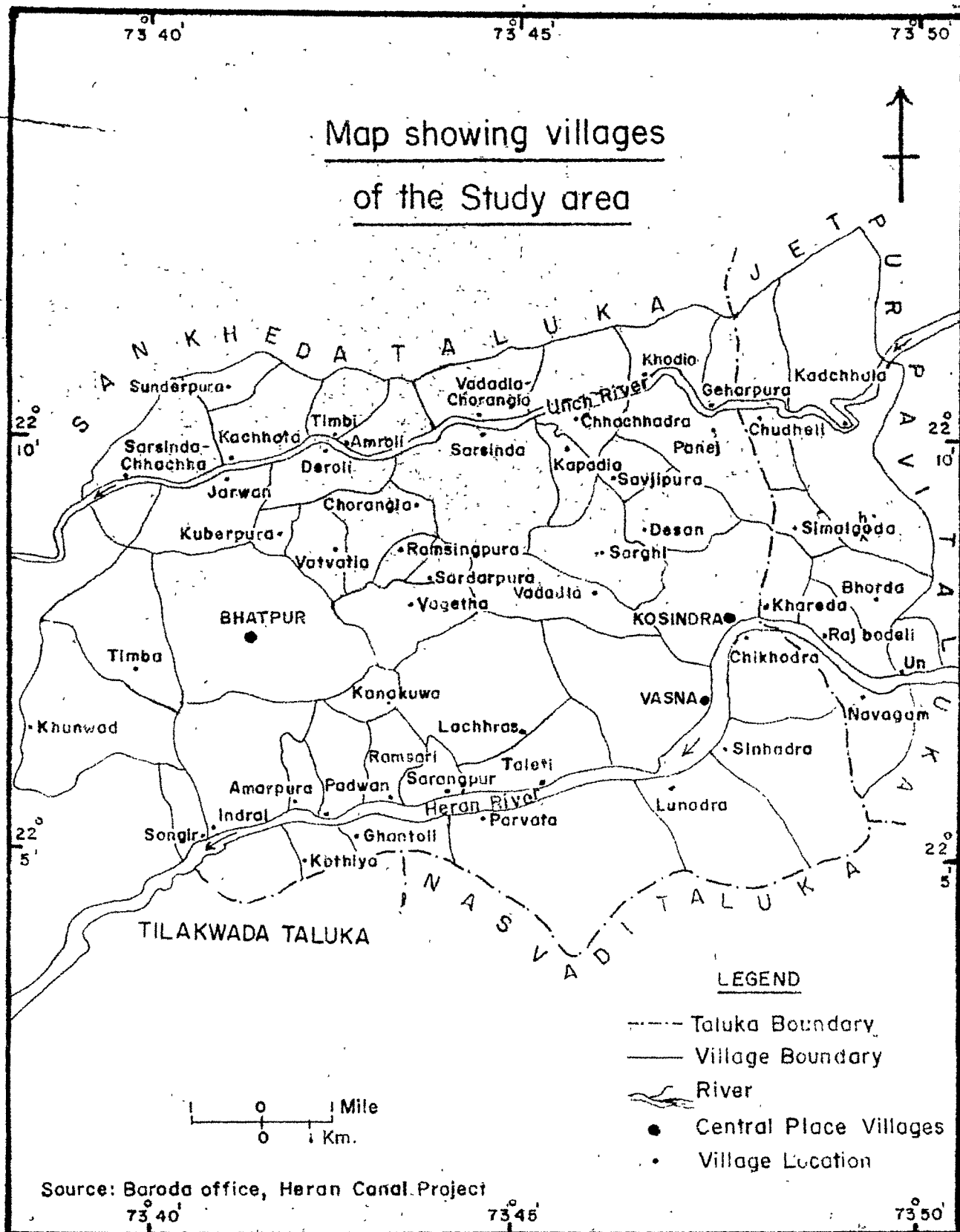


CHAPTER : IPHYSICAL FEATURES :Location :

The area selected for study which is also referred to as 'region' forms parts of the Sankheda and Jetpur-Pavi talukas of Baroda District of Gujarat State. It covers an area of 22076.89 hectares (52 villages) of which 18313.84 hectares (83.02 percent part of study area) are in Sankheda Taluka (44 villages) and 3763.05 hectares (16.98 percent part of study area) are in Jetpur-Pavi Taluka (8 villages) or it forms 25.47 percent of Sankheda taluka and 4.70 percent of Jetpur-Pavi taluka. It lies between latitude of 22° 4' north to 22° 11' north and longitude of 73° 38' east to 73° 51' east. It is drained by the river Heron in the south and the Unch river in the north (Map 1).

TABLE I Area of the study region:

	Area in hectares	% to the Guj.St.	% to the Brd. Dist.	% to the Sankheda Taluka	% to the Jetpur-Pavi Taluka	% to the Study area
Gujarat State	19,599,400.00	-	-	-	-	-
Baroda Dist.	778,800.00	3.97	-	-	-	-
Sankheda Taluka	72,260.21	0.36	9.27	-	-	-
Jetpur-Pavi Taluka	79,933.22	0.40	10.26	-	-	-
Study area in Sankheda Taluka (44 revenue villages)	18,313.84	0.09	2.36	25.47	-	83.02
Study area in Jetpur- Pavi taluka (8 rev.vill)	3,763.05	0.02	0.48	-	4.70	16.98
Total study area (52 rev. villages)	22,076.89	0.11	2.84	-	-	-



Physiography :¹

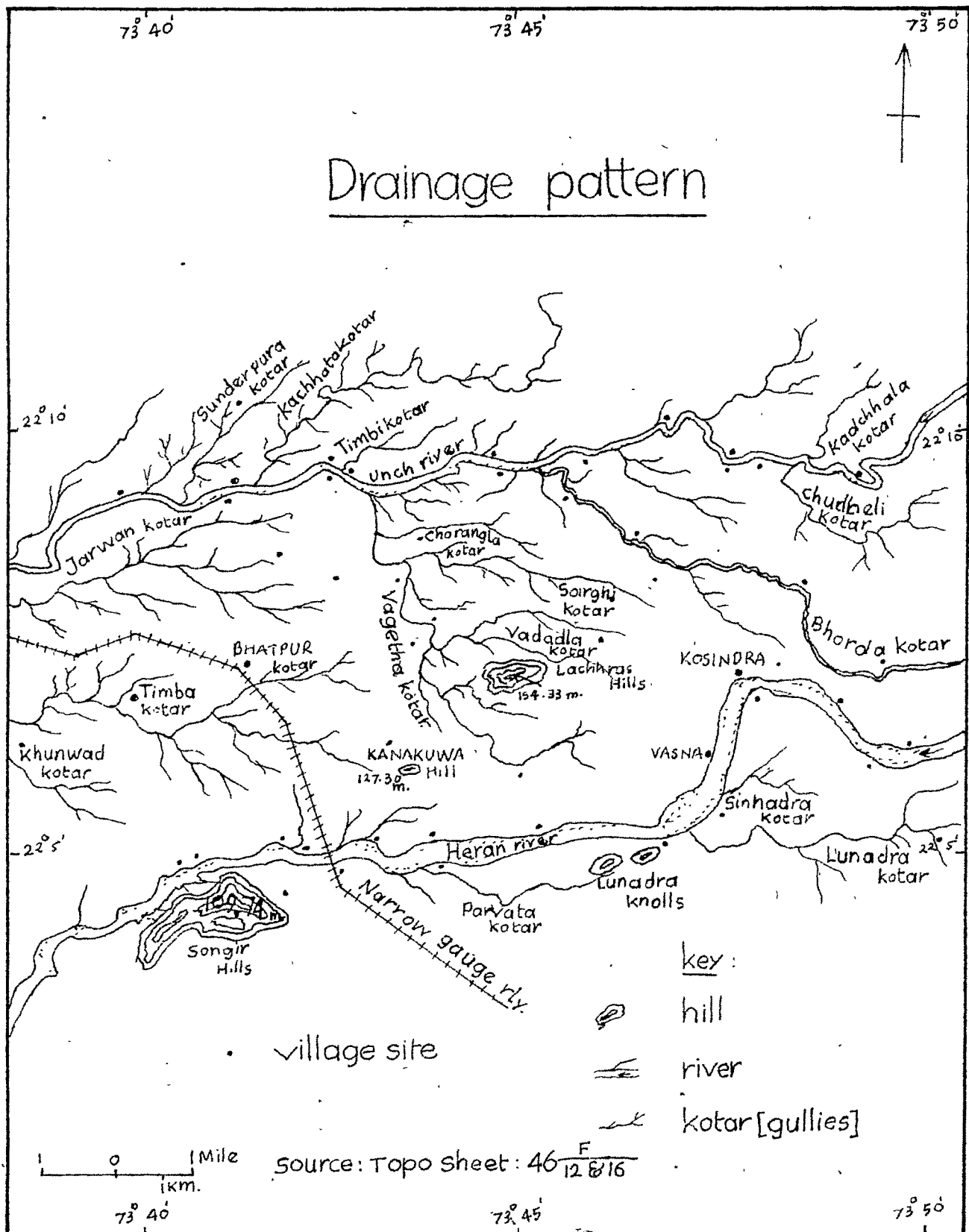
The average height of this region is 80 metres above sea level. There are some hills which are of significance to the pattern of distribution of the villages in the area and their economic and social contacts. The Songir hill is 109.74 metres in height (Photo 1). The Pūnpava hill forms part of the Songir ranges. These hills are rich in sandstone which are used for building purposes. The narrow gauge railway line between Chhuchhapura and Tenkhale was constructed in 1922 by the then Baroda State to give better accessibility to the quarries. The railway links Ghentol to the Songir quarry. The Lechhree hill is 154.33 metres in height (Photo 2). The hills are covered with teak wood which is used in this region for agricultural implements and construction of houses. The hill consists of quartzites which were also used by early man to make stone implements.¹ The Kanakuva hill has a height of 127.33 metres and lies to the south west of the Lechhree hills. The other two knolls in the region are to the south of Veesa and the Heran river (Lunadra and Sinhadra knolls). Both are of quartzite. Bhatpur village is located west of the Lechhree hills where the hills make way for the open plain. The plain has an average height of only 80 metres. It broadens westwards and Bhatpur commands all the natural routes north and south of the Lechhree (map 2).

Drainage pattern:¹ (Map 2)

The area lies between two rivers. The Unch in the north and the Heran (Map 1) in the south, which are the tributaries of the Orang river which later joins river Narmada. Both these semi perennial rivers flow from east to west and have sand deposits at a number of places along their beds. River Heran joins River Orang near Bhilodia village while River Unch joins it near Sankheda. Both Kosindra and Veesa are situated on the banks of the Heran river. The number of

Sources: 1 H.D. Sankalia : Investigations into the Pre historic Archeology of Gujarat, Sri Pratapsinh Maharaja Rajyabhisakaka Granthmale No.4 (1946) Baroda State Press Page 12.

Sources: 1 Toposheet F 12/12816



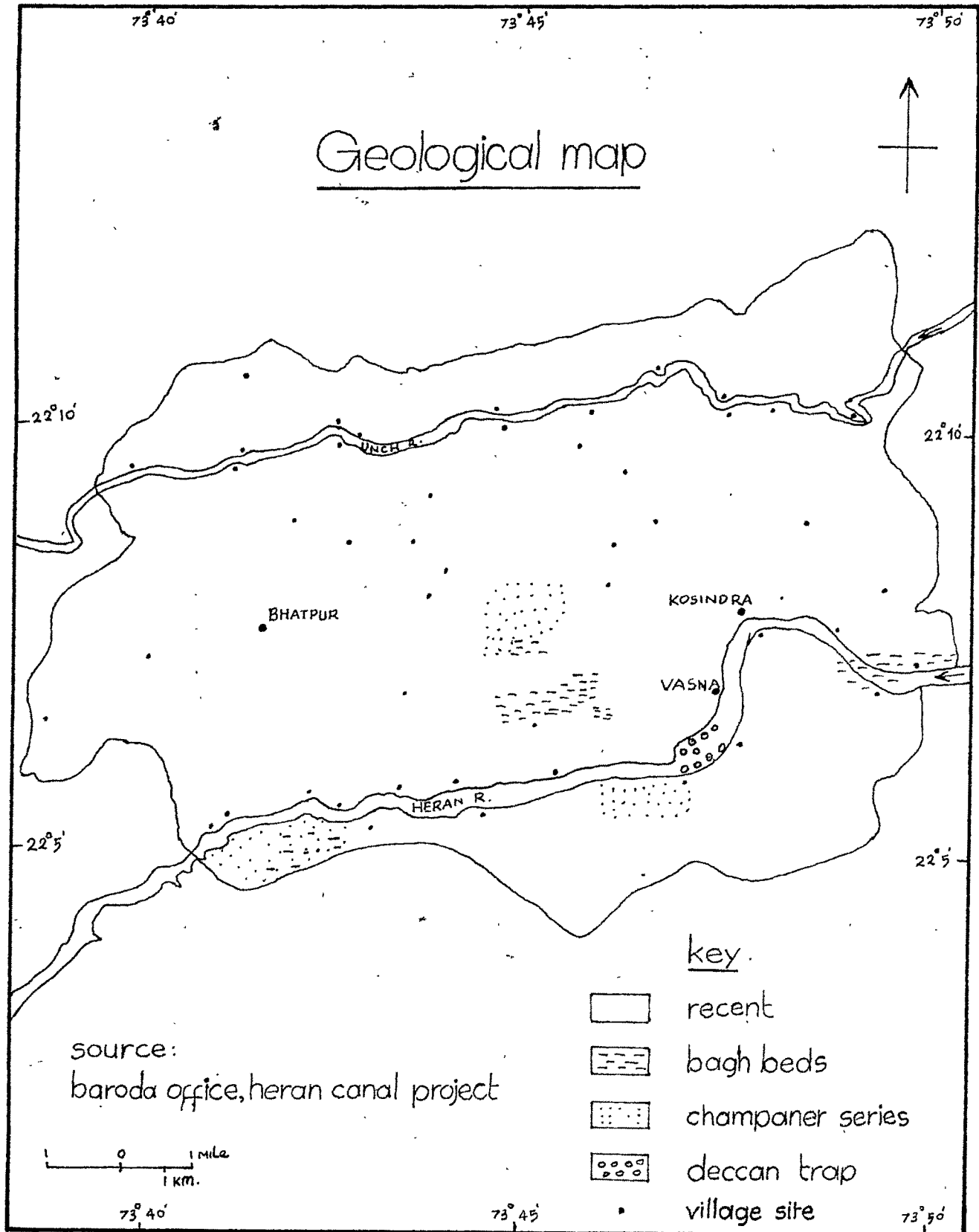
Map: 2

Kotars (Gullies (Photo 32) locally termed kotar) are more near the Unch river than in the vicinity of the Heran. Some of them are used by the villagers as natural water channels for irrigating crops and are economically an asset. The Bhorda Kotar (Photo 28) is used for lift irrigation which contains pools of water, Kesindra, besides being on the river Heran, had the added facility of having the broad and deep Bhorda water, north of it, which provides the settlement with irrigation water in the winter season. The kotar goes past Deen village as well, before merging with the Unch river near Sarainda village. The Chudheli Kotar joins the Unch river near Chudheli. To the west of Lechhres hills there are three main kotars viz Vegetha Kotar, Javvan Kotar and Timba kotar. North of the Unch river there are four kotars viz Vedolia Chorangta kotar, Timbi kotar, Geharpura kotar and Sunderpura kotar. Even though some of these kotars contains water for irrigation purposes, they obstruct smooth transportation. In the monsoon season they become impassible (photo 32). Some of the bigger villages have constructed small culverts and bridges over these kotars. They have also built 'Kharist' (sandstone rubble road) over these kotars which join the heran are the Lunadra kotar and Parvete kotar. They join the river from the south.

Geology ¹ (Map 3)

Geologically the area has some patches of Deccan trap, Champanir series, Baghbada. But the recent deposits cover most of the area. The rocks of Champanir series are younger than the archaean crystalline rocks. The rocks of this series consist of quartzitic. It is found north of Lechhres village. It consists entirely of whitish, bluish white or gray flaggy quartzites. The Songir Indral have well bedded quartzites. Just near Padvan village, outcrops of quartzitic and sandstone are visible in the bed of the Heran. These outcrops are also seen along the bed of the river Heran near the village of Ramsari, Indral Songir and Vaana. They extend further south to Lunadra. The two knolls of Lunadra and Sinhedra are of quartzitic. The rocks are white

Source :The geology of Baroda State R.B. Foote



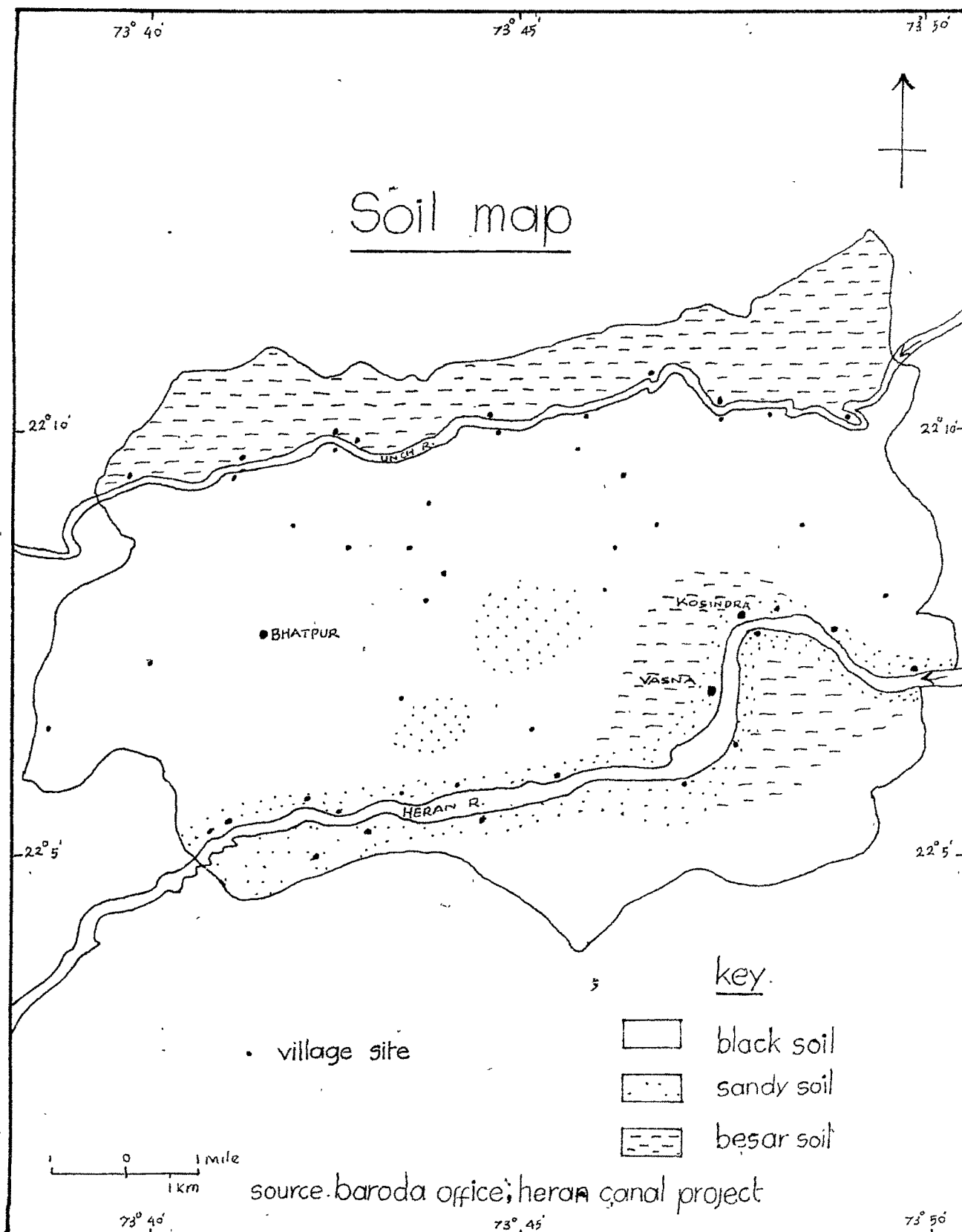
Map: 3

and grey. They are quarried to a small extent to be used as baking plates and are also locally used as wall stones. Two patches of Deccan trap series are seen in the beds of the Heran, the first one is at Vaena exposed in the form of small hummocky. The rocks are of basalt. The second is a tiny patch forming an outlier on the top of the bagh beds crust near Sinhadra village. Baghbada the calcareous sandstones are seen in the bed of the Heran river between Un and Nevegaum and towards Raj Vaena. Patches of this formation are seen north and east of Lachheras and another patch at Vaena. Sandstone quarries are also seen on the left bank of the river in Songir, which are used by the railways. It is also used for making grinding stones, rubble for the building of houses and roads. These sandstones are worked by the people of Songir Indral villages, and have long been a valuable resource of this region. In the western part of the quarry, the stone is white and was largely quarried in former years. In the central part reddish or brownish stones were quarried in 1892. Many of the gritty beds are brown or even purplish coloured and thin bedded and these are quarried largely for purposes of making hand millstones for Bhatpur, Vaena, Kosiandra and other villages of this region since very early times.

Soils : (Map 4)

The study area has three main types of soil. They are (1) Black Soil, (2) Bazar (Red loamy) and (3) Sandy soil.

- (1) Black Soil : Most of the soil of this region is black soil, which is very fertile. This black soil known as 'Black Cotton soil' is highly argillaceous with 62% or more of clay. It contains no gravel or coarse sand. It is highly retentive of moisture but exceedingly sticky in the monsoon. Owing to considerable contraction on drying large and deep cracks are formed during the dry season in summer, through which water seeps during the monsoon. Cotton is one of the main crops of this region, because the black soil is best suited for its cultivation. The soil of sub regions of Bhatpur is black while that of Kosiandra and Vaena has Bazar and Black.



Map: 4

- 9
- : : :
- (2) Beser Soil : This soil is found in one fourth part of Kosindra village and one third part of Vashu. The entire area north of the Unch river has beser soil. It supports good crops of cereals, pulses and groundnuts, near Vashu, Kosindra and Chikhodra. Bananas are now cultivated with the help of irrigation.
- (3) Sandy Soil : Patches of sandy soil are seen near the quartzitic hills. They are infertile. On both side of Heran river some patches of sand are seen, while some Gorat (soil having sand with red loam) soil also occurs alongwith the sandy patches.