamics and cultural mosaic of the society due to the demand for workers.

III. Conclusion: analytical comments, special features, strengths and weaknesses

The main concern of the project proposal is to avoid negative social and environmental threats that can be caused by mining - generally very destructive to the environment human activity. The increased scale of *Taseko* mining was accompanied by the environmental assessment, measures of nature protection and monitoring. The *EA* project report concluded that the *Taseko* Prosperity Project is technically and economically feasible under a range of reasonably foreseeable costs, exchange rates, and gold and copper prices. The economic and social benefits of *Taseko* Prosperity project for BC will be significant considering the current and future impact of the mining activities in this area of the province. Taking into account the environmental concerns and nature protection in the region we can conclude that the further development of the *Taseko* company will be definitely beneficial for the society of the BC.