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# Case Study 3 Lynas Advanced Materials Plant

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**Abstract:** This case study illustrates the issues regarding Lynas Advanced Material Plant. The Lynas Corporation Ltd of Australia first looked at China before settling on Pahang, Malaysia to establish its rare earth processing plant. Rare earth is a slightly radioactive material. Despite reassurances by the company and the State and Federal governments that the Lynas Advanced Material Plant is not dangerous to the employees and the community, some NGOs and the public are still skeptical. They say the benefits derived from investment may not outweigh the risks. The case presents a balanced perspective on both the benefits and risks of this project.

## INTRODUCTION

Lynas Corporation Ltd of Australia is building a rare earth processing plant called Lynas Advanced Materials Plant (LAMP) which is currently under construction at Gebeng in Pahang Malaysia. The company had proposed that raw materials (lanthanide ores) from Western Australia be processed into purified lanthanides, one of the rare earth groups. Rare earths are crucial for production of high-tech goods from fiber-optic cables to smart phones and electric cars.

The Malaysian government has appointed a panel of experts to review the safety aspects of the project. The International Atomic Energy Agency (IAEA) has been asked by the Government to appoint an expert panel for a second opinion on the issues raised. [1] There are reasons behind the Government's decision on letting Lynas to proceed further with the project. Though the government insists that the project will definitely bring advantages, it is the disadvantages that worries the citizens of the country. The concerns are over the storage and further safety of this radioactive material that will be processed in the factory; it this aspect of the business that fuelled protests in Malaysia.

## LYNAS CORPORATION LTD

Lynas Corporation Ltd was founded in 1983 by a company with the name of Yilgangi Gold NL which saw a name change to Lynas in 1985. It is an Australian rare earth

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mining company. It was publicly listed on the Australia Securities Exchange, (ASX) in 1986 and is now an ASX 100 company. Lynas holds to the strategy of being a reliable, fully integrated source of rare earths from the mine, all the way to market. Lynas has also set its eyes on becoming the benchmark for environmental standards as well as ensuring a secure supply in the global rare earths industry. [2]

Lynas Corporation Ltd has two major operations which are in mining and a concentration plant at Mount Weld, Western Australia and a refining facility now taking shape in Pahang, Malaysia. Mount Weld in Western Australia has the richest known deposit of rare earths in the world, while the state-of-the art rare earths processing plant called the Lynas Advanced Materials Plant (LAMP) is currently under construction in Gebeng Malaysia. The production at Mount Weld is intended to be sold directly to other countries for further refining, as well as to serve as feed stock for the company's facilities in Malaysia.

## WHY LYNAS CHOSE MALAYSIA

According to Nicholas Curtis, Lynas Executive Chairman, in an interview with *The Malaysian Insider* last April, Lynas Corporation Ltd initially considered China as a place to build LAMP. It was because China provides good technologies and offers low processing costs. But later, while negotiations were underway, China stated that it would impose rare earth export quotas. Lynas asked for permission to bring their concentrated material into China and re-export it and be exempted from quotas but China denied the request. [3] LAMP is a global business which offers a material that is high in value. As a result, Lynas focused on the most efficient cost and began to seek the most pragmatic places to process and refine the material. They searched around the globe for a place with the best combination of circumstances and this search culminated in Malaysia being chosen.

Malaysia has a good platform with industrial capacity based on gas and oil fuel. The energy, water, chemicals and gas are a lot cheaper in Malaysia compared to other places specially Australia. LAMP is being built in Gebeng Malaysia for several reasons. There are other major chemical corporations based in the vicinity such as Polyplastics Asia Pacific, BASF-PETRONAS, Petronas CUF, Petronas Centralized Emergency Facilities and the PDH Plant. Gebeng has industrial infrastructure including industrial land. Also, Gebeng has easy access to sources of gas, water and electricity and facilities to obtain re-agents from local suppliers.

The Gebeng Industrial Estate offers an excellent chemical and petrochemical manufacturing facility for investors. The Gebeng bypass eases traffic flow from the industrial estate to Kuantan Port. It links Kuala Lumpur and Kuantan directly through the East Coast Highway. This route provides a cost effective and convenient means of transportation. It makes it a lot easier for investors as it allows more efficient transfer of freight and raw materials locally as well as for international channels. [4]

The area where the plant is being built also offers much knowledge infrastructure, such as technical and trade skills and chemical industry experience. The government

infrastructure is in place and provides accountable and reliable regulators and clear legal frameworks. Malaysia has the clearest set of regulations compared to other countries. Additionally, the Malaysian government also offers good foreign investment incentives. Furthermore, as stated by Curtis in a video interview posted in Lynas Malaysia channel in YouTube, Malaysia has a very well trained workforce in the chemical industry. [5] This will bring great benefits to Lynas as they need a professional workforce. Further, Curtis also stated that Malaysia has a solid and rapidly growing industrial economy.

## HOW WILL MALAYSIA BENEFIT?

Lynas's RM700 million plant, Lynas's Advance Materials Plant, (LAMP) is said to be the world's largest rare earths processing plant. It is scheduled to start operations in September 2011 with strong backing from the Malaysia government. Malaysia will stand to benefit in several ways. First, the project will contribute towards increasing Malaysia's gross domestic product (GDP). It is reported that the plant may generate up to 1% of the nation's GDP. [3]

In a video interview posted in YouTube by Lynas Malaysia, Lynas' Executive Vice President Matthew James stated that Lynas will pour an initial AUS350 million (RM 1.1 billion) into the first phase of LAMP before an ongoing investment of AUS 10 million per annum. Furthermore, the business ecosystem and multiplier effect of this investment is equivalent to a generation of about AUS1.3 billion worth of turnover in the region applying a tenfold multiplier effect. [6] The plant will also offer job opportunities in Malaysia as it is said that 99% of those employed will be local. LAMP will require some 350 skilled workers and this includes senior leadership positions. Malaysia after all has a well trained work force in the chemical and mineral industry.

James also stated that the current move is for advanced chemical companies to locate or co-locate around a stable, long-term, secure, safe supply of rare earths. There are also companies that have shown their interest from the beginning. [6] This means there is already interest from customers with regard to this aspect. It shows that the market for processed rare earth is a growing market and this will definitely benefit Malaysia. More importantly, the building of the plant at Gebeng will bring in new knowledge, information and technology into Malaysia. The project is well known for its advanced technology and this will give an opportunity for Malaysians to learn both the advantages and disadvantages of rare earths processing. This consequently should help educate society and lead to the growth of the industry. This is very crucial to Malaysia as we are a growing and developing country.

## DISADVANTAGES FOR MALAYSIA

Lynas Advanced Materials Plant in Gebeng is a place where imported rare earth ores mined from Mount Weld in Australia are to be processed. The miners in Australia will source the radioactive ore which produces the precious element before shipping it to Kuantan. Rare earths, a group of 17 elements which are placed at the bottom of the

periodic table, are not radioactive themselves. However, every rare earth ore deposit around the world contains, in varying concentrations, a slightly radioactive element called thorium. [7] The finished products of the rare earth will be exported overseas by Lynas whereas the management of radioactive waste is still in question.

Since the beginning, public disclosures from the Malaysian government and Lynas have been sparse and contradictory. Lynas's executive chairman Nicholas Curtis claims that they have permission from the government to store the waste on site forever. On the other hand, Atomic Energy Licensing Board (AELB) director general, Datuk Raja Abdul Aziz, refuted this by saying that the plant can only store waste temporarily. From press statements, it can be deduced that the waste management aspect has not been finalized yet. The Australian government also flatly rejected calls and refused to take back Lyna's radioactive waste.

This is bad news for Malaysia. If the waste is to be stored in Malaysia, it might have possible negative effects on the residents and endanger the environment. Exposure to such radioactive material is hazardous. Radiation can cause or trigger cancer in humans in the long term even though it may take decades for the cancer to appear. That is not all; radiation can also damage living things, animals included, at a cellular and genetic level. Radiation can cause severe cellular damage in seeds which sometimes prevent them from sprouting and germinating, thus affecting the ability of plants to reproduce. [8] According to Datuk Raja Aziz, Lynas' waste is safe enough to be scattered everywhere if Lynas can keep the thorium level in its waste to 1,600 parts per million [9]. However, no matter how small the radiation is, it still involves a possible risk to human beings and the environment . Furthermore, critics have questioned the real economic benefit of the project despite reports that the plant may generate up to 1% of national GDP, citing the 12-year tax holiday Lynas is set to get as a pioneer status company. [3] It appears to be somewhat of a disadvantage to Malaysia as the government will not get tax from Lynas for a long period.

The government on its side had engaged the International Atomic Energy Agency (IAEA) to study the Lynas processes and potential outputs and by-products. The report from the IAEA seems to indicate that the company's processes, products and byproducts will be harmless to humans and the environment. Still, some quarters are not happy with Lynas being located close to the villages in Gebeng, Kuantan. The anti-Lynas group rejected the IAEA report as not credible.

## CONCLUSION

LAMP indeed brings advantages and benefits to Malaysia. However, the health and public safety of the citizens is much more important. Not only will those who live around the area be affected, but other citizens' lives are also endangered as radiation has no barrier. We should learn our lesson from the radiation disaster of the Asian Rare Earth (ARE) which was located in Bukit Merah. Even though ARE was finally closed in 1992, the area is currently still undergoing a massive RM303 million cleanup. This is such an unnecessary loss as the incident could have been prevented earlier. The

government should have instead placed greater focus on public engagement, environment impact studies and public safety guarantees. It is also very important to know exactly how Lynas plans its waste disposal management especially since LAMP is located close to human habitation. Is this project of any value to Malaysia?

## DISCUSSION QUESTIONS

1 What factors should a company like Lynas consider when locating its operations abroad? Why?

2 What factors should the local authorities like the Kuantan City Council, the State government and the Federal government consider before approving the license to a company like Lynas to operate? Why?

3 Were the objections by the NGO's and local population justified with regard to Lynas operations in Kuantan? Why?

4 If you were the CEO of Lynas (LAMP), what would you do to overcome the objections and protests by the local population?

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