

The Eppawala apatite deposit

Part - III

Continued from 28 -05 -00

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It has been observed that when scientists and others discuss the phosphate deposit in Eppawala, they give the impression that it was discovered only yesterday. The vital role of the GSD/GSMB is apparently ignored.

The latest report on the Eppawala deposit is by a team of scientists appointed by the Minister of Science and Technology. They recommend a detailed survey of the area, that the ore should last for 200 years, and that single super phosphate is the most suitable for local agriculture and fresh tenders should be called.

The official position of the Department of Agriculture is as follows:

1. Single super phosphate if manufactured has to be tested in the field continuously for 2-4 seasons before a conclusive recommendation is made.

2. The price factor in SSP to be produced has to be evaluated for its successful use and sustainable production.

3. Single super phosphate with 16 units of nutrient is not used in Sri Lanka. TSP with 46 units is used. (Note that DAP with 64 units of nutrients has become the major source of phosphate to world farmers).

The committee citing a New Zealand proposal also mentions that the total investment of a production facility to manufacture SSP is 20 million USD with a pay back period for the investment of only 2.5 years. One does not need to be an economic expert to understand the impracticality of paying back an investment of 20 million USD in only 2 1/2 years! They further say: "There will be some slight adverse social effects of implementing this project, but these will be well outweighed by the advantages" note, that they do not speak of the spread of any cancer and encephalitis in this case of development. At this stage it would be interesting to examine some of the statements made by our scientists.

Spread of cancer

Concerning the spread of cancer there is very little to nil radio-active mineral within the Eppawala deposit. The deposit has been mined over the past 2 decades and no one has complained about the spread of cancer. The only radio-active mineral in Sri Lanka worth mentioning is monazite found in appreciable amounts in the beach sands at Induruwa. The Pulmoddai beach sands are almost devoid of monazite. There have been no cases of cancer reported by the monazite separating plant which was in operation at Kalutara run by the Geological Survey for over 2 decades.

The spread of encephalitis, if there is going to be any, will be looked after by laws enforced by the GSMD and CEA. How about the ancient tanks in the area. We have had no problems with the spread of encephalitis.

Mention of often made that there would be a large crater left after mining operations. Around 15 million tons of rock could be mined at Eppawala from the various hillocks to bring them down to average ground level. This operation would be very similar to the mining operations at Aruwakkalu Hill where limestone is mined for operation of the Puttalam cement factory. Over the past 2 decades approximately 750,000tpa of limestone has been mined to operate the factory. In 1997 the limestone production of Aruwakkalu quarry was 900,600 tons. Over 15 million tons of rock have been mined up-to-date and no crater has been created. The hillocks have been brought down to ground level. This tonnage 900,000 tpa will be the same tonnage which would be mined at Eppawala in the event of a large joint venture. Of the 25 million tons required, 15m tons could be mined from the various hillocks bringing them to ground level, the remaining 10 million tons could be recovered within an area of 1 sq. kilometre or 240 acres of land mined to a depth of 30 feet. The frequent mention of 56 sq. km. mining area is incorrect. It is only the exploration area. The actual mining area would be within around 2 sq.km. or less once the hillock are mined to ground level. It must be remembered that no mining company will mine one kg. of earth more than is necessary for obvious economic reasons. Anyway, the specific mining plan will be known only after the feasibility study, which is yet to be launched.

Depletion of deposit

Then comes the question of the depletion of the deposit in 25 - 30 years time. The proved reserve is 25 million tons. The total deposit lies within an area of 7 sq. km. Total reserves (possible, probable and proved) would be over 60 million tons. One must also remember that apatite has been identified at Kavisigamuwa in the Kurunegala District and at Seruwila in the Trincomalee District. The deposit at Seruwila is a fluorapatite without chlorine and is a superior deposit compared to the Eppawala one. If a large joint venture is proposed, it would consume around 25 million tons at the maximum, leaving another 35 million tons after the lapse of 25 years. Thereafter if 150,000 tons of apatite are consumed to operate a factory for local use the deposit would last 233 years. The world's total potential resources of phosphate rock amount to 108 billion tons and the annual production is around 150 million tons per annum (Fertecon USA). There need not be any worry or panic concerning world phosphate

resources as new reserves are being added to this base annually.

Mention is also made that the Eppawala town will disappear. The mining area would be nowhere near the town. Concerning damage to the Jaya Ganga, it is emphasised that no company will be allowed to interfere with this channel. Laws framed by Sri Lanka require a set-back area along the channel in which no mining can occur. The safety of the Jaya Ganga and other water bodies are very well looked after and no one need panic concerning this matter. In fact, the old Jaya Ganga now replaced by the new channel comes no where near the probable mining area.

Lastly, the suggestion which mentions the dumping of the apatite in the Muthurajawala peat deposit to increase the solubility is an impractical one and need not be considered any further. Anyone reading this article would now understand that the statements made by our scientists who have yet to prove demonstrated hands down expertise in the field of full scale exploration, feasibility, mining and mine development, have misled planners and politicians and the general public specially those at Eppawala.

Let us now consider the options left for the government to consider the development of this resource. There are only 2 options as follows:

1. The resource could be developed on a large scale for the production of MAP, DAP and TSP with foreign collaboration where the technology is available including export markets of the finished products. A joint venture with IMC Agrico would be desirable because they possess the technology developed in the 1980's to utilise the resource without any high grading selecting mining. Large multi-national organisations are at an advantage to handle projects of this nature as they have the capacity including the technology to face any environmental problem which they may envisage. Most importantly, they have ready market access for all the products.

2. The development of the resource on a small scale around 100-150,000 tons of water soluble phosphate per annum. The production of single super phosphate is suggested by our scientists.

Although the demand for SSP in world markets is very limited no final decision has been taken as to the suitability of SSP for Sri Lanka. At present TSP is used in Sri Lanka. However, due to the nature of the resource a joint venture with a technological input is the answer after a decision is taken as to the suitability of SSP for Sri Lanka which needs careful consideration bearing in mind its very low exportability.

The most important criterion for a patentable invention is that it must be useful, in other words one which could be transferred into operation. Even in Sri Lanka there are some scientists who claim patent rights for production processes.

These are obtained after tests on a laboratory scale. Laboratory equipment is seldom designed to take full scale samples and generally never reproduce actual plant conditions. It is internationally accepted that a patented production process should therefore go through a pilot plant test and thereafter production tests in an operating plant before a final decision is given as to whether such a process could be successfully translated into an industry. The government should therefore not be misled by scientists who claim patent rights for production processes.

Very few scientists in Sri Lanka have had the opportunity of working in very large multinational industrial organizations for considerable periods. Those who have had this rare experience are the ones who understand what industry is all about. They are the ones who have a feel for it, and are in a better position to voice opinions on various aspects of industrial development. What is required now is to make use of this valuable mineral resource with vision and a pragmatic approach and not allow the Eppawala phosphate deposit to continue to remain a geological curiosity.

Modern mining and processing methods have become so capital intensive that few of the developing countries can expect to bring a sizeable

project into operation on their own. Therefore, the interdependence of the developed and developing countries is real and will grow. Foreign participation for joint ventures on our mineral deposits is the only answer to enter into international markets.

The mineral industry differs from other productive sectors because of its well known capital intensive characteristic, long lead time, high risk factor and based on a commodity which is nonrenewable. Technology is undoubtedly one of the prime motive forces of development. While dependence on foreign technology may be inevitable in the process of economic diversification and better returns from min-

erals, the building up of national capabilities is essential. The import of foreign technology should therefore be viewed essentially as springboard to self-sustaining development. Mining ranks among the worlds most destructive industries (World Watch 1993). Each year mining strips some 28 billion tons of materials from the earth. No mining lease is now granted to any party without a proper mining plan including an environmental management plan approved and enforced by statutory authorities. In Sri Lanka the new Mines and Minerals Act No. 33 of 1992 and the regulations framed under this Act have provided for a sustainable development of our mineral resources in harmony with the environment. The public are not aware of these facts. Matters become worse when our own scientists make incorrect and unsound statements.

Twenty-eight years have lapsed after the discovery of the deposit and I hope this article will throw some light on the true nature of the deposit and I am certain that the public will now realize that foreign collaboration is desirable for the overall development of the deposit which will create, *inter alia*, thousands of jobs and upliftment of infrastructure and living standards in the area.

Concluded