



State Comptroller of Israel | Annual Report 71C | 2021

Ministry of Energy

---

# **Environmental Aspects of Quarries Rehabilitation**





## Environmental Aspects of Quarries Rehabilitation

### Background

The quarrying and mining sector constitutes a growth engine in Israel's economy. Most of the quarries in Israel, both active and abandoned (quarries that are no longer being utilized, whether fully or partially) are located on lands managed by the Israel Land Authority. The purpose of Quarries rehabilitation is to eliminate the negative environmental repercussions, sometimes while creating alternative public value (such as a national park, forest or nature reserve). Pursuant to the Mining Ordinance, the bodies responsible for Quarries rehabilitation are the Commissioner of Mines in the Ministry of Energy, the Quarries owners, the Nature and Parks Authority and the Quarries Rehabilitation Fund.



## Key figures

**59**

Quarries were active throughout Israel in 2019 (excluding Judea and Samaria).

**1,123**

Quarries are abandoned in Israel (according to information as of 2009).

**283**

Quarries have been declared as requiring rehabilitation, as of September 2019.

**197  
(17.5%)**

Number and percentage of rehabilitated quarries as of September 2019 out of all abandoned quarries in Israel.

**NIS 641.8  
million**

The unrestricted funds amassed in the Quarries Rehabilitation Fund, as of year-end 2019<sup>1</sup>.

**NIS 5.2  
billion**

The Quarries Rehabilitation Fund's actuarial deficit, which derives from the future rehabilitation of all quarries, according to an actuarial report submitted to the Fund in 2006.

**NIS 12.9  
million**

The Quarries Rehabilitation Fund's average annual expenses 2014–2019.


**NIS 2.3  
million**

The Quarries Rehabilitation Fund's average annual administrative and general expenses in the years 2014–2019.





<sup>1</sup> In September 2020, as a result of the covid-19 pandemic, the government decided to transfer NIS 500 million from the Fund's treasury to the State's treasury, through an amendment to the Mining Ordinance. A decision will be made about when and how to return this sum in 2025.



## Audit actions


 From May 2019 to September 2019, the Office of the State Comptroller audited several aspects of Quarries rehabilitation. The audit was performed in the Quarries Rehabilitation Fund and in the Ministry of Energy. Supplementary audits were performed in the Ministry of Environmental Protection, in the Israel Land Authority, in the Nature and Parks Authority, in the Planning Administration in the Ministry of Interior and in several local authorities. Some of the collected data have been updated until June 2020. The Office of the State Comptroller has audited a variety of aspects of Quarries rehabilitation in the past, referring also to the Quarries Rehabilitation Fund's activity: In 2000, the State Comptroller published a report entitled "Quarries Rehabilitation"; in 2014, it published a report entitled "Ensuring the Supply of Quarry and Mine Materials," which also referred to the Fund's activity; and in 2020, it published a report entitled "Promotion of the Mining and Quarrying Sector in Israel."


## Key findings


-  **Number of abandoned and rehabilitated quarries** – The Commissioner of Mines has not yet inspected the condition of more than 800 of the abandoned quarries in Israel (approximately 75% of the abandoned quarries), most of which are small quarries (up to 10,000 m<sup>2</sup>), in order to decide whether they require rehabilitation. Only one quarter of the abandoned quarries in Israel have been declared as requiring rehabilitation and only approximately 17% of the abandoned quarries have actually been rehabilitated.
-  **The obligation to rehabilitate quarries** – Due to the fact that there is no law in Israel that imposes an obligation to rehabilitate an abandoned quarry on any entity – not even on the Commissioner of Mines – the vast majority of inactive quarries (82.5%) have not yet been rehabilitated.
-  **Quarries rehabilitation in practice** – The Commissioner of Mines neither initiates nor leads the handling of abandoned quarries; the Nature and Parks Authority's activity relating to Quarries rehabilitation focus solely on those quarries that were located on lands that due to a change of use became a national park or nature reserve; the Quarries Rehabilitation Fund engages in key aspects of Quarries rehabilitation but some of its activities are not regulated by law as is required and some activities were supposed to be performed by other parties.
-  **Quarries rehabilitation arrangements and practices in Israel compared to those in other countries** – Differences were found between the practices in Israel and those in other countries that were surveyed, which maintain a detailed, normative



foundation that holistically regulates four aspects of Quarries rehabilitation: a statutory obligation to rehabilitate quarries; planning the rehabilitation as part of the mining program; defining in law the term "rehabilitation"; and ensuring the rehabilitation budget.

 **Information about abandoned quarries** – The Quarries rehabilitation fund holds information regarding abandoned quarries that is updated as of 2009. The Fund has no information about the environmental aspects of the abandoned quarries that have not yet been rehabilitated, and it has only partial information about the volume of quarry lands that it rehabilitated over the years. The Fund does not collect and coordinate information about the duration of the processes of planning and rehabilitating quarries and, in any event, it does not analyze the reasons and the barriers in this regard.

 **The Quarries Rehabilitation Fund's actuarial data** – According to the 2006 actuarial report requested by the Fund, its actuarial deficit, which derives from rehabilitating all abandoned quarries, totaled approximately NIS 5.2 billion, in capitalized values. The Association of Quarry Materials Manufacturers in Israel had numerous comments to that report and, according to a report that the Association forwarded to the Fund, it has an actuarial surplus. The Fund's management did not hold discussions concerning the Association's comments. The Fund recently examined six rehabilitation projects for noncommercial quarries and found that the cost of rehabilitating a quarry ranges between NIS 3,415 per 1,000 m<sup>2</sup> and NIS 128,000 per 1,000 m<sup>2</sup>, and that the average cost of rehabilitating a noncommercial quarry per 1,000 m<sup>2</sup> in recent years was higher than the average cost assumed in the said actuarial report (approximately NIS 69,000 per 1,000 m<sup>2</sup> compared to NIS 38,000 per 1,000 m<sup>2</sup>).

 **The Quarries Rehabilitation Fund's financial results** – The costs of the Fund's rehabilitation activities from 2014 to 2019 were low and totalled approximately NIS 13 million on average per annum, while the average ratio of its administrative and general expenses during those years was approximately 15%. As a result, as of December 2019, the Fund has accumulated a cash balance of approximately NIS 642 million over the years but has not taken action to utilize it through a multiyear work plan. It should be noted that, in September 2020, as a result of the covid-19 pandemic, the government decided to transfer NIS 500 million from the Fund's treasury to the State's treasury, through an amendment to the Mining Ordinance. A decision will be made about when and how to return this sum in 2025. The Fund's monetary surpluses were invested in securities that generated an inclusive return of only approximately 13% from year-end 2014 until year-end 2019 (i.e., an average annual return of approximately 2.6%), while the returns generated to all provident funds during the corresponding period were between 20% and 22.5%.



In 2019, the management of the Quarries Rehabilitation Fund initiated a process of updating the 2009 quarry survey and, according to the approved format, it is scheduled to be carried out over 22 months.

## Key recommendations

- 💡 It is recommended that the Ministry of Energy, in collaboration with all other relevant bodies, including the Fund, the Nature and Parks Authority and the Ministry of Environmental Protection, consider revising the regulations regarding Quarries rehabilitation through amendment to the Mining Ordinance being promoted by the Ministry of Energy, or through some other framework. These collaborative efforts should take into account the customary practices in other countries and the need to establish regulatory provisions relating to several issues, including: the obligation to rehabilitate abandoned quarries; adding clear definitions of the terms "rehabilitation" and "rehabilitation plan," while balancing between the need to preserve natural resources and the public's needs; and providing a holistic solution for handling environmental aspects of quarries, including their rehabilitation, already at the stages of quarry licensing and work plan formulation.
- 💡 It is recommended that a government entity be assigned with an overall responsibility for managing and operating Quarries rehabilitation in Israel, including abandoned quarries that have not been declared as requiring rehabilitation.
- 💡 The Quarries Rehabilitation Fund should gather information about all abandoned quarries, including with regard to their size and their environmental data, and should retain such information in a way that will enable data processing and analysis. It is also recommended to establish a unified database with online interfaces for use by all members of the Fund.
- 💡 It is recommended that the Fund consider using advanced means during its planned new survey (such as aerial photography) in order to locate all of the abandoned quarries.
- 💡 It is recommended that the Fund and government authorities that are members of its management consider granting various incentives to local authorities that take part in rehabilitating quarries within their jurisdiction, including financial incentives, based on criteria to be defined. The Fund might consider the possibility of granting these incentives on a differential basis, based on the local authorities' socio-economic ranking.
- 💡 It is recommended that the Fund formulate guidelines for use during the preparation of an updated actuarial report, which will serve as a base for formulating a cash flow plan and for finding sources of financing for the Fund for the coming years. Accordingly, it is



recommended that the Fund formulate a budget-linked multiyear work plan in order to optimally carry out its Quarries rehabilitation activity.

**The Afik Quarry on the Golan Heights, which was rehabilitated in 2012**

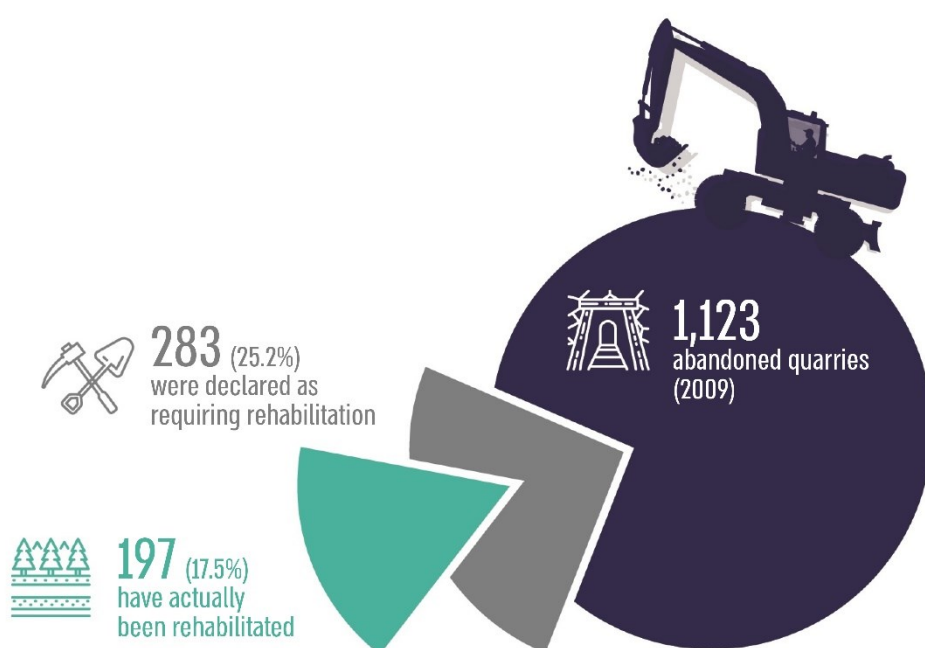


Source: The Quarry Rehabilitation Fund.





## Abandoned quarries, quarries declared as requiring rehabilitation and rehabilitated quarries



## Summary

The quarrying and mining sector is one of the important growth engines in the Israeli economy. However, this sector's activity also has significant environmental impacts, since environmental hazards that are created during their operation continue to exist even after they are closed. Consequently, Quarries rehabilitation is extremely important for various reasons, mainly in relation to environmental aspects. Although considerable efforts have been exerted to rehabilitate abandoned quarries, the handling of this matter requires improvement. It is appropriate that all authorities engaging in national and public aspects of this important environmental matter, particularly the Quarries Rehabilitation Fund and its member entities, take action to narrow the current disparity between law and practice and identify the obstacles and reasons why the vast majority of abandoned quarries have not yet been rehabilitated.



They should also take all actions necessary in order to overcome the existing obstacles in this regard, including financing issues, in order to enable the rehabilitation of the abandoned quarries – or most of them at least – thereby mitigating the environmental damage and the scenic damage that they cause.