

A Review :

## Soil resources inventory and geographical information system for land evaluation

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The regional approach mostly used in agricultural development planning had not received the sufficient attention in the past. There are several factors like land degradation, loss of bio-diversity, global warming, ozone depletion etc., which are jeopardizing our food security system. In view of such issues, it has now become imperative that we should have a systematic survey and inventory of our soil resource for ascertaining their potential and problems and also their evaluation for optimum land use to increase the food production and sustainability of the system. Soil resource inventory is very helpful in ascertaining potentials and problems, which has impact on sustainable food production. GIS is the powerful tool to input, storage and retrieval, manipulation and analysis, and output of spatial and attributable data which is useful in land evaluation. Hence, the location specific needs of various regions of the country are needed to be given thorough attention to meet the demands of growing population with proper land use planning.

Use of land to human kind is multi-facet. As a source of production, it serves as a store house of water and nutrients and provides environment required for plants and other living organisms. Proper land use is essential to obtain the maximum benefit which includes conservation of soil and water resources and growing of suitable crops. Land as a resource cannot be measured by the surface area alone; hence it is the type of soil, underlying geology, topography, hydrology and plants which are critical for productivity. These attributes limit extent of land available for various purposes. The increasing population requires more space, food, fuel and other

resources. There are several factors like land degradation, loss of bio-diversity, global warming, ozone depletion etc., which are jeopardizing our food security system.

separately subjected to Duncan's multiple range test (DMRT) at 5 per cent probability under MSTAT-C programme.

The regional approach mostly used in agricultural development planning had not received the attention in the past four decades and, therefore, the location specific needs of various regions of the country remain neglected (Kadrekar, 1993). Hence unless we know the soil distribution, resources and their dynamic situation it is increasingly difficult to practice scientific agriculture. All our recommendations in agricultural production should be soil oriented. Therefore, an attempt has been made to review importance of soil resource inventory and GIS for land evaluation to tackle the ever increasing pressure on soils.

### *Soil survey and mapping:*

For methodology of soil survey and mapping, the principles and guidelines as prescribed in the soil survey manual (Soil Survey Staff, 1966) of USDA and the soil survey manual of All India Soil Survey and Land use organization are widely used under Indian conditions. The criteria used for mapping soils largely depend on the purpose and scale of mapping, land form and soil characteristics (Sehgal, 1987). Bali (1985) summarized different kinds and intensities of soil survey and different levels of abstractions.

### *Soil classification:*

Soil classification is to organize the knowledge about soils in such a way that their properties are clearly conceived and