RESEARCH NOTE IV

SUSTAINABLE MANAGEMENT AND EUCALYPTUS PLANTATION IN SIKKIM

Microclimatic of Sikkim is unique and varies due to altitudinal gradients. In Sikkim, the growth of *Eucalyptus* plant found suitable in the low hills of Sikkim as witnessed by the century old trees at the riverine and tropical belts of Sikkim. *Eucalyptus* is the exotic species of Sikkim and introduced most likely during the twenty century. The low hills of Eastern and Southern districts of Sikkim are the suitable places for its healthy growth, mostly under water stress condition.
Presently, Eucalyptus plants found mostly in Eastern part of Sikkim and some other isolated places of Sikkim. It has been observed that the growth of *Eucalyptus* found fast and healthy. *Eucalyptus* plant is used for the timber, paper, oil extraction and some medicinal purposes. The leaves yield 1.0 to 1.2% essential oil that is used in soap, perfumery, pharmaceutical, cosmetic industry and in the manufacture of citranellal, citranellol and hydroxyl citranellal. The wood can be used as mine props, railway sleepers, paper/pulp industry and as fuel. (Atal and Kapur, 1977; Gonzalez *et al.*, 1993)
Having said that socio-economic role of *Eucalyptus* in Sikkim is not so profound and the plant has not been commercially exploited yet. Unless Eucalyptus at the farm and core forestry in some measurable quantities found, the commercial scope is limited. Thus, Eucalyptus is the suitable and essential plant for the inclusion in the core Working Plan of Sikkim Forestry, which might add way to sustainable development.

Table 1: Field Remarks of Eucalyptus Plantation in Sikkim

Area/ Forest Range	Type of Plantation	Remarks
Rongli Range	Avenue Plantation	Healthy, disease free
Pakyong Range , Rangpo Range	Avenue Plantation	Healthy, disease free
Melli Range, Jorethang Range	Avenue Plantation	Healthy, disease free
Gangtok Range	Avenue Plantation	Stunted growth. Very few. Low yield

Even though, Eucalyptus plantation is not a natural forest nor is an agricultural crop of Sikkim, it allows a greater amount of water to reach the soil than other species. (Gras, 1993). So, it can be a plant of Crop Diversification Programme under water stress condition in Sikkim. The plantation of Eucalyptus in low hill forest is good for soil binding, soil health and commercial use that could fetch good market of timber at the stipulated time (SFME, 2009). However, the monoculture Eucalyptus plantation should be rule out. In hilly area, *Eucalyptus* Plantation could be undertaken having plant to plant distance of 100 feet. It helps to grow other trees and has no plant dominance. On the contrary,

Eucalyptus is fire prone plant, therefore, the plantation of Eucalyptus should not perform at fire prone areas.

Eventually, Eucalyptus plants could be included for the future demands of timber and other raw materials, provided no encouragement for monoculture practice. Moreover, *Eucalyptus* plantation is suitable for the degraded land or bare terrains that protects soil erosion caused by rainwater and regulates the flow of water. Eucalyptus does not degrade soil fertility. So, the inclusion of Eucalyptus in low hills areas of Sikkim at the barren land or unproductive land would be a laudable step.

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