Case Study on Quarry Rehabilitation and Land Resettlement in Dimce Quarry

Halil Berisha^{1*}, Jenuz Bulica¹, Shkurtë Gashi¹, Kostas Kouklidis¹, John Mastoris¹ and Kostis Dragasakis²

¹ Titan Sharrcem, Kosovo

² Titan Cement Group, Greece

Abstract: Titan Group's environmental policy and Sharrcem's Corporate Social Responsibility (CSR) are the driving forces behind the development and implementation of a comprehensive Rehabilitation Plan at Dimce Quarry, which is the main raw material source for Sharrcem Cement Plant since the 1970's, located in the municipality of Hani i Elezit in Kosovo. Based on an Environmental Impact Assessment Study and the approved Mining Plan and also on the principles prescribed in the Guidelines on Quarry Rehabilitation, released by the Cement Sustainability Initiative of the World Business Council for Sustainable Development (WBCSD-CSI), Sharrcem has adopted a quarry operation and rehabilitation process in line with the best practices in the mining and cement sector. This paper discusses the background for the development of the rehabilitation plan and the results of rehabilitation activities, as have been implemented over the last few years. The main objective of the progressive rehabilitation plan at Dimce Quarry is to restore the depleted pit and return it back to the original land owners for resettlement. To date approx. 3,4Ha of former mining area has been restored by backfilling and levelling of the depleted closed pit and returned back to owners, who have built their houses and turned it into a living area again. This Quarry has turned out to be a real composition and practical example of preserving and returning back the natural resources in a state compatible with the surrounding environment and with respect to the needs of the local stakeholders. The motivation for business to engage in rehabilitation activities in the first place lies in the belief that the development and implementation of a progressive and practical Quarry rehabilitation plan and restitution of the land will deliver significant environmental and social benefits that outweigh the long-term rehabilitation costs, while maintaining the company's reputation.

Keywords: Quarry rehabilitation, stakeholders' engagement, land resettlement, environment, local community

1. Introduction / Background

Sharrcem is located by in the southern part of Kosovo, close to the border with Former Yugoslav Republic of Macedonia (FYROM), in the municipality of Hani Elezit, and it is the only cement factory operating in the country. In 2010, Sharrcem became a member of the Titan Group and remains the leading supplier of cement in Kosovo. A year after acquisition by the Titan Group, Sharrcem significantly upgraded its production facilities and technological process. This dynamic innovation was coupled with integration of the highest standards at all operating levels. In 2014 Sharrcem received the IPPC permit, the first one to be issued in Kosovo. In addition, Sharrcem has been certified with ISO 14001 - Environmental Management System, OHSAS ISO 18001 - Occupational Health and Safety Management System, ISO 9000 - Quality Management System and Social Accountability, SA 8000:2008. Beyond certifications, Sharrcem has received important awards for various Corporate Social Responsibility (CSR) initiatives.

Following the Integrated Pollution Prevention and Control (IPPC) Permit requirements for program improvements and Best Available Techniques (BAT), and under the frame of the Environmental and Social Action Plan (ESAP) developed for the Titan Danube Project, Sharrcem

prepared the End of Usable Lifetime & 15-year Rehabilitation plan for the Dimce Marl Quarry.

The life-cycle and the impacts of a quarry on society and the environment are related to the efficient planning, operation and rehabilitation. Sharrcem has adopted a quarry operation and rehabilitation process in line with the best practices in the mining and cement sector. The main objective of the rehabilitation plan at Dimce Quarry is to restore the depleted pit and return it back to the original land owners.

2. Statutory Basis for Mining and Land Rehabilitation

Titan Group's environmental policy and Sharrcem's CSR are the driving forces behind the development and implementation of a comprehensive Rehabilitation Plan at Dimce quarry ([GEO-MINING 2015](#)), based on the results of the Environmental Impact Assessment Study ([GEO-MINING 2011](#)) and the approved Mining Plan ([GEO-MINING 2014](#)).

The Guidelines on Quarry Rehabilitation, released by the Cement Sustainability Initiative of the World Business Council for Sustainable Development ([WBCSD/CSI 2011](#)) were used as a practical tool and guidance for adopting principles and required steps towards the development and implementation of the rehabilitation plan. One of the main components for a successful rehabilitation plan is the

* Corresponding Author: H. Berisha, Halil.Berisha@sharrcem.com, phone: +381 290-385500 ext.1114

stakeholder's engagement, and in the case of Dimce quarry this was of high importance.

As illustrated in Figure 1, the development and execution of a rehabilitation plan is affected by several factors. In particular, the development of the plan cannot be isolated from the external context.

Figure 1. Influence factors on the rehabilitation plan.

The mining regulations framework for operation plans make stipulations regarding the design of the future post-mining landscape in addition to practical specifications for the avoidance, minimization or compensating for environmental impact.

The complete set of documentation for permitting includes also environmental sustainability studies, which provide the basis for the environmental impact assessment. All studies required for this process have been compiled in cooperation with independent assessors, scientific institutions and expert planning offices. During this process public hearings with the community and stakeholders have been successfully conducted.

3. Five Year and End of Usable Lifetime Rehabilitation Plan

The Rehabilitation Plan for the Dimce Quarry covers:

- the operation phase with the progressive rehabilitation along with the completion of an extraction level, with soil application and trees planting on the depleted benches plus the creation of green zones with reforestation along the western quarry boundaries; and
- the post-closure phase that involves the backfilling and levelling of the depleted closed pit area and returning back to local community for other uses (i.e., residential, agricultural or other).

The rehabilitation plan has started to be implemented over the last few years and included:

- Progressive backfilling of the closed pit with overburden material. An area of approximately 3,4Ha has been completed to date with levelling and proper ground configuration (Figures 2 and 3). The land has been given

back to owners, who have resettled with new housing. Today, approximately 60 new residents live in the 12 dwellings that were built in this area (Figure 4) and which were supplied with all required infrastructure (roads, fencing, electrical and water supply networks etc.) under the responsibility and cost by Sharrcem.

Figure 2. Depleted quarry pit area before rehabilitation activities.

Figure 3. Backfilling and leveling of the depleted quarry pit area.

Figure 4. Land resettlement for local community in the depleted and rehabilitated quarry pit area.

- In the spring of 2013, more than 200 trees were planted for the creation of a green belt along the border of the new residential areas and also the western quarry boundaries.
- In 2014 further planting took place to enhance the green belt along the neighboring properties.

-
- Rehabilitation of top depleted benches
- 3.4Ha of land rehabilitated and given back to local owners

A photograph showing a line of young, green, bushy plants planted in a row on a dry, brownish-yellow hillside. The plants are spaced out along a diagonal line. In the background, there are more hills and a clear blue sky. A utility pole is visible on the left side of the image.

273

resettlement, but efforts do not stop there. The ongoing expansion plan of the operating marl quarry in Hani Elezit calls for continuing actions for progressive rehabilitation of depleted benches with soil application and trees planting with native plants, and at the post-closure phase to return total area back to local communities after backfilling and leveling of quarry plateau at the final level.

The final configuration of the Dimce quarry - after the full depletion of reserves in a period of 8-10 years– will comprise approximately 18Ha of land, as backfilled area of the closed quarry pit, properly and safely formed and leveled (Figure 7). Titan Sharrcem will work in close cooperation, engagement and open dialogue with the local stakeholders, in order to determine the optimum post-closure sustainable use of this land that will be in the benefit and added value for the local communities (e.g. residential, agricultural or other uses for the community).

Under this framework. Sharrcem is preparing a comprehensive assessment of the net positive impact of the initiative and the establishment of a Best Available Technique (BAT) document. This will be presented first in the Local Stakeholders Engagement opportunities and later on, in 2017-2018, communicated also with Government and International Institutions (World Bank, IFC, EBRD and others).

Figure 7. Rehabilitation plan for final quarry pit.

Acknowledgements

The quarry rehabilitation plan and implementation has been made possible through the effective collaboration with Titan Group Engineering and Technology, as well as external

experts like the “GEO-MINING” Consulting Office in Kosovo, and the dedicated efforts by the Sharrcem Plant Team, including top management, quarry and also environmental departments.

References

GEO-MINING, 2011. Environmental Impact Assessment (EIA) Report for Marl Exploitation in Hani i Elezit.
GEO-MINING, 2014. Mining project for marl exploitation in Dimce marl quarry.
GEO-MINING, 2015. 5-year rehabilitation plan for Dimce marl quarry.
WBCSD/CSI, 2011. Guidelines on Quarry Rehabilitation. [http://www.wbcscement.org/pdf/CSI%20Guidelines%20on%20Quarry%20Rehabilitation%20\(English\)_Dec%202011.pdf](http://www.wbcscement.org/pdf/CSI%20Guidelines%20on%20Quarry%20Rehabilitation%20(English)_Dec%202011.pdf).
WBCSD/CSI, 2016. Guidelines for Environmental & Social Impact Assessment (ESIA). <http://www.wbcscement.org/pdf/Guidelines%20for%20Environmental%20&%20Social%20Impact%20Assessment.pdf>.