



## Impact of ONGCL drilling operation on soil contents of Sola reserve forest of Sivasagar district, Assam

MANJIT GOGOI

### ABSTRACT

Soil samples were collected from disturbed site near GGS-II and undisturbed sites of Sola reserve forest. The different parameters of soil like pH, oil content available N, P, K, exchangeable  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  were analyzed. The soil samples were collected from six different locations in the vicinity of Sola reserve forest area. It has been noticed that soils are sandy to clay loamy having pH ranges from 4.2 – 4.7, water holding capacity 50-60% Organic carbon 0.9- 2.06 % and NPK 190.85 – 441.31 Kg/ha and exchangeable bases 0.51 -0.71 mol/kg respectively.

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**Key words :** Drilling operation, Soil content, Sivasagar district

### INTRODUCTION

Sivasagar District of Assam situated in the northeast biogeographical region of India comprised of three sub-divisions viz., Sivasagar, Nazria, and Charaideo. The geo-coordinate of Sivasagar is 26°59'8" North latitude and 94°38'13" East longitude. The geographical area of the District is 2,668 sq.kms. Major part of the district is covered with alluvial soil. Temperature ranges from 10°C–33°C. Average annual rainfall is more than 1600 mm. and average relative humidity is above 85%.

Soil plays an important role in the plants life, which acts as fundamental base for the growth and development, it is the primary base for production of food for human being and animals. Soil health is the basic factor for the better production of food and fodder. But due to anthropogenic activities soil is becoming the source of many pollutants as pesticides, fertilizers, particulate matter, for power plant, drilling operation of ONGCL and smoke etc. Soil pollution can defined as the contamination of soil system by considerable quantities of chemicals or other substances which are responsible for the degrade soil quality and reduce soil fertility. With respect to the qualitative and quantitative yield of the crops (Dara, 1993) soil environment thus deteriorated due to various

causes.

ONGCL is one of the best employment generating heavy industry of North Eastern region of India and assist in different socio-economic aspect of the area. In different localities of upper Assam searching of petroleum product is a common phenomena of ONGCL and operation is taking place in wide areas of this region. The environmental problem associated with the oil production arises various activities. During oil exploration like drilling, transportation refining and group gathering of Gas etc. During the exploration particular area and its surrounding environment gets contaminated in a verity of ways. Mud, drill cuttings and various chemicals that are used during drilling and production operations besides emissions from gas flames. Thus, sources of pollutants exert their harmful effects on the natural vegetation, cultivated crops and aquatic life (Borthakur, 1995).

Lakowa oil-field area is situated at 50 km away from Sivasagar town. Drilling operation and storage has been carried out over the years in Sola reserve forest areas Contamination of soil with crude petroleum, which is a mixture of complex aromatic component by leaching is a common phenomenon and it is a matter of serious concern

### Correspondence to :

MANJIT GOGOI, Department of Botany Gargaon College Simaluguri, SIVASAGAR (ASSAM) INDIA  
Email: drshahajaz@gmail.com