

structures, etc are to be used for identification of different landforms/geomorphic units. Lithology, drainage and contour maps are considered while preparing the geomorphology map.

For the present study area IRS P6 LISS-IV July 2010 satellite imagery and SOI Toposheets 1:25,000 scales have been used to map various geomorphic features in order to delineate groundwater potential zones in the area. Based on the interpretation of the satellite imagery and SOI Toposheets the following hydro-geomorphic units have been delineated on 1:25,000 scale.

The geomorphic units occurred in the study area are described **Moderately Dissected plateau (MDP)** unit is mostly seen in the central part of area covering 1229 ha. and the groundwater prospects in this unit are poor to moderate. **Moderately thick lateritic plateau (MLP)** mapping unit occupies an area of 341 ha of the total study area.

Structural valley (SV) unit is mostly seen along the major streams in the study area covering an area about 382ha.

6.5 Ground water prospects map

Groundwater is the only reliable source for irrigation in the study area. The area experience recurrent drought conditions and acute shortage of even for drinking purpose. Shallow dug wells, which tap weathered zone, with transmissivity, but they are limited in number. The groundwater prospects in the moderately dissected plateau in the study area are poor to moderate.

Ground water prospects based on the integration of the thematic layers name the, lithology, geological structures, geomorphic units and ground water recharge conditions final ground water prospects map has been prepared indicating the ground water potential zones in the study area.

Table 1: Ground water prospects

Mapping Symbol	Hydro geomorphic Units	Litho-Stratigraphy	Structure	Description	Ground water prospects
SV	Structural valley	Basalts	Associated with Fractures/Lineaments	The valley portions of basalts weathered to a considerable depth and associated with fractures /lineaments.	Moderate to good. Good yields are expected along Fractures/Lineaments.
MDP	Moderately dissected plateau	Basalts	-do-	Shallow valleys/Gullies with gentle sloping land developed due to stream erosion on plateau.	Poor to moderate.
MLP	Moderately thick lateritic plateau	Laterites as capping over basalts	- do-	Elevated flat land with moderately thick lateritic Plateau.	Moderate. Ground water occurs mainly in the weathered and fractured zones of basalts.

In this present study area covers the 382 ha in moderate to good, 341 ha in moderate and 1231 ha in poor to moderate unit occupies an area of the study area.

6.4 Soil

Soil is a major component of land system which provides a medium for plant growth. The potentials and limitations of a soil for sustained use under agriculture, horticulture, silvipasture and forestry as well as its response to irrigation and other management practices are controlled by its inherent qualities and characteristics. The quality of the soil is a function of its morphological, morphometric, physical and chemical characteristics. These characteristics are expressed a taxonomic class as depicted on soil map with locational reference. Soil mapping of the region is intended to serve as a crucial input for preparing an integrated plan for sustainable development of the area. Soil surveys provide desired information on nature, location, extent and physio-chemical characteristics along with their spatial distribution.

The specific objectives of the soil mapping are Identification, characterization and classification of the soils of the area, Generation of derivative maps and Land evaluation for food/cash and horticultural crops.

Soil map is showing distribution of soil types and/or soil properties (soil pH, textures, organic matter, depths of horizons etc.) in the area of interest. It is typically the end result of a soil survey inventory, i.e. soil survey. Soil maps are most commonly used for land evaluation, spatial planning, agricultural extension, environmental protection and similar projects. Traditional soil maps typically show only general distribution of soils, accompanied by the soil survey report. Many new soil maps are derived using digital soil mapping techniques. Such maps are typically richer in context and show higher spatial detail than the traditional soil maps. Soil maps produced using (geo) statistical techniques also include an estimate of the model uncertainty. In the study area, Red Loamy soils predominate with coverage of 67% of the villages of the Mandal. The Soils are poor textured and easily drained. Sandy loamy soils come next with 33% of the villages of the Mandal.

6.7 Land Capability Classification

The knowledge of land capability classification is pre-requisite and important for planning, implementation & execution of the work of soil and water conservation programmes. Land capability classification is a systematic classification of different kinds of land according to those properties which determine the ability of the land to produce

