

# Mining engineering education in developing countries: the case of Iran

In the last few decades, many developing countries have tried to expand and improve upon higher education, which is acknowledged to be the leading factor for development. In this respect, they significantly increased the number of tertiary institutions and their students. These rapid expansions, along with all the benefits, have drawbacks as well. An example is the status of mining engineering education in Iran. This paper presents the results of research carried out for the Ministry of Industries and Mines of Iran in 1999-2000.

Since the revolution of 1979, Iran has been developing a centralized higher education system. In recent years, different areas of reform have been suggested, providing incentives for public institutions to diversify sources of funding and redefine the role of government in higher education. During this time, there has been expansion of higher education institutes and a significant increase in the number of mining engineering students and graduates.

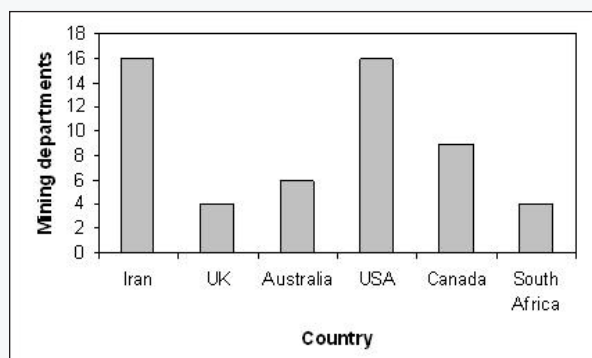
In Iran, admission to post-secondary institutions requires passing a national entrance examination; only a portion of the huge number of applicants pass this barrier. Although all Iranian universities work at full capacity, the demand for post-secondary education far exceeds availability.

Currently, the two main accredited B.Sc. level mining engineering programs in Iran are exploration and extraction. Exploration, extraction, mineral processing, rock mechanics, petroleum exploration, and exploitation are the six accredited Master's programs in mining engineering. A PhD program in mining is relatively recent in Iran, with the first graduate entering the job market after the year 2000. Currently, the mining engineering curriculum of Iran is significantly influenced by similar programs in Canada, the United States, the United Kingdom, and Australia.

For the past few decades, state-operated mines and agencies in Iran have been the main source of jobs for mining engineering graduates. Since 2000, the trend to privatization of the Iranian mining industry has been accelerated. In 1999, of the 2,436 operating mines, 2,027 were run by the private sector, excluding sand and gravel, decorative stones, and rubble stone mines. So far, most of the private mines are relatively small in size, with no full-time mining engineer in charge.

The obstacle for mining engineering education in a developing country like Iran is different from those of the industrialized world. Declines in first-year registration and the lack of funding, especially from government, are the two major pitfalls of mining education in most western countries. The consequences of these trends are the closure of some departments and layoff of faculty members and support staffs. In Iran, in spite of the recent expansion of higher education, the number of applicants far exceeds the available seats, and mining departments are still employing new faculty members.

Currently, the number of active mining engineering departments in Iran (27) is more than the sum of similar departments in Canada, Australia, the United Kingdom, and South Africa (23 altogether). Also, the annual number of mining graduates in Iran (645) is more than the cumulative graduates of the United States, Canada, the United Kingdom, and Australia (613). The country's motivation for development and the excessive number of high school graduates, which is the result of high population growth in the early 1980s, are the two prime factors influencing the significant expansion of mining engineering education in Iran.



Institutions active in mining engineering education in selected countries in 2000