ONSHORE 2D SEISMIC DATA ACQUISITION ENVIRONMENTAL STUDY. INFLUENCE ON CROPS, SOIL FERTILITY, AND AQUIFER

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ABSTRACT

Performing onshore 2D seismic campaign in Indonesia is not easy, due to complex social issues. Damage claims, local employment issues and the local community's conviction that 2D seismic data acquisition will exert a negative effect and decrease crop yield, or give rise to aquifer damage. Among these problems, any study related to the actual impact of activities on crop rates is hard to find. Bunga Mas International Company and BPMIGAS thus appointed Sriwijaya University to perform a scientific study to define environment impact of such activities on crop yields. The duration of the study was 10 months, covering two sampling areas. Each area represented varied types of plantations. Lubuk LayangUlu village was represented by a rubber plantation, and Karang Rejo village was represented by a coffee plantation. Both villages are located in Lahat Regency, South Sumatra Province. The scope of the studies covered vibration, aquifer layer measurement, soil fertility and plant response (coffee and rubber). The study result shows that there was in fact no change or effect on crop yields, aquifer layer or soil fertility, and no damage was noted from shooting activities. The result of this study can be a reference for other oil and gas companies who will perform onshore 2D Seismic Data Acquisition within communities and plantation areas. The community that was covered by 2D seismic data acquisition lines can work now as usual without any worry about their crop yields. This study emphasizes Bunga Mas International Company's and BPMIGAS' strong commitment to minimize negative impact on the environment and to maintain a good relationship with the community within its operational area.

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INTRODUCTION

Environmental concerns at every stage of an oil and gas exploration campaign is a strong commitment of Bunga Mas International Company. As a part of its exploration campaign, a 2D Seismic campaign is important to identify signs of potential oil and gas reserves. BMIC performed 2D Seismic data acquisition crossing 30 villages and 8 districts, a along 300 km stretch, with varied land typology and vegetation. While doing onshore 2D Seismic, environmental aspects are to be considered and mitigated accordingly. BMIC, beyond UKL UPL management in the monitoring matrix, is eager to further ascertain any possible impact of 2D Seismic activity on rubber and coffee crop production, along with any other aspect related to this issue. The duration of this study to identify impact was 10 months, extending from February – November 2011; it was performed by the Agriculture Faculty, Sriwijaya University. One of the reasons this study was launched is because it's very rare to find a similar type of study to predict environment impact on the rubber and coffee crop production anywhere in the world.

METHODS

As an environment study, there are some parameters to be monitored and quantified to ascertain potential impact on soil fertility, plant growth and aquifer.

Vibration and Aquifer

Vibration measurement caused by dynamite as a vibration source was monitored on site. The measurement tools were a Vibrationmeter, consisting of 2 devices, i.e. a geophone and unit data logger, which can convert electrical pulses to Peak Particle

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