


Chapter 12

Soil Quality of Tripura State of India: Sustainable Environment

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ABSTRACT

Soil quality can be defined as the fitness of a specific kind of soil to function within its capacity and within natural or managed ecosystem boundaries to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. Soil is one of the common factors that bring all agriculture together. It can also be used to describe more complex soil characteristics such as soil organic matter, nutrient amounts, soil structure, etc. The soil quality of Tripura state where ONGC has established numerous exploratory and development wells for exploration of natural gas has been studied and presented in this chapter.

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BACKGROUND

Agriculture is the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surplus that nurtured the development of civilization. Modern agronomy, plant breeding, agrochemicals such as pesticides and fertilizers, and technological developments have in many cases sharply increased yields from cultivation, but at the same time have caused widespread ecological damage and negative human health effects.

Being a North Eastern state of India, The climate of Tripura is influenced by its location which displays characteristics that are typical of the hilly and mountainous region. The change in the topographical features of the region also causes a change in the climatic conditions in Tripura. Tripura records a low average temperature of 10 degree Celsius in the winter season which rises to a maximum average of 35 degree Celsius in the summer. The altitude of the state also influences the climatic conditions of Tripura state. The state of Tripura influences a monsoonal climate with the well demarcated sub-tropical and temperate zones. The climate along with the other factors of the terrain and the soil are suitable conditions for horticulture in the state of Tripura. The horticultural sector is dependent on the seasonal rainfall that dominates the seasons of Tripura. The state is also enjoying four distinguishable seasons. The winter prevails from the month of December to February. The months of March and April witness the pre-monsoon season. The longest season of the state is the monsoon season that continues between the months of May to September. Tripura receives maximum rainfall in the month of June. The state records an average annual rainfall of 2100 mm. Kamalpur in Tripura receives the maximum amount of rainfall of 2855 mm while Sonamura receives the lowest average of 1811 mm.

INTRODUCTION

The major geomorphic element observed in Tripura is north-south running parallel hill regions and intervening valleys. The hills are tightly folded anticlines with broad synclinal valleys. Geologically, the area is occupied by the folded sedimentary formations ranging in age from lower Tertiary to Recent. In Tripura, the loamy soil type facilitates the percolation and infiltration of water from the surface into the ground water regime. Moreover, presence of sand stone facilitates the movement of water under the ground as well and acts as storage of water. It indicates that soil profile and nature of the bedrock helps runoff water to move into the ground water regime from recharge zone. In the state of Tripura, the ground water occurs in shallow aquifers under unconfined and semi – confined to confined conditions.

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