Land and Soil Survey of North-east Border of Dholpur District Rajasthan

Dr. Seema Verma

Abstract

The soil and vegetation of Rajasthan varies with its wide-ranging topography of arid plains or parched regions, hilly tracts of the Aravalli, the flood prone plains of eastern Rajasthan and the oldest range of fold mountains- Aravalli Hills. The focus of this paper is to find the geographical survey of the soil of Dholpur to estimate its suitability for agriculture purpose.

Keywords: Dholpur; soil; vegetation; human development

INTRODUCTION

In Rajasthan state, the type of soil and vegetation vary with the availability of water. Mostly sandy, saline, alkaline and chalky (calcareous) types of soil are available. Clay, loamy, black lava soil and nitrogenous soils are also found in this region. Interestingly, some evidence testifies that Rajasthan was once filled with lush green vegetation and had numerous streamlets running through the land. But those days have elapsed and presently a major portion of Rajasthan is desiccated. This is due to the continuous soil erosion and the recurrence of droughts. The sandy soil has very less capacity to store water. Thus, a study on soil characteristics is essential to analyze the suitability of the soil of the Rajasthan for agriculture practices and present and future vegetation perspectives. Here, in this paper, Dholpur district, situated in north eastern portion of Rajasthan is considered for study.

STUDY AREA

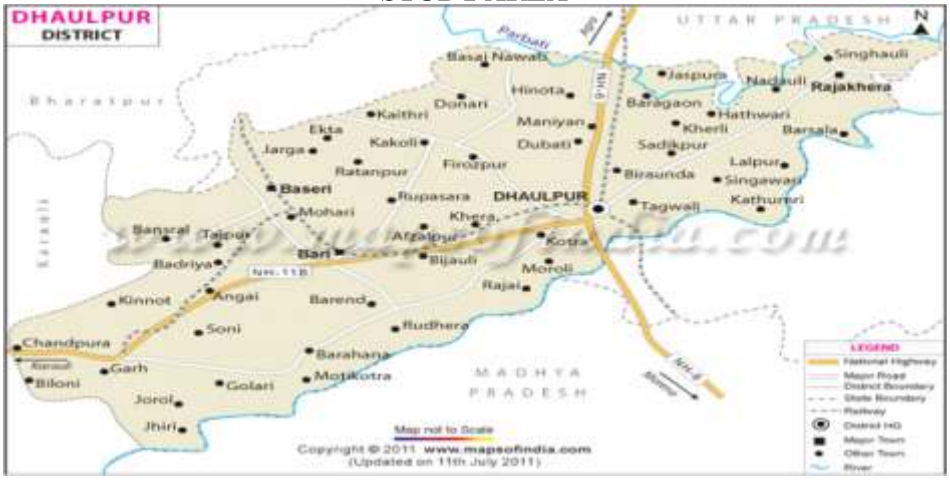

Figure1. Map of study area.

Dholpur is said to have derived its name from Dhaulendra or Dhawalpuri Kasbah names after King Dholan or Dhaval Dev. The area was ruled by Jat princes, who supported the Rajputs against the various muslim invaders who rules the country. Dholpur was then ruled in succession by Sikandar Lodhi, Babur, Humayun and the Scindias, and ultimately, the British. The district is situated in North-East border of Rajasthan state in western India. The town of Dholpur is the district headquarters. Dholpur district lies between $26^0 12'$ to $26^0 57'$ north latitude and $77^0 14'$ to $78^0 15'$ eastern longitude, comprising an area of 3034 sq km (Fig. 1). The district is bounded by the state of Uttar Pradesh on the East and North-East, by Bharatpur district of Rajasthan on the northwest, and Karauli district of Rajasthan on the West. The Chambal river forms the southern boundary of the district, across which lies the state of Madhya Pradesh. All along the bank of the Chambal river the district is deeply intersected by ravines; low ranges of hills in the western portion of the district supply quarries of fine-grained and easily worked red sandstone. However, study area is rocky and rich in minerals and also has many mines and quarries. Both Rajakhera and Dholpur, in parts of which the Chambal flows, have comparatively plain topography and a good soil base for agriculture.

The District Human Development Profile of Dholpur is jointly facilitated by UNDP and the Planning Commission as part of the main streaming of the human development approach through the project on Strengthening State Plans for Human Development in Rajasthan. This profile comprehensively discusses the three dimensions of human development viz., livelihoods, status of education and the health status at the sub district level of Dholpur. The district has many geographical variation and each tehsil has its own characteristics- both social and physical. Bari and Baseri are both Meena dominated areas, where the Dang area towards the South–West is dominated by Gujars.

The stony, rocky soil is covered by sparse, dry shrubs and trees like *ber*. Amongst the aromatic plants, the most important produce of the district is *khus*. The other trees commonly found here are *dhok, kair* and *kher*. Over 19.4 percent of the area is barren and unculturable and another 5.4 per cent of the area is under non-agricultural use. The land use pattern for the year 2004-05 is given in Table I. With over 50 per cent of its area under agriculture, and a cropping intensity of 137. Grasses and species like P. cineraria grow in the regions where little water is available. However, food crops are grown in the plains that are drained by the rivers and streamlets owing to the alluvial and clay soil deposits. The hilly tracts of the Aravalli are characterized by the black, lava soils that sustain the growth of cotton and sugarcane.

The soil types of Dholpur and their percentage are as follows:

Major soils - percent (%) of total land

1. Deep black clay - 1.66

2. Medium black clay - 1.68

3. Deep brown loamy - 67.44

4. Medium brown loamy - 23.14

5. Red gravelly loamy hill – 6.09

Dholpur district has an interesting mix of agriculture and non-farm sector as both contribute equally to the domestic economy. Where on one hand the soil is fertile, the severe water shortages have retarded the growth of farm sector, as evident from the small land holdings and area under cropping.

The ground water level is very low due to over-exploitation and limited erratic rainfall averaging 360mm per year. Water level is available only at a depth of 30 to 61m. People with basic occupation agriculture utilize groundwater for farming, domestic and for drinking purpose. The problems of groundwater quality are much more acute in the study area, which is densely populated, thickly industrialized, excess use of pesticides and fertilizers in rural area and shallow ground water tablets (Canter, 1987; Camargo and Alonso, 2006: Chouhan and Flora, 2010; Arif et al., 2012). The rapid growth of urban areas has further affected groundwater quality due to overexploitation of resources and improper waste disposal practices. Hence there is always a need for concern over the protection and management of groundwater quality.

Table I. Classification of Land Utilization in Dholpur District.

LAND UTILIZATION	HECTARES	PERCENT
Reporting area for land utilization Purpose	300905	100
Forest	27059	8.99
Not available for cultivation		
1. Area under non-agricultural use	16362	5.44
2. Barren and unculturable land	58463	19.43
Other uncultivated land		
1. Permanent Pasture and other grazing land	17872	5.94
2. Land under miscellaneous tree crops & groves	467	0.16
Land Excluding Fallow Lands		
1. Culturable Waste Land	11754	3.91
Fallow Lands		
I. Fallow Lands other than Current Fallow	10553	3.51
II. Current Fallow	7455	2.48
Net area sown	150920	50.16
Total cropped area	206246	68.54
Area sown more than once	55326	18.39

Source: Statistical Abstract of Rajasthan, 2005

Thus, there is need for water saving crops in study area. Barley could also be promoted. Horticultural crops are another option. Soil conservation is also largely required in the district. Vegetable growing should also be promoted as Agra is the nearest big town with demand.

Department of Geography
University of Rajasthan, Jaipur-302004

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