



## **TITLE OF RESEARCH**

### **ASSESSMENT OF NATURAL RESOURCES SUSTAINABILITY IN MALAYSIA : CASE STUDY OF FORESTS, MINERALS AND LAND**

#### **FRGS Field**

Pure Science & Applied Science

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## **ABSTRACT**

This study examines the development of forests, minerals and land resources and its relationship to economic, social and environmental issues, with respect to space and time. The research focuses on the case study of 'Hutan Simpan Bukit Lagong' (HSBL) which has aborigine communities and various economic activities that contribute to the national income. The primary product is rock aggregates from six quarries concentrated in that area. There are several issues that may cause conflict in the future. Among them, is the suitability of HSBL, which is the main aggregate resource for Selangor that has been categorized as a highly sensitive environmental area and restricted for development. The function, value and ecosystem health of the area needs to be maintained and preserved. In addition, the aborigine community has not benefited from the development of quarries. The quarries have also given rise to negative social and environmental impacts, particularly in regard to biodiversity.

## **1. INTRODUCTION**

The project was funded by Ministry of High Education and Universiti Kebangsaan Malaysia (UKM-XX-01-FRGS007-2006). The project was approved in 2006 and ended on 31 Disember 2008. The project has 3 main objectives. First, to develop linkages between the development of resources and environmental issues. Second, to evaluate the inconsistent change of development of resources by way of space and time. Third, to identify key factors that propelled such changes.

## **2. RESEARCH METHODOLOGY**

The study has enabled data collection on the current status of natural resources and environmental issues in 'Hutan Simpan Bukit Lagong', Selangor (HSBL). The primary data was gathered through field work; and the secondary data was gained through previous work on the development of resources at the study area. The data was acquired from related agencies. In addition, mapping was done to record the change of pattern of the usage of all resources available at the study area. Comparative studies were done locally and internationally, where related. On the aspect of socio-economy, the research conducted a survey to obtain qualitative and quantitative data. Data collected include respondents' gender, age, number of household occupants, salary and total household income as well as the main income source for the aborigine community in 'Hutan Simpan Bukit Lagong'.

### **3. LITERATURE REVIEW**

Malaysia is a tropical country rich with its own natural resources. Minerals, land and forests are among its natural resources and these are inter-related. The resources are the basis for economic and social development of the country. However, development of these resources have made an impact on the environment, and Malaysia together with other Asian countries are facing many challenges. Quarry activities are the most important industry in the country as it supplies rock aggregates to the construction industry. The main source of rock aggregates in Malaysia are granite, and partly limestone and sand. Quarry activities have a direct impact on the environment as well as the biodiversity of the forest reserve. Forest fragmentation (Abdullah 2003), poor air quality and river sedimentation (Yusuf dan Nordin, 2001) are some of the environmental problems closely related to the development of these resources. Farming, urbanisation and infrastructure improvement are some of the proximate causes that lead to these problems. The main factors may differ from place to place and depend on the level of economic and social development of the areas. It is important to clearly understand the relationship between these factors and the environmental issues. Therefore, quantitative data that supports the correlation between the proximate causes and environmental issues is needed in order to ensure that the planning and development of resources are ideally executed.

In general, the aborigine community maintains a primitive lifestyle, an economic pattern that is motivated by self-employment and day-to-day source of income, less or no involvement in politics and missing out on the many aspects of development of life in general. These characteristics are still prevalent to the present day (Ramle Abdullah, 1993), (Syamsul Amri Baharuddin, 1972), (Baharun Azhar, 1972) and (Gomes, 1987).

### **4. FINDINGS**

There are 19 quarries operating in the forest reserves (covered area) in Malaysia i.e. Selangor (Seven), Perak (four), Perlis (three), Kelantan (one) and Johor (one). In Selangor, six quarries are operating at Hutang Simpan Bukit Lagong and one at Hutan Simpan Ulu Langat. Based on statistics for year 2001, quarries in forest reserves have produced 7.92 million tones of aggregate worth RM79.11 million (JMG 2002).

Hutan Simpan Bukit Lagor (HSBL), situated in Selangor is 11 km north-west of Kuala Lumpur with a land size of 3,624.1 hectares. It is one of the productive forests that brings in logging and quarry revenues to the Selangor state government. However, not all areas in HSBL are categorized as productive as part of the forest area has been earmarked for tourism. The three agencies responsible for managing and maintaining the forest reserve area are Pejabat Hutan Daerah Rawang (Hulu Selangor), Pejabat Hutan Daerah Selangor Tengah and Institut Penyelidikan Perhutanan Malaysia (FRIM). The function of HSBL are as productive forest, which has produced wood (3,964 hectares) and granite (341 hectares). HSBL also functions as 'Hutan Lipur' (259 hectares), 'Hutan Simpan', 'Hutan Dara' (160 hectares – compartment 15) and 'Hutan Penyelidikan' (897 hectares). The area is also part of the FRIM Research

Centre, which is situated at the north. The recreation part of the forest which is not inclusive of the Research Centre. In addition to being a productive jungle full of flora and fauna, HSBL serves as the dwelling for a Selangor aborigine community at 'Kampung Orang Asli Bukit Lagong'. The land size of the dwelling is around 20 hectares. There are 24 families from the Temuan tribe. The total population is not more than 100 people.

There are six quarries at HSBL, which is on a 341 hectares of land and 6% from the total area of HSBL. The licensed quarry operators at HSBL are Terang Industries Sdn. Bhd., Mahir Sempurna Sdn. Bhd., Permodal Nasional Sdn. Bhd., Perkuat Kuari Sdn. Bhd., Layar Generasi (M) Sdn. Bhd, and Rajang Perkasa Sdn. Bhd. The quarries at HSBL occupies compartment 8, 9 and part of compartment 10 only. Diagram 2.4 shows the map of Hutan Simpan Bukit Lagong. About 91% of the aborigine community depends on jungle resources for survival. They are highly dependant on forest resources such as forest plants, 'petai', tapioca and 'pucuk ubi' as their source of food. Some even go into forest farming to support their daily needs planting tapioca trees and vegetables. These are sold at the market as a source of income. About 91% of the aborigine community sell non-edible food, which is obtained from the forest such as, 'kayu gaharu', palm coconut shoots, herbs etc. as a source of income. Black colour wood is more expensive compared to yellow colour wood, which is sold at RM8.00 per kilogram. The search for 'kayu gaharu' has been the main occupation of the people and the product is sold once a week. Previously, bamboo and rattan were sold but these are no longer available now.

As a whole, the income earned by the aborigines is around RM2500 per month. However according to the villagers, 'kayu gaharu' is depleting due to urbanization and development activities such as logging. They are now focusing on production of latex which can give them a good income. The economic activities of the aborigine community in the study area has contributed to meet their daily needs even though they are still practicing traditional activities.

## **5. CONCLUSION**

The research has collated data on the current status relating to development of minerals and forest resources at Bukit Lagong, Selangor. The data is important as a basis in evaluating and monitoring the conservation and development of resources. The relationship between development of resources and their drivers is useful in the formulation of basic guidelines and policies related to resource development in Selangor. From the perspective of LESTARI, synthesis of this research is important to support the cross-sectoral and sectoral programs.

The results show that 'Hutan Simpan Bukit Lagong' (HSBL) is a production forest inhabited by flora and fauna as well as placement for indigenous people. The main product is rock aggregates from 6 concentrated quarries in that area. There are some issues that can cause conflict in future. Among them, are the suitability of HSBL as the main aggregate resource for Selangor as that area is a highly sensitive environment area and may be restricted for development in the future. The overall value and ecosystem function of the area needs to be

maintained and conserved. In addition, the indigenous community has obtained limited benefit from the quarries' production. This aspect should be looked into carefully.

## **ACHIEVEMENT**

### i) Articles/manuscripts/books :

Manuscripts for book entitled "**Trade-Offs In Environment and Development**" to be published by UKM publishers are :

- a. Assessment Approaches for Trade-Offs In Environment and Development.
- b. Social and Economic Profile, Livelihood and Indigenous People.
- c. Ecosystem Services
- d. Ecotourism and Sustainability

### ii) Paper presentations (international/ local) :

- a. Presentation at National Geoscience Conference: Poster on Quarrying and Biodiversity at 'Hutan Simpan Bukit Lagong'. (8 June 2007)
- b. Mineral Security Workshop on "Material Security and Waste Management For Industrialised Building Systems " (6 Mac 2008)
- c. Hutan Simpan Lagong Case Study Workshop ( 6 November 2008)

### iii) Human Capital Development

In terms of human capital development, masters candidate was funded by this project. The work is expected to end in 2009. Two undergraduate students (registered at FSSK, under the supervision of Dr. Er Ah Choy) also did the final year dissertation in this project. In addition, the project employed two research assistants.

### iv) Others

This study has produced a technical final report entitled " Assessment of Natural Resources Sustainability in Malaysia : Case Study of Forests, Minerals and Land.

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