

Concerns of the Quarry Industry

The quarry industry is integral to the construction industry. Its growth is in tandem with the growth of the Malaysian economy and the construction sector. The raw materials from a quarry are needed, among others, to make concrete, to build roads and as fill material in civil engineering and building works.

Currently, one of the main issues that is affecting the industry is the impact of quarry activities on the environment as well as the surrounding residential areas. Undoubtedly, the need for environmental management has become more urgent than before. **Jurutera** seeks the opinion of Haji Mustapha bin Mohd. Lip, Deputy Director General of Corporate and Mineral Economics in the Minerals and Geoscience Department of Malaysia (JMG), on these issues.



Haji Mustapha bin Mohd. Lip, Deputy Director General of Corporate and Mineral Economics in the Minerals and Geoscience Department of Malaysia

One of the issues the industry is currently facing is the tightening of operational conditions of quarries as a result of encroaching development. What are your comments on this?

This is the main concern of quarries at the moment especially in the states of Selangor, Johor and Pulau Pinang which has many ongoing developments. In the past, this was not really an issue as development in most parts of the country was still in its infancy, and most of these quarries were far away from residential areas and out of

sight from the public. However, as we made rapid economic progress and the population began to grow, many housing developments and townships have had to expand and grow. This expansion has caused many residential areas to be built near quarries.

As a result, people are now realising that some of these quarries are almost literally at their door step. The public has a right to clean air and they should not have to put up with noise pollution and environmental pollution. So when they encounter such problems, it is not surprising that they start complaining about quarry operations.

With regards to the environment, the Environmental Quality Act 1974 (EQA) sets the standards on environmental protection and pollution control. This law and its regulations are being enforced by the Department of Environment. Beside the EQA, some states namely, Selangor, Perak, Kelantan, Pahang and Terengganu have also adopted Quarry Rules which focus more on operational safety plus pollution control and occupational health and safety. JMG is responsible for enforcing these Quarry Rules.

At the moment, JMG is conducting a research on a project in Bukit Lagong, Sungai Buloh, which has six quarries in operation producing about 600,000 tonnes of aggregate a month. Due to the proximity of the nearest residential area, issues of noise, dust and safety definitely exists. We are currently conducting a baseline study examining the noise, dust, erosion, social impact and traffic condition.

With data from the study, we hope to find suitable and practicable mitigating measures to reduce the impact on the environment and to

Table 1: Number of quarries and aggregate production for 2006

State	No. of quarries	Aggregate production ('000 tonnes)
Johor	31	5,401,914
Kedah	16	3,232,802
Kelantan	12	2,431,202
Melaka	7	1,098,225
Negeri Sembilan	17	7,088,677
Pahang	22	3,205,807
Perak	55	11,591,967
Perlis	2	818,788
Pulau Pinang	14	3,759,584
Sabah	62	4,248,023
Sarawak	37	6,998,174
Selangor	31	25,515,070
Terengganu	15	4,522,449
Total	321	79,909,681

Source: The Minerals and Geoscience Department of Malaysia

improve the quality of life for the residents nearby. In fact, as the nation develops further, we are going to face the same problems all over the country.

The government has launched many mega development projects in recent months. Is the quarry industry able to meet the rise in demand for raw material?

There are currently 321 quarries in operation in Malaysia with a total production of about 80 million tonnes as of end 2006 (refer to Table 1). Generally, it is estimated that the supply from these quarries is more than enough to meet the demands, except in a few states. Since 1994, the JMG has carried out a study on Quarry Resource Planning for Perak, Selangor, Negeri Sembilan, Johor, Pahang, Terengganu, Kelantan, Sabah and Sarawak.

One of the components of the study is to identify the present reserve of the quarries versus present demand based on production to gauge the life of these quarries. Our objective is to have a sufficient supply of quarry products for the next 50 to 100 years. In fact, we found that many of the major quarries have a lifespan of 50 years or more. Should there be an insufficient supply of raw materials, we will recommend new sources to ensure that the supply of aggregates can last for about 100 years.



Some of the quarry operations in Malaysia.

Some parties have claimed that the industry is lacking in experts because the subject is not taught at the tertiary level. What are your comments and how can we improve this?

If you are referring specifically to engineers trained in quarrying, it is true that there are currently no universities in Malaysia which is teaching that specific subject. The closest is the School of Materials and Mineral Resources Engineering in Universiti Sains Malaysia (USM) which is focusing on mineral processing and mining which is suited to

quarry activities. I believe that, academic wise, USM is able to produce graduates that can work in the quarry industry.

On the other hand, some universities in the United Kingdom do offer specific courses on quarrying. However, in Malaysia, we do not really need an institution just to teach subjects on quarrying as the demand for this is not big enough. The biggest problem for the quarry industry now is in hiring trained personnel as not many people would like to work in a quarry due to the nature of the work environment. Besides being exposed to the elements, many of these personnel feel that there is not much incentive to work in a quarry.

At present, the Institute of Quarrying Malaysia (IQM) is offering a few courses related to the quarry industry. In addition, they will also be offering a course on environmental management next year. These courses are, in fact, tailored for industry personnel. In reality, there are already many experts in the quarry industry especially experts in quarry operations, crushing, management and blasting, and many of these experts learn from experience. Our task is to get these experts to impart their knowledge and experience on the younger group of people who will eventually takeover. Thus the focus should be more of on-the-job training rather than academic.

How does the local quarry industry fare compared to quarries in developed countries?

Operationally, many of our quarries are at par compared to quarries in developed countries. The large volume produced by our quarries is comparable with international standards. However, we are slightly behind in terms of environmental management and pollution control. This is partly due to the lack of belief that there is a necessity for it, the substantial cost involved and also the lack of technical expertise. This is an area that the JMG wants to enhance in the quarry industry. Compared to many other Southeast Asian countries, we are much better off.

Every year, the JMG will have a dialogue with the industry to inform them of the latest legal requirements and to understand their problems. The department is presently conducting some

studies in Bukit Lagong to find various techniques to mitigate the pollution problems that exist there. We are also conducting occupational safety and health courses together with the industry.

Some of our efforts have paid off based on previous experience in regards to rock blasting. Prior to 1994/1995, rock blasting activities created many problems such as flyrocks, vibration and noise. Together with the help of the industry, the department has taken steps to conduct rock blasting courses. Since then, we have seen many improvements. The problems and complaints on the impact on rock blasting have reduced tremendously.

Using that approach, we are now concentrating on two other issues, namely, the environment, and health and safety. Hopefully, in the next couple of years, the industry will improve a lot more. Our approach now is towards education and awareness.

How can the quarry operators minimise the impact of quarry operations on the public and the environment?

In regards to this issue, cost is certainly a major concern. Such efforts will require some form of funds and, for that, quarry operations need to be profitable either by being more efficient or with a price increase. I believe that with the current development in the country, the demand for aggregates is quite strong so quarry operators should be able to get decent profits. With these additional profits, they can invest in measures to bring down the noise and dust problems in and around their quarries.

Secondly, with more enforcement, and efforts in education and awareness, the operators will begin to realise the importance of minimising the impact of quarry operations on the environment. I have suggested that since many of these companies are big companies or public listed, they could take this opportunity to improve their corporate social responsibility (CSR). Since CSR is now a trend in Malaysia, I am sure these companies are able to allocate enough funds to undertake mitigating measures on their operations. Presently, most of the CSR activities of these companies are usually limited to public donations and charities. However, I would like to change that

mindset and encourage the quarry industry to be more involved in efforts to minimise impacts on the environment.

In Bukit Lagong, the nearest residential area from the quarry operation is only 10m away. Just imagine the amount of dust and noise that the families who are staying there have had to endure. We have studied the data from the Bukit Lagong study and discovered ways to reduce the impact of the quarry operations there on the environment. For example, we have provided suggestions to the operator to reduce the dust problem by installing water sprinklers at the plant, using special binders on the road and even something as simple as washing the tyres on the lorries.

We also recommended that they improve the landscaping and plant more trees around the quarries which will act as a buffer against the noise as well as dust. With the outcome of this study, we hope to use it as a showcase for the industry to show how they can alleviate dust and noise problems generally as well as to mitigate environmental impacts.

To maintain the delicate balance between quarry operations and the need for more housing developments can be very tricky. On one hand, we require the rocks from these quarries which are limited in resources. On the other hand, we also need development. In a situation where there are houses and quarries situated next to each other, we urgently need to take proactive measures so that two can exist together.

There have been many occasions that the JMG has recommended that a particular land is too close to a quarry and should not be approved for housing. However, these recommendations are often been disregarded and approval given to develop the land. Some buyers are even misled by developers who promised them that when their properties are ready, the adjacent quarry will be closed down. In the case of Bukit Lagong, this is not possible as almost half of the rock supply from Selangor originates from there. The quarry produces about 8 million tonnes per year which is 42% of

Selangor's requirement. If its operations were stopped, where would Selangor get its supply from? This is one area where integrated land use planning is lacking in such decision making.

The long term solution to this issue is to create a buffer zone against the noise and dust being emitted by the quarry. We will complete the Bukit Lagong baseline studies next year and will start implementing some of the mitigating measures. We have stationed many dust gauges around the housing estate and the quarries which will measure the dust levels. We encourage the quarry operators to plant some trees to lower the noise and dust pollution. I also recommended that the quarry operator conduct courses for lorry drivers to create an awareness on road safety issues. If this study becomes a success, we intend to use the same model for other quarries which are facing the same situation in Johor, Pulau Pinang and Kelantan. If we do not address these issues now, the development of new areas will just create the same problems. ■