

**INTERNATIONAL WORKSHOP ON
MINERAL RESOURCES AND DEVELOPMENT
Kerman (Iran), JULY 1-4, 2004**

PARTICIPATING COUNTRIES: 9 (INCLUDING 8 MEMBER COUNTRIES OF NAM S&T CENTRE)

NUMBER OF PARTICIPANTS: 43

It is known that while most of the developing countries may not be technologically advanced, they are generally resource-rich. Mineral resource is an important value-creating asset for them and mining and consumption of minerals is indispensable for them to improve the quality of life. Market economy measures the world over have helped the mineral sector to achieve significant growth in the last few years. It is however a fact that these countries need help for exploitation of their resources for national development.

In this context the NAM S&T Centre with the approval of its Governing Council organized a 3-days international workshop on Mineral Resources and Development followed by a field trip to copper / iron ore mines during July 1-4, 2004 at Kerman, Iran in association with the Department of Mining Engineering of the Shahid Bahonar University of Kerman. The event was designed for exploration people, mine owners and traders, planners, decision-makers, mining industry executives, mineral industry and technology producers and the participants from several countries were able to exchange country specific information regarding mineral policies, resources and production and discuss the existing conditions of trade and technology flows amongst the developing nations, impact of regionalization and prospects for production, trade and technical cooperation.

The workshop was organized at the premises of the Department of Mining Engineering of Shahid Bahonar University of Kerman and Mrs. Safizadeh, Secretary to Prof. K. Shahriar, former Head of the Department provided valuable administrative support to the event. 43 experts and industry people from nine developing countries attended the workshop. These included 19 participants from the Office of Mines and Industry, SarCheshmeh Copper Complex (a national Iranian Copper industries company), Gol-e-Gohar Iron Ore Complex, Geological Survey and Shahid Bahonar (Kerman), Ferdowsi (Mashad) and Tarbiat Modarres, Tarbiat Moallem and Azad (all of Tehran) Universities of Iran and 9 students of Shahid Bahonar University of Kerman. 15 participants from the 8 member countries of the NAM S&T Centre were Prof. Nagui Aly Abdel-Khalek, Vice Head, Minerals Evaluation and Processing Department, Central Metallurgical Research and Development Institute (CMRDI) of Egypt; Mr. H.A. Wahab and Mr. R. K. Sharma, respectively the President and Secretary General of the Federation of Indian Mineral Industries, Mr. A.D. Baijal, Vice- President, Raw Materials and Iron Making, Tata Iron & Steel Co. Ltd., Jamshedpur, Mr. K.G. Bhoskar, Deputy Director General, Geological Survey of India, Dr. Mrs. Malti Goel, Adviser, Department of Science and Technology, Government of India, Mr. Vijendra Kumar Jain, Director, National Mineral Development Corporation Ltd., Hyderabad and Prof. G. S. Roonwal, Geology Department, Delhi University (who was also the scientific coordinator for the Workshop) from India; Mr. Husaini, Principal Researcher, R&D Centre for Mineral and Coal Technology "tekMIRA", Agency of Research and Development for Energy and Mineral Resources, Ministry of Energy and Mineral Resources of Indonesia; Mr. Kamal Daril, Principal Geologist, Minerals and Geosciences Department of Malaysia; Engr.

Muhammad Shafique Anwar, Principal Engineer, Pakistan Council of Scientific and Industrial Research (PCSIR); Mr. Mudunkotuwa Athula SMTB, Deputy Director, Geological Survey and Mines Bureau of Sri Lanka; Dr. Azimeh Khalil, Assistant Professor, Faculty of Mechanical and Electrical Engineering, University of Damascus of Syria; Mr. Chibesakunda Francis, Geologist in the Geological Survey Department of the Ministry of Mines and Mineral Development of Zambia; and Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre.

Prof. Kourosh Shahriar from the Department of Mining, Metallurgical and Petroleum Engineering, Mining, Tunneling and Rock Mechanics of Tehran Polytechnic of the Amir Kabir Technology University welcomed the delegates during the inaugural session. He was formerly the General Manager of Chancellors Office and International Affairs, Department of Mining Engineering, Faculty of Engineering at Shahid Bahonar University of Kerman and held initial negotiations with the NAM S&T Centre to organize this workshop. This was followed by brief remarks from Prof. G. S. Roonwal and Prof. A. P. Kulshreshtha. The session ended with the speech by Prof. Rahnunan, Vice-Chancellor of Research in Kerman University, who introduced the participants to the University of Kerman.

During the technical sessions the participants presented detailed status reports on various facets of mining in their respective countries. Dr. Mrs. Malti Goel presented the promotion of science and technology in Indian minerals sector. Mr. P. Soodi Shoar from the Geological Survey of Iran presented the history of exploration in Iran. Dr. Abbas Parwaresh, Mineral Economist and Technical Advisor and Consultant for Mining and Mining Industries in Iran presented the status of ~3500 mining corporations in Iran. Mr. H. A. Wahab spoke on the role of mining in economic development of a nation with particular reference to India. Mr. A. D. Bajjal presented a paper on resources, production and growth prospects of Indian iron ore. Mr. K. G. Bhoskar spoke on the status of rare metal explorations in India and its potential. Mr. V. K. Jain made a presentation on the production and prospects of Indian iron ore beyond 2005. Mr. A. Azadikhah from Gol-e-Gohar Complex made an introduction to this Iron Ore Complex. Mr. M. H. Karimpour from Ferdowsi University of Mashad made a presentation on magmatic copper deposits of Iran. Each of the participants from Egypt, Indonesia, Malaysia, Pakistan, Sri Lanka, Syria and Zambia also made their country status presentations.

The other fascinating presentations were those of Dr. S. Banisi of Kerman University, who spoke about the gaps in the university – industry relations and how to bridge these; of Prof. G. S. Roonwal, who spoke on the importance of mineral resources to modern industrial growth; and of Dr. Hojjatollah Ranjbar of Kerman University, who presented a paper on the role of remote sensing and GIS in mineral explorations.

At the end of the workshop the participants deliberated upon and unanimously adopted a NAM Mineral Resources and Mining Experts' Declaration, which is reproduced below.

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NAM Mineral Resources and Mining Experts' Declaration
Kerman, Iran, July 1-4, 2004

- Recognizing that mineral resource is an important value creating asset of a country;
- Appreciating the fact that the developing countries provide numerous world class mineral deposits of economic importance and have a potential for locating more such deposits;

- Understanding that mining and consumption of minerals is indispensable for improving the quality of life;
- Market economy measures the world over have helped the mineral sector to achieve significant growth in the last few years;
- Foreseeing the potential for accelerated growth in the mineral sector in light of growing utilization of them in producing advanced materials;

An international workshop on Mineral Resources and Development was organized by the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with the Shahid Bahonar University of Kerman (Department of Mining Engineering) at Kerman, I. R. Iran during July 1-4, 2004.

The participating countries in the workshop were Egypt, India, Indonesia, I. R. Iran, Malaysia, I. R. Pakistan, Sri Lanka, Syria and Zambia.

The workshop has been aimed at providing a forum to identify growth segments together with business and investment opportunity for the developing world in the mineral sector, highlight possible impediments to future growth and develop strategies for the promotion of this sector to accelerate economic growth, and thus contribute to improve the quality of life.

The following key issues were discussed during the workshop:

- i) The need for appropriate policy decisions to be taken and implemented on a priority basis at national and organization levels to promote, encourage and facilitate the growth of mineral sector for sustainable development.
- ii) The need for increased focus on technological up-gradation and innovation with a view to widen the resource base and product profile.
- iii) The need for comprehensive support mechanism for techno-economic information and service.
- iv) The need for developing adequate infrastructure and appropriate market strategy.
- v) The need for emphasis on the use of information technology in geological modeling and mining.

Based on the brainstorming sessions, the workshop recommends the following:

A. Appropriate Policy Decisions:

It is necessary to have a resource appraisal policy that balances short and long term compulsions.

The short-term aim calls for evaluation of product/consumption ratio and demand/supply position of various minerals to bring out thrust areas for exploration and development.

The long-term perspective calls for continuous appraisal and upgrading of knowledge about existing resources.

There is a need to improve and suitably modify the policy framework to minimize processing delays for various clearances to enable faster implementation of projects.

There is a lack of adequate communication between the mining industry, educational institutions and R&D organizations. It is thus necessary to encourage interface between universities and the mining industry.

Small-scale mining is important in terms of providing employment to the people in remote areas where the minerals occur. It should be encouraged wherever feasible.

It is necessary to adopt environment friendly practices at all stages of mining operations to minimize any adverse impacts and regenerate environment and forests to the extent possible.

B. NAM-DC Mineral Development and Mining Fund:

By themselves, mineral deposits *in situ* do not endow a nation with any tangible wealth. Investment from within the country and among the group of developing nations is a prerequisite for mining these deposits. It is necessary to:

- i) Create dedicated NAM/DC fund (like Asian Development Bank) and evolve necessary modus operandi for their utilization sponsoring various R&D projects, particularly in the areas of mineral processing and engineering.
- ii) Develop a priority base and a promotional package consisting of initiatives including fiscal incentives and tax concessions.

C. Forum on R&D for Technological Up-Gradation and Innovation:

State-of-the-art facilities available in some of the NAM member countries could be utilized by the developing countries because establishment of such facility is not only very expensive, but also requires highly skilled technical as well as scientific personnel. Recent technological advances have made unviable deposits commercially viable. Therefore synergy within the developing countries needs to be further strengthened to share expertise and encourage joint ventures.

Further, it is important to improve productive norms for minerals in optimizing resource utilization through the use of:

- Geological modeling,
- Remote sensing and GIS,
- Geophysical- geochemical investigations,
- Geo-statistical studies,
- Techno-economic assessments,
- Value addition through environment friendly advanced mineral processing techniques, and
- Increased level of mechanization to enhance the scale of mining operations.