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**PRACTICAL APPLICATION OF THE UNITED NATIONS INTERNATIONAL
FRAMEWORK CLASSIFICATION FOR RESERVES/RESOURCES**

**ECONOMIC EVALUATION OF MINERAL DEPOSITS IN BULGARIA:
A TRAINING PROGRAMME TO IMPLEMENT THE PRINCIPLES OF
THE UN INTERNATIONAL FRAMEWORK CLASSIFICATION
FOR RESERVES/RESOURCES**

(Submitted by the Government of Bulgaria) */

Introduction

In the period when Bulgaria was a centrally planned economy, mining was an important branch and a prerequisite for industrialisation. It concentrated mainly on coal, uranium, manganese, copper, zinc, iron, gold and silver. In the industrial minerals sector, kaolin was an important resource.

Exploration and mining activities were centrally guided by the Government. Because there was no competition between companies, mineral deposits were developed without regard to cost comparisons on the world market. Statistics about mineral reserves in Bulgaria reflected this

*/ Prepared jointly by the Ministry of the Environment and Waters (Bulgaria); and the Federal Institute for Geosciences and Natural Resources (Germany)

situation. Mineral deposits included in the reserve base may no longer be reserves in the terms of the UN Framework Classification. On the other hand, new technologies available on the world market may require a reclassification of resources into reserves in some cases.

In mid 1998, the Bulgarian Government abolished by decree the national reserve classification scheme from 1962, which had become obsolete in the course of the transition process to a market economy. It was replaced by a scheme based on the UN Framework Classification. Evaluation procedures for mineral deposits will be oriented towards market economy principles.

Training programme

Government officials as well as company staff were not sufficiently prepared for deposit/mine evaluations under market economy conditions. This was recognised by the Bulgarian Government. A request for a training programme was forwarded to the German Ministry for Economic Cooperation by the Bulgarian Ministry of Environment and Water (MOEW). Based on this request, the German Federal Institute for Geosciences and Natural Resources (BGR) together with the consultant UEB-Uranerzbergbau-GmbH (UEB) carried out a training programme **A**Economic Evaluation of Mineral Deposits in Bulgaria@in 2000. The training programme focussed on the improvement of economic evaluation skills for a group of approximately 15 people who were representatives from different Bulgarian ministries, institutions and companies.

The objective of the training programme was defined with regard to practical needs. The 15 participants were to evaluate two or more Bulgarian mineral deposits under the guidance of several German mining experts. This would enable them to continue evaluations without assistance in the future.

The project started in January 2000 with a definition phase, including a fact finding mission to Bulgaria. BGR, UEB and MOEW agreed upon the mineral deposits to be evaluated during the training programme, the participant list and organisational issues.

In April/May 2000, a three-week-workshop **A**Introduction to Economic Evaluation of Mineral Deposits under the UN Framework Classification System@was carried out in Sofia. The workshop focused on the following topics:

- Characteristics of the UN Framework Classification in comparison to other reserve classification schemes
- Mining cost estimates and calculations in a market economic environment
- Revenue estimates on the basis of market studies
- Economic evaluations using financial models, like DCF calculations
- Consideration of environmental costs in economic evaluations

At the end of the first workshop, participants were guided to collect data on the exemplary evaluations of mineral deposits/mines to be carried out.

The second workshop in May/June 2000 focused on practical economic evaluations of mineral deposits. The copper mine Elatsite, the coal mine Bobov Dol and the marble quarry Pasarjik were used, besides other mines, as examples. During the two-week-workshop, all participants recognised the importance of market-oriented economic evaluations for mineral projects. Further, they recognised that the restrictive environmental legislation of the EU would lead mines to include environmental costs in their investment decisions. This would give environmental protection a higher degree of attention in the Bulgarian mining industry.

At the end of the second workshop, four Bulgarian participants were nominated for a supplementary training programme in Germany. They visited the Rhenish lignite mining area, including the Hambach mine, operated by UEB's shareholder Rheinbraun AG, with a daily production of approx. 200,000 t lignite. Modern environmental protection and recultivation concepts used at the Hambach mine were discussed.

Further, visits to several sites of WISMUT GmbH in East Germany were arranged. Wismut GmbH is the successor of the former East German uranium producer SDAG WISMUT, which caused enormous environmental damage between the early 1950s and 1990. Today, modern technologies are applied to relocate mine dumps, refill and recultivate open pits, etc.

The third workshop took place near Burgas (Bulgaria) in July 2000. It focused on modern environmental management practice, especially in the coal mining industry of western countries. Within two weeks, participants drew up simplified environmental protection plans for the mines used as examples in the previous workshops. Based on these plans, they estimated environmental protection and recultivation costs. These were used to determine the effect of environmental protection in the financial models used for mine evaluation.

As a result of the training programme, representatives of several Bulgarian Ministries and companies are able to apply economic evaluation methods according to the UN Framework Classification. It is foreseen that the government representatives will use their knowledge for a complete reclassification of Bulgarian mineral resources and reserves. The representatives of private companies will apply their knowledge to improve the decision making process with regard to market-economic and environmental considerations.

Thanks to the good cooperation between the German and the Bulgarian institutions, the project was very successful. Its structure may be a model for similar projects in other Central/East European countries, which are confronted with similar problems in their mining sectors.
