ASBESTMINE - Utilisation of MABE Asbestos Mine as a Disposal Site for Asbestos Wastes
LIFE03 ENV/GR/000214

Project description

Background

Asbestos has been used extensively in insulation materials because of its thermal properties and endurance. But it is highly toxic and inhalation of the fibres causes asbestosis, lung cancer and mesothelioma. EU legislation has been addressing this problem since 1976 and use of white asbestos in manufacture has been banned since 2005. Environmental problems left over by the industry are severe. In Greece, a million tonnes of chrysotile (white) asbestos was produced from serpentine rock at the MABE mine, the biggest in the country, between 1982 and its closure in 2000. At the start of this project the mine, its waste-disposal area and the administrative, production and utilities buildings were all highly contaminated with asbestos fibres. Open-air measurements were 15 000 fibres per m$^3$, and two million per m$^3$ in some buildings. Nothing had been done to deal with the problem.

The abandoned open-pit mining area is only 40 km from the city of Kozani and less than 1 000 m from the Aliakmonas river and Polyfytou artificial lake - which will eventually be used to supply drinking water to the city of Thessaloniki but has been contaminated by the mine’s waste. The disposal area contains 69 million tonnes of serpentine. It is imperative that the mining area - which covers 851 000 m$^2$ with a pit 180m deep - is rehabilitated and the contamination contained.
Objectives

This project, ASBESTMINE, aimed to achieve:
- The first full-scale rehabilitation of an asbestos mine in Greece, in order to contain all the asbestos waste from the surrounding area.
- Disposal of an amount of the existing wastes.
- Assessment of the mine’s capacity to be used as a local or national disposal site for other asbestos wastes.
- Implementation of a new concept concerning management of hazardous wastes to try to show that major environmental problems can have local solutions with national impact.
- International co-operation between Greek and German partners, to ensure a state-of-the-art technical solution.
- Innovative ways of solving asbestos problems, which could be applied in similar cases in Greece and other countries.

Results

The project succeeded in demonstrating a compact methodology for collection, stabilisation, packaging and disposal of asbestos wastes, without the use of expensive equipment and with emphasis on health and safety. It points towards the possibility of full-scale rehabilitation of the project site in the medium-term.

Work began with the German partner carrying out a detailed assessment of the area and the possible technologies for use in its decontamination. Rigorous health and safety procedures were implemented, with training of personnel as a key element. Early measures were proper fencing-off of the site, erection of wind barriers and sealing of the public road with uncontaminated materials.

Contamination levels in the mine were even higher than predicted and the project team identified particular “hot spots” for immediate treatment. These included several areas of “wild burials” of asbestos – randomly abandoned open bags and lumps – in the courtyard of the old factory and its surroundings.

A site within the mine was identified as suitable for landfill disposal of the wastes after they had been made safe through solidification treatment to European standards. More than 300 tonnes of asbestos waste were successfully treated and disposed of in the pilot landfill. Tests of surface water found no significant detriment to quality.

Construction of the landfill cost €100 per m², which is considered low even compared with non-hazardous sites. Cost of solidifying the asbestos was €1,035 per tonne, considered high but which could be reduced through economies of scale.

The pilot procedure provided experience in planning and using techniques which could be implemented to ensure successful clean-up of the entire MABE area, which has a capacity of millions of tonnes. The beneficiary concludes that using the cleaned-up MABE facility would probably be the only solution for disposal of asbestos wastes from around Greece, given the limited capacity of sites abroad.

Dissemination of results has been mainly at local level, but has been important
for creating a more favourable perception of the mine’s future use as a disposal site for asbestos waste from elsewhere.

Environmental issues addressed:

Themes

Industry-Production - Mining - Quarrying
Waste - Hazardous waste
Risk management - Site rehabilitation - Decontamination

Keywords

hazardous waste, decontamination, mine, site rehabilitation

Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator
Prefecture of Kozani

Type of organisation
Local authority

Description
The beneficiary is the local authority of the Prefecture of Kozani, in Macedonia, Northern Greece.

Partners
Regional Development Agency of West Macedonia (ANKO SA), Greece Von Lieberman GmbH, Germany SPEC SA, Greece

Administrative data:

Project reference
LIFE03 ENV/GR/000214

Duration
01-OCT-2003 to 30-JUL -2007

Total budget
4,290,537.00 €

EU contribution
2,140,269.00 €
Project location
Dytiki Makedonia(Ellas) Attiki(Ellas)

Top

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**Publication: Layman report**
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Title: Layman report (EN) Year: 2007 No of pages: 10

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Top

**Project description**  **Environmental issues**  **Beneficiaries**  **Administrative data**

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