Lead and Zinc Industries in World and Iran

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Zinc is a white and bright metal with a bluish gray appearance and is not found in the nature as an element. It has low toxicity and is flammable in powder form. It is used in many industries such as manufacture of kitchen utensils, some alloys such as brass and bronze and in battery production.

About 50% of the entire lead in the world is used in production of galvanized metal, 18% in brass and bronze and 13% other alloys which make about 80% of the total lead in the world. Of the remaining 20% some 9% is used in chemical products, 8% in casting industry and the remaining 3% in other industries.

Lead is a gray, soft and heavy metal. It does not catch fire and is toxic in the form of powder or vapor. It has little electric conductivity and absorbs sound waves well. Lead is used in production of storage battery (car battery), solder alloys, internal coatings of telecommunication cables and production of certain chemicals, especially tetraethyl lead (for leaded petrol).

Metal deposits of lead are mainly located in Australia and then China, Russia, Peru and Mexico which rank second to fifth. Also, the US stands in the 6th place in terms of global lead reserves. Nonetheless, China stands first in terms of lead production and Australia is next. Major lead producing countries are China and then Australia.

Among the world top ten companies which produce about 47% of the total world output of 11.5 million tons, Nayer Star of Australia with 9.2%, Korea Lead Company with 8.4% and Canada Strata with 6.2% stand in the first to third places. China alone produces about 4 million tons or 34% of the world’s total lead output.

Iran by possessing 3% of the total world reserves of lead and zinc is the fourth producer of lead and zinc concentrate in Asia after China, Kazakhstan and India. Also, in terms of lead production it stands in the fifth place in Asia. According to data released by the London Metals Market, Asia produces about 54% of the world lead followed by Europe with 23% Lead, after iron, aluminum and copper is the fourth metal that is widely used in the world.
Experts consider Iran in terms of geology and structure to be in possession of several important lead and zinc mineralization poles such as the zones in Sanandaj, Sirjan, Alborz and central Iran where large mines such as Angooran, Mehdiabad, Haft Emarat, Irankouh, etc. are located.

Lead and zinc are among industries that enjoy relative advantage in Iran but so far the government has not made vast investment in this field. At present, the considerable growth observed in the lead and zinc industries, is due to the activity of the private sector. Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO) and the company for procurement and production of mining substances in Iran have prepared the ground for the development of the private sector. They are presently preparing the huge and unique Mehdiabad mine for further development of this industry.

The high purity and structure of lead and zinc in Angooran mines (in Zanjan Province) and also volume of lead and zinc mine reserves in Mehdiabad (in Yazd Province) are unique in the world. The amount of lead and zinc reserves in Iran is about 300 million tons of iron ore of which annually an average of about 5.1 million tons are extracted. This figure constitutes about 5.2% of the world production. Currently, Iran’s lead and zinc concentrate production is approximately 700 thousand tons per year.

The production capacity of zinc ingots in the country is 450 thousand tons and lead ingots 420 thousand tons per year. The concentrate production capacity of lead and zinc in Iran is over 2 million tons of which only 35% to 40% are active because of shortage of raw materials. However, with activation of Mehdiabad mine a great part of raw material shortage in lead and zinc production industry will be removed. With regard to the rich lead and zinc reserves in Iran and the proper technical knowledge of the industry action must be taken to develop lead and zinc industries and encourage investors to invest in those industries.

In the west of Iran, especially in Zanjan, there are a large number of lead and zinc concentrate factories. On the other hand, due to the production cut at Angooran mine, the output of these units has been faced with challenges; therefore industrialists have decided to import raw materials from Turkey which has been an appropriate decision.

Of course, due to some customs and transit problems with Turkey, some difficulties have surfaced. Meanwhile, some of the Iranians active in the mine and mining industry sector by using the Iranian technical and engineering know-how and its experience in production of lead and zinc, have embarked on joint investment inside Turkey and established a factory for production of lead and zinc concentrates and ingots in that country.

As for export of lead and zinc it can be said that only 80 to 100 thousand tons of produced zinc ingots and 100 to 110 thousand tons of lead ingots are consumed domestically and the remaining are exported to target markets. This means export of 50% to 60% of the products. The target markets for export of Iran’s lead and zinc are
Asia and Europe. A significant part of the produced concentrate is also exported. There are two reasons why producers prefer to export this product in the form of raw material: 1. The need for high investment to establish ingot factory; 2. Environmental problems for receiving the required permits. This is while lead is used in different industries and with the development of downstream industries its growing application and increase in employment will be witnessed. Meanwhile, application of zinc in different industries such as galvanization and production of different alloys has doubled the importance of this metal.

The employment opportunity this metal has created in Iran is 40 thousand direct and 120 thousand indirect jobs which will triple with the growth and development of downstream industries.

As it is obvious, development of downstream industries of lead and zinc in Iran provides a proper opportunity for international investors and entrepreneurs. Considering the value added lead and zinc concentrates and ingots bring from exports, investors will make good profits and enjoy legal support of the Iranian government.

IMIDRO through development of exploration and required infrastructures needed by the mining sector and creation of special economic metal and mineral industry zones in Iran has provided favorable conditions for investors. Presence of active and interested private sector companies in lead and zinc industries of Iran who are ready for bilateral cooperation with foreign partners, is among advantages of lead and zinc industries in Iran.