

## THE MINERAL INDUSTRY OF

# ESTONIA

By Richard M. Levine

Estonia was one of the most advanced countries in pursuing market economic reform to emerge from the control of the former Soviet Union (FSU). In 1997, Estonia's gross domestic product (GDP) increased by 11.4% compared with that of 1996 (Statistical Office of Estonia, 1998, Gross domestic product by years, accessed September 18, 1998, at URL [http://www.stat.ee/wwwstat/content/I\\_S\\_KP\\_AA/1.html](http://www.stat.ee/wwwstat/content/I_S_KP_AA/1.html)). Estonia was 1 of 10 Central and East European states for which negotiations were proceeding for membership in the European Union (EU); it was the only one of the three Baltic States and the only country of the FSU being offered EU membership (Dusseldorf Handelsblatt, 1997).

Estonia's mineral industry consisted primarily of mining oil shale, peat, and industrial minerals, including clays, limestone, and sand and gravel; phosphate mining in Estonia had ceased because of environmental concerns. Minerals are used to produce a variety of products, including cement and other construction materials and fertilizers and other chemicals. In 1997, mining and quarrying accounted for only 1.7% of the country's GDP. Estonia's construction materials industry, which was based on domestic mining of clay, limestone, and sand and gravel, accounted for about 5% of industrial output; more than 45% of the output from this sector was exported. Predictions were that the construction materials industry would grow by 15% in 1998 in accordance with the development of the Estonian economy. The chemical industry, which was based primarily on the use of oil shale as a raw material, accounted for 4.2% of industrial output in 1997; Chemical industry output decreased by 5% compared with that of 1996, and development of the chemical industry depends on whether oil shale production can be maintained. In 1997, oil shale production decreased to 12.9 million metric tons (Mt) compared with 13.3 Mt in 1996 (Confederation of Estonian Employers and Industry, 1998).

Although Estonia was not a major mineral producer, it was a major transshipper of mineral products produced in Russia. Transport and storage services for minerals were a significant source of revenue. In 1997, according to Estonia's foreign trade statistics, "mineral products" and "nonprecious metals and metal products" accounted for 11.9% of the total value of exports compared with 12.5% in 1996; in 1997, they accounted for 16.3% of the total value of imports compared with 17.3% in 1996 (Bank of Estonia, 1998).

Estonia is attempting to provide better information about and assess better its mineral resources. The Geological Survey of Estonia, founded during the Soviet era, has its own library and repository of reports on geologic investigations in the country and on the status of mineral reserves. The Geological Survey has nine departments, including a laboratory, workshops, and other units,

and has offices in Tallinn, Keila, and Tartu. In addition, seven field camps are situated throughout the country. During the Soviet period, most of the maps, data bases, and reports, as well as the status of mineral reserves were classified as state secrets. Now Estonia has begun to publish geologic information, some of which had been restricted by Soviet secrecy laws, in the following series:

- M Annual of the Geological Survey of Estonia
- M State of the Groundwater (Bulletin of the Hydrogeological Department)
- M Set of Geological Maps at the Scale of 1:2, 500,000 (with explanatory notes)
- M Set of the Geological Maps at the Scale of 1:400,000 (with explanatory notes)

The Geological Survey of Estonia is also involved in joint investigations with the geological surveys of Denmark, Finland, Germany, Latvia, Lithuania, and Sweden (Geological Survey of Estonia, [Untitled], accessed January 6, 1998, at URL <http://www.gsf.fi/estonia/esthome.html>).

Estonia is engaged in an effort to clean up its environment and plans to spend 10 billion kroons to implement a cleanup program that will extend to 2010. One serious source of pollution was the burning of oil shale in Estonia's oil-shale-based electric power plant. One of the worst problems involves the Sillamae uranium processing plant where waste was emptied into a large tailings pond 20 kilometers from the Baltic Sea.

The Sillamae uranium-ore-processing plant had been processing uranium ore mined in Estonia, but uranium was mined in Estonia for only an 8-year period. Following the cessation of uranium mining in Estonia, the Sillamae plant processed imported uranium ores from Eastern European countries. The plant was apparently transformed at some point into the RAS Silmet rare-earth metals plant and began to process a range of imported ores. Heavily contaminated water was seeping through the bottom layers of the tailings pond at Sillamae into the Baltic Sea, and the gravel dam that separated the pond from the Sea was slowly shifting towards the Sea. Also, storms that generate waves were damaging the dam and furthering its shift towards the Baltic Sea. The Estonian Government was aware of these problems and seeking affordable solutions (European Union, 1997; Ida-Virumaa, March 11, 1996, Economy—Present state and potential, accessed April 28, 1998, at URL <http://www.ciesin.ee/undp/iviru/eco.html>).

Environmental protection measures were raising the cost of production at the Silmet plant. Silmet warned that high environmental taxes could force it to cut production and to lay off one-third of its workers by the end of the year. Nevertheless, Silmet was considering introducing new production technologies

to produce high-quality rare-earth metal compounds and concentrates. Silmet reported losses of 4 million kroons on a turnover of 95.5 million kroons in the first half of the year. The company hoped to break even by the end of the year. In 1996, the plant declared a loss of 57 million kroons (Baltic Business Weekly, October 27-November 2, 1997, Estonia—Enviro taxes to force Estonia to sack 1/3rd workers, accessed February 9, 1998, at URL <http://www.alkhemy.com/latv/LAT.html>).

Oil shale, Estonia's most important natural resource, has been used in industry for more than 80 years. Oil shale was produced from six underground mines and three open pits. From 80% to 85% of the oil shale produced was used for the generation of electricity with the remainder being used as a raw material for chemical production at the Kohtla-Jarve plant. Estonia produced about 30% of its domestic energy requirements owing mainly to its oil shale production but also, to a small degree, to its peat production. Emphasis was being placed on increasing peat consumption to lessen dependency on fuel imports, and the country was also seeking opportunities to export peat briquettes. In 1997, peat production increased to 1.1 Mt compared with 952,200 metric tons in 1996 (Confederation of Estonian Employers and Industry, 1998).

According to the Estonian Environmental Ministry, environmental concerns could result in the end of oil shale production within 10 to 15 years. Furthermore, Estonia's use of oil shale for the generation of electricity loomed as a major issue confronting the country's admission to the EU as the complaint can be raised that Estonia enjoys an unfair advantage from cheap but polluting electricity generation (Financial Times, 1998).

In November, the Estonian Privatization Agency endorsed a plan to privatize a number of enterprises, including Eesti Plevkivi, the Estonian oil shale mining enterprise (Summary of World Broadcasts, 1997). Also in 1997, plans called for the state-owned Estonian oil shale mining complex to lay off 900 employees, equal to one-tenth of its workforce. The workers were no longer needed owing to the introduction of new labor-saving equipment. The layoff was to involve miners and office staff and would be in addition to the 1,500 workers who had been dismissed since 1991. The company was, however, able to find new customers for its oil shale besides Estonia's power and chemical plant, with its shale also being purchased by metal manufacturers in Latvia, Lithuania, and Ukraine (Summary of World Broadcasts, 1997).

The Estonian Privatization Agency announced that Erioli Ltd. had won the tender for privatization of the chemical plant in Kohtla-Jarve that utilizes oil shale as raw material. Besides the purchase price, the Agency's decision was influenced by Erioli's business plan, which provided for future investments and planned for relations with local authorities. Erioli owned a number of fuel oil outlets under the trade name "Oil Stop," and had 10 outlets in Estonia (Baltic Business Weekly, October 27-November 2, 1997, Estonia—Kriviter chemical plant to be sold to Eriolil, accessed February 9, 1998, at URL <http://www.alkhemy.com/latv/LAT.html>).

Nevertheless, owing to the fall in reserves of shale (Estonia's main source of fuel), its low calorific value, and environmental concerns, the share of shale in the energy balance was to be cut from 64% in 1997 to between 47% and 50% by 2010, with a

simultaneous increase in the share of gas from 12% to 24% (Interfax Oil, Gas, and Coal Report, February 6-12, 1998, [Untitled], accessed March 18, 1998, at URL <http://fbis.fedworld.gov>); Tallinn TV-3 Television Network, February 18, 1998, 1720 gmt, Estonian parliament approves government energy program, accessed February 25, 1998, at URL <http://fbis.fedworld.gov>).

Estonia currently gets all its gas from Russia and is hoping that the construction of a northern gas route will present the possibility of linking up with the European gas network. The country has a chance to be involved in this system because its territory could be used for an access route to Latvia's natural gas reservoirs, which currently contain 2.5 billion cubic meters, but could hold up to 10 billion cubic meters. Estonia considers that it might be chosen for a gas pipeline route running to the storage facilities in Latvia. Estonia's gas company has completed construction of a pipeline from Rake, near Tallinn, to the Latvian reservoirs. For Estonia to link up to the northern route, a pipeline linking Tallinn to Helsinki would need to be laid on the bottom of the Baltic Sea. With connection to the northern route, Estonia not only would get an alternative source of gas, but also would become a gas transit country (Interfax Oil, Gas, and Coal Report, February 6-12, 1998, [Untitled], accessed March 18, 1998, at URL <http://fbis.fedworld.gov>); Tallinn TV-3 Television Network, February 18, 1998, 1720 gmt, Estonian parliament approves government energy program, accessed February 25, 1998, at URL <http://fbis.fedworld.gov>).

Estonia's ports are major gateways for shipments in and out of the countries of the FSU. In 1997, Estonia was experiencing an 18% to 25% growth in the volume of goods transited compared with 1996. This growth was mainly due to the rail transport of petroleum to the port of Muuga from Russia and its subsequent loading on to tankers (Estonian Economy, Estonia as a transit country, October 1977, accessed April 17, 1998, at URL <http://www.vm.ee/eng/economy/oktoober/frontsto.html>).

One of the biggest investments in the country was in construction of the new Pakterminal oil terminal at Muuga. Intended as a state-of-the-art oil terminal, Pakterminal is a 50-50 joint venture between a group of Estonian entrepreneurs and Paktank of the Netherlands. Russia is now shipping 8 million metric tons per year (Mt/yr) of oil through Muuga. Muuga, which is open all year round and located on the outskirts of Tallinn, has the deepest water of any Estonian port (Financial Times, 1998b).

Estonia was also planning to expand its role as a metals exporter. Officials from Estonia's port of Tallinna Sadam and RUMA-USA, a U.S. company that specializes in metal shipments, signed an agreement worth 1.5 billion kroons to construct a terminal to handle metals at Muuga. Tallinna Sadam's chief executive stated that construction of the terminal, which would be the biggest in the Baltic States, would start in summer 1998, and should be completed in 3 years. The terminal would be built in the port's free customs zone. RUMA-USA also signed an agreement with the Estonian Government for the right to construct the terminal. The president of the U.S. company said that his firm specialized in transporting metal from Russia and planned to raise shipments of metal through Muuga to 3 Mt/yr to 4 Mt/yr. He said that initially the terminal was to have been built at a port in St. Petersburg, but Estonia offered better terms for investment in

construction. He said that RUMA-USA was considering construction of a second terminal, also in one of the Baltic States (Interfax Mining and Metals Report, 1998b).

In another deal designed to increase metals exports, ACI Industries Ltd. of the United States was holding talks with the mayor's office in the Estonian city of Paldiski on establishing a company in the city to export Russian scrap metal. ACI, which would handle the transportation of metal to the West, would rent a 33,000-square-meter land plot from the city where it would sort, process, and pack metal for transportation. No decision had yet been made on which of the city's two ports would be used for reexports. A decision was scheduled for spring 1998, and the project then would go into operation in the summer. The project reportedly would not contradict Estonian legislation because the state-run Estonian Metal Export-Import company (EMEX) has a trade monopoly only on metals of Estonian origin and the new operation would transport metals from other countries. The Head of the Domestic Market Department at the Estonian Ministry of Economics stated that there should be no problems in the transit of Russian metal. Also, the Ministry of Economics drafted a resolution for Government consideration on abolishing EMEX's monopoly (Interfax Mining and Metals Report, 1998a).

Estonia, similar to the other Baltic States, envisages its major role as a transit country for minerals. According to the journal of the Estonian Foreign Ministry, one of the most important sectors in Estonia's economy involves the commercial transit of goods (Estonian Economy, Estonia as a transit country, October 1977, accessed April 17, 1998, at URL <http://www.vm.ee/eng/economy/oktoober/frontsto.html>). Estonia's geographic location places it between the rich natural resources of Russia and the markets of Western Europe and other regions. Estonia is also a

bridge for goods produced in Western Europe moving into the Russian market. The importance of this transit trade to Estonia is evidenced by the fact that the transportation of Russian petroleum products has grown sevenfold since 1992. The Estonian Foreign Ministry stated that Estonia provides the shortest route to the European market for the delivery of gas and petroleum from northern Russia. Growth in transit could further expand owing to the opening of a toll-free zone in Muuga (Estonian Economy, October 1977, Estonia as a transit country, accessed April 17, 1998, at URL <http://www.vm.ee/eng/economy/oktoober/frontsto.html>).

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TABLE 1  
ESTONIA: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity e/
Cement	Punane-Kunda plant	Punane-Kunda region	1,500
Limestone, for cement	Punane-Kunda deposits	do.	NA
Oil shale	Eesti Polevkivi includes seven mines, four open pits, and five beneficiation plants	Ida-Virumaa country	25,000
Peat	388 deposits under exploitation	Production in all regions of country, but major facilities in northern and southeastern part of country	6,000
Phosphate rock	Maardu (operation ceased)	Maardu	
Rare earths	RAS Silmet plant	Sillamae region	NA
Sand, for glass	Piiza deposit	Southeastern part of country	50
Sand and gravel cubic meters	Production at more than 700 deposits, largest enterprises: Silikat association exploiting Tallinn deposit	Tallinn region	2,000,000
Do.	Akhtmeskiy industrial materials complex exploiting Panyarve deposit	Panyarve region	1,500,000
Do.	Vyrukivi plant exploiting Abissaare, Koryusmyae, Pyussa-palu deposits	Southeastern part of country	1,500,000
Do.	Tartu construction materials plant exploiting Vooremyagi and Kukemetsa deposits	Tartu region	800,000

e/ Estimated. NA Not available.