

CHAPTER : VI**TRANSPORTATION¹**

The role of transport in giving nodality and accessibility to a settlement cannot be exaggerated. A favourable physical factor, like a gap in a hilly region, the foot of a hill or the bank of a river might attract people to settle down in the area because of their natural accessibility. But it is the roads and railways that actually speed up the process of Urbanisation and nucleation of settlements. In the region under consideration Bhatpur had the natural advantage of being located in the transition region between the eastern hilly area and the open Baroda plains, while Kosindra and Vasma were on the banks of the river Naren which itself was a natural highway between hill and plain. These physical advantages were made use of while constructing railways and roads.

Even before modern transportation facilities reached the area under study, significant changes were taking place with the advent of railways in western India. The broad gauge railway connected Bombay to Ahmedabad in 1856. But it was the Bombay, Baroda and Central India railway on broad gauge connecting Bombay to Delhi, through Baroda, that had a great impact on the study area. A narrow gauge railway connecting Goya Gate (Pratapnagar station, Baroda) was constructed in 1880 and was extended to Behadarpur and Bodeli by 1890, a total length of 62 km. Baroda and Bodeli, which were to become the main outlets of the study area were thus railway centres by the end of the 19th century.

Bhatpur in the study area was conveniently situated between Baroda and Nawanadi and in 1922 a narrow gauge railway connected Bhatpur with Baroda introducing railway traffic, however, modest in capacity, to the study area (Photo 27).

Before 1875 the roads were very inadequate and rugged. They were not even fit for bullock carts. But in 1875 the tracks were put in order for bullock carts by the rulers of Baroda. The agriculturists of the region found adequate facilities to move their products to the market towns of Gujarat. The Sankheda Mahal in which the study area is partially situated was part of the Baroda State and benefited by the improvements made by the rulers of the State.

Three roads from Dabhoi passed through Sankheda Mahal (1) The Chhota-Udepur road through Jetpur-Pavi, Jahugam and Sankheda (2) The Panvad road through Vasna-Kosindra and Sankheda (3) A second Panvad road through Karali and Sankheda. Almost all the traffic began to find their way through the Sankheda Mahal, across the Nerbada and then to Baroda. Of these roads the one from Chhota-Udepur through Karali (25.60 km) and the other from Panvad met at Vasna and continued as far as Naswadi (27.20 km). Due to the improvements in road and rail the study area was encouraged to cultivate cotton to meet the increasing demand for raw cotton in the Bombay market. Nearly 50% of the study area was devoted to cotton. The change over from a purely subsistence agriculture to commercial agriculture was effected about 1675, cotton from Sankheda Newas (eastern part of Sankheda newas) in ordinary years fetched about £2000/ (Rs.20,000/-). It was sent chiefly to Dabhoi, ginned there and forwarded by rail to Bombay. Clarified butter (ghee) and oilseeds also began to move in large quantities to the neighbouring market towns of Gujarat. The other important exports were forest produce, timber, firewood, bamboos and Mahuda flowers.

After independence the study area became part of the Baroda District. Several projects to improve roads in rural areas were undertaken. National highways, state highways, district roads and village roads were constructed and improved providing accessibility to many villages in the rural areas. The study area is now served by a Eastern State Highway No.5 which has links with the National Highway No.8. Many rural roads are also metalled and improved (Map 39).

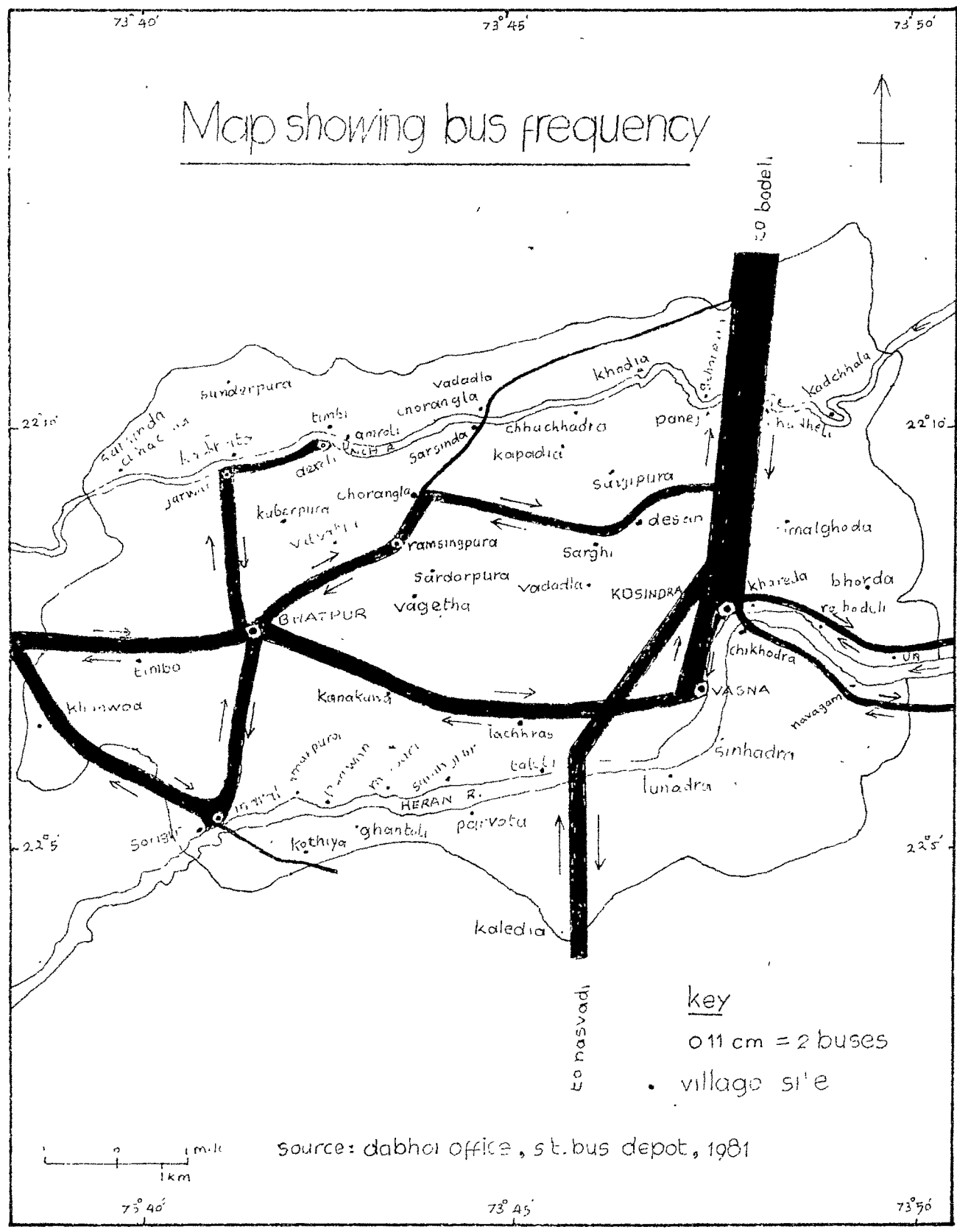
The self sufficiency of the Indian village is a myth. No rural area or village is self sufficient. Of the 52 revenue villages in the study area (Map 1) Some villages have better facilities than others to make them central places for a small region where as some other villages have less facilities. These central place villages grow with the transport facilities available to them or with such other facilities as shops, dispensaries, schools, administrative offices etc. The people of the less fortunate villages come daily to these central place villages in search of work or provisions. They function as a small urban place in a rural area

although they are classed as villages according to population. As we have seen, the emergency of such central places in the study area is partly due to their superior physical facilities. But these facilities later endowed on them contain transport facilities. The main line which links the study area with the outside markets is the narrow gauge railway line constructed in 1922 (Photo 27). The line passes through Bhatpur which gave it an advantage over other villages in the region till 1960. This railway line was the only modern transportation facility available for the study area. Bhatpur benefited by this line not only because it endowed on it the advantages of a railway but also made the Songir sandstone (Photo 1) one of the most important resources of the region, accessible to Bhatpur. Sandstone was used in the construction of the railways. But Bhatpur soon took the advantage of its accessibility to the resources of the neighbourhood and began making grinding stones with the sandstone for domestic use. It also proved to be a good building stone. Bhatpur rapidly developed its functions and began to assume the characteristics of a small central place. It transported the sandstone to places like Kosindra and Varna to which it was connected by road. Till 1960 Bhatpur retained its premier place in the study area as the main outlet and connecting link with the outside world. The extension of the narrow gauge railway from Baroda gave it an early start to emerge as a central place in the area.

But in 1960 the Eastern State Highway No.5 (Photo 12) and the bridge over the river Draang (Photo 3) were constructed giving Kosindra and Varna direct access to Bodoli also a narrow gauge railstation and an important market centre to the north of the study area, and to Kaledia and Nasuadi to the south. The eastern state highway No.5 was connected to the National Highway No.8 at Vland in the south and to Samlaji in the north, the railway and road converged on Kosindra. Besides Kosindra was also connected to Rajbodoli by a metalled road in 1970. This has projected the influence of Kosindra to the eastern villages in the study area. The National Highway and State Highway changed the entire economy of the region. The comparatively big collecting centres in the region such as Nasuadi, Kaledia and Bodoli were now accessible to the villages of the study area. Cultivation of commercial crops became profitable. Banane, sugarcane and cotton took the place of the earlier subsistence crops on a

large scale. Tractors (Photo 8, 11) took the place of the bullocks in ploughing the fields and yield increased substantially. Kosindra and Vasna were able to take the best advantage of the new transport facilities as they were situated on the route. The patels who formed the majority of the population of these two villages were also found not lacking in enterprise and enthusiastic in taking advantage of the new situation. They took loans from the banks to cultivate cotton, banana and sugarcane. They also made use of the nearness of the Heran river to pump water for irrigation. The patels were generally well to do farmers and they could invest in private irrigation facilities such as wells set up with electric pumps. Canal irrigation from the Heran river was also made available to the farmers of the villages along the river. The nearness to the river Heran had already made both Kosindra and Vasna important villages even before the road facilities were introduced. They were both villages with a sizeable population. they were thus able to take advantage of the new facilities which a changing economy endowed on them.

Since 1960, therefore Bhatpur began to take a secondary place in the economy of the region. It was connected to Kosindra and Vasna, the two dynamic and growing villages in the study area after the construction of the state highway, only by an unmetalled road on which since 1928 private buses plied. Bhatpur's physical disadvantages also began to assert themselves when it lost its premier position as a route centre. The floods of the Unch and the Kotars (Map 2) which were nearer to Bhatpur, usually made the cart tracks (Map 39) connecting Bhatpur with the surrounding villages useless for traffic during the monsoons. As long as Bhatpur was the only outlet of the region, these physical short comings were overlooked. But once road facilities were made available to Kosindra and Vasna they developed a nodality far superior to that of Bhatpur. Bhatpur's narrow gauge railway (Photo 27) could not compete with the road facilities available to Kosindra (Photo 12) and Vasna. But Bhatpur had the advantage of an early start as a central place and as such retained its character as a central place, through the geographical inertia of some of the other villages in the area to take advantage of the new facilities available to the region.



Map 38

But the set back to Bhatpur was partially overcome when new roads linked it with surrounding villages. In 1968 the Timba-Bhatpur road connected it to Malpur. It shortened the distance between Bhatpur and Sankheda by three kilometres. But it was only a fair weather road. Bhatpur was connected to the villages in the north by the Deroli, Jarwan, Bhatpur road and to Kanakuwa by another road. The latter road was extended to Vasna and Kosindra. In fact Bhatpur has still a larger number of roads (Photo 29) converging on it than Kosindra and Vasna. But they are all fair weather roads with less frequency of traffic.

It was the second bridge constructed across the river Orsang between Sankheda and Bahadurpur in 1974 (Photo 33), that however opened up a new era of prosperity for Bhatpur. The old unmatted roads to Songir and Indral was also replaced by a metalled road in 1977. It passed through Songir and Indral. The bridge and the metalled road gave Bhatpur direct access to Baroda. Bhatpur is now no longer isolated during the monsoon season. Its dependence on the cart tracks which used to get flooded in the monsoon, is now partially removed. Also to convert the Vasna Bhatpur road into a tar road at a cost of Rs.45 lakhs. This project which is expected to be completed in 1984-85 will link Bhatpur to the eastern state highway No.5 and the national highway No.8. Moreover, the proposed road will benefit the entire region and not Bhatpur alone, Kosindra and Vasna will also improve their nodality with the new roads. The isolation of many of the villages in the region due to the Kotara and the floods which make the cart tracks useless in the monsoon, could be mitigated at least partially if the three central places are connected by metalled roads. The incentive to improve roads has been slight because all the main crops which have a market outside the region are harvested in the fair weather.

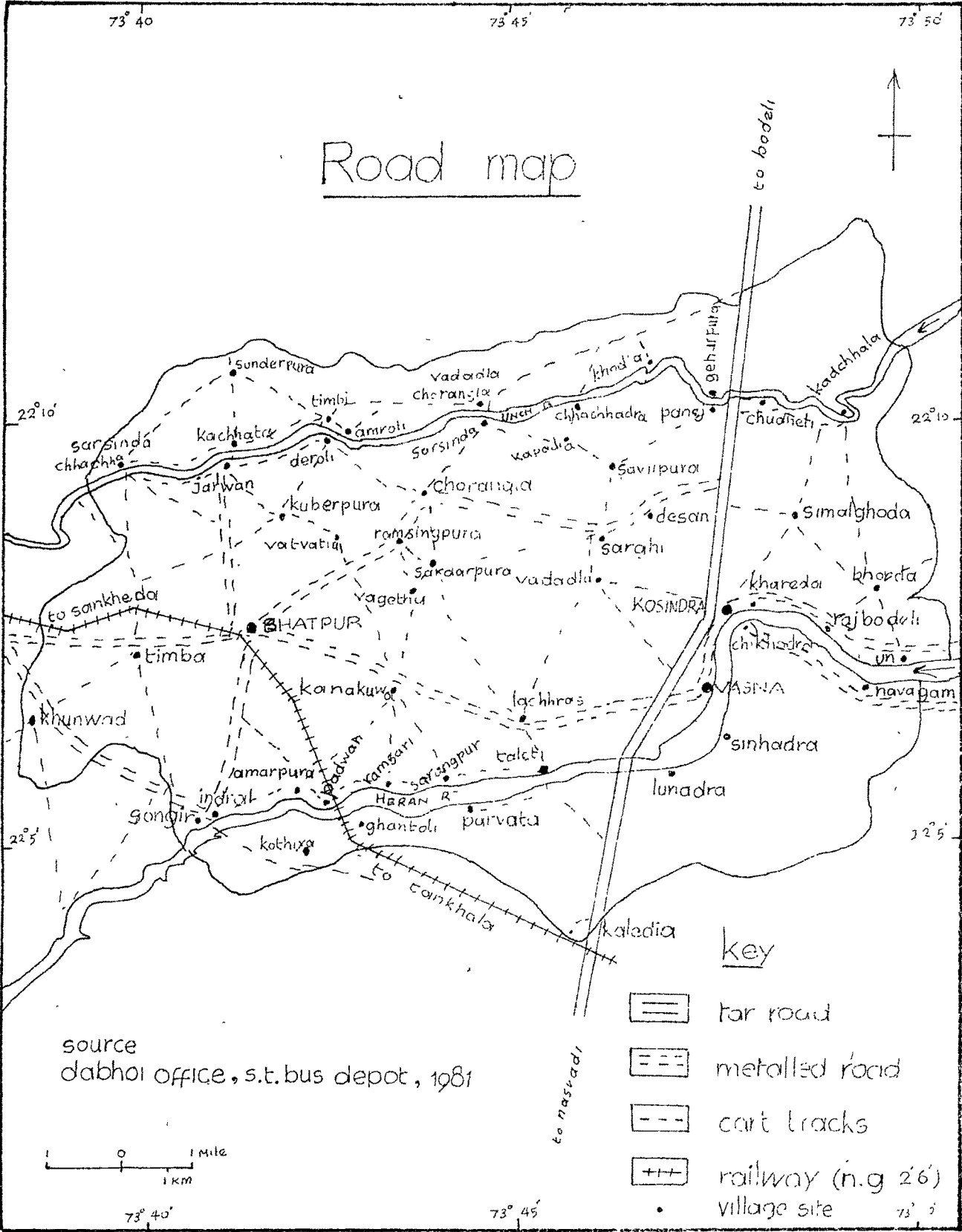
FREQUENCY OF BUS SERVICES (MAP 38)

KOSINDRA

In the study area, Kosindra has more facilities of road traffic. The Eastern State Highway No.5 runs through this village (Photo 12,20) and the bridge over river Orsang (Photo 3) constructed in 1960, connects it to Bodeli. Bodeli is the main market town for the agricultural products

TABLE 54 : BUS SERVICES IN THE REGION OF KOSINDRA (MAP.38):

VILLAGES	POPULATION (1981)	DIST. from Kosin- dra in km.	TYPE OF Road	DAILY FREQUENCY FROM KOSINDRA		DAILY FREQUENCY TO KOSINDRA	
				FAIR WEATHER.	MONSOON	FAIR WEATHER	MONSOON
Panej	1088	5	Tar	14	14	14	14
Geherpur	171	5 1/2	"	14	14	14	14
Chudhali	804	5 1/2	"	14	14	14	14
Vasna	2225	1 1/2	Metalled	7	7	7	7
Taleti	578	4 1/2	Cart track				
Parvata	2685	5 1/2	gun met.	5	5	5	5
Lachhres	1123	3 1/2	metalled	4	-	4	-
Chikhodra	1671	1/4	"	3	3	3	3
Rejboldeli	817	2 1/2	"	2	2	2	2
Kharada	190	1 1/2	"	2	2	2	2
Navagam	580	3	"	2	2	2	2
Un	814	4	"	2	-	2	-
Simlighoda	269	3	Cart tr.	-	-	-	-
Sarghi	758	3 1/2	Metalled	-	-	-	-
Desan	913	3	"	-	-	-	-
Bhorda	504	3	Cart tr.	-	-	-	-
Vadadla	552	3 1/2	"	-	-	-	-
Savjipura	101	5	"	-	-	-	-
Khodia	435	6	"	-	-	-	-
Kapadia	313	6	"	-	-	-	-
Chhachhadra	517	6	"	-	-	-	-
Lunadra	237	5	"	-	-	-	-
Sinhadra	510	5	"	-	-	-	-
Kadchhala	2797	6	"	-	-	-	-
Sarsinda	1282	6 1/2	"	-	-	-	-
Vadadla	582	7 1/2	"	-	-	-	-
Chorengla							



his region, although situated outside the study area. Private trucks and tractors as well as buses ply on this road. The private vehicles carry most of the farm products. These private trucks, tractors and carts (Photo-20) are more important to access the centrality of Kosindra but data regarding the frequency of these unscheduled traffic could not be obtained.

The Kosindra-Bodeli road is far and quite suitable for vehicular traffic all through the year. It runs 1 to 2 km. near to the villages of Chudheli, Panej and Geharpur. These villages have now the facility of all weather road to Kosindra with the highest frequency of bus services (Map 38) (14 daily to and fro from Kosindra). The short distance from the villages to the Bodeli road can easily be covered by foot or bullock cart.

The second highest frequency of buses is found between Kosindra and Vasna(?) while Taleti and Parvata (2 km. away from road) have a frequency of 5 each. The frequency dwindles to 4 to Lachhras, 3 to Chikhodra and 2 to Navagam, Rajbodeli, Kharada and Un. All these roads except the Un and Lachhras are metalled roads on which buses and heavy vehicles can ply during all seasons. The road to Lachhras-Bhatpur and Un are fair weather roads.

Besides the metalled roads, cart tracks connect the villages of Simlghoda, Bhorda, Sarghi, Dosan, Vadarla, Savjipura, Khodia, Kepadia, Chhachhadra, Lunadra, Sinhadra, Kadchhala, Sarsinda and Vadarla Chorangla to Kosindra (Map 39).

Much of the agricultural products of the sub regions move to Kosindra on cart tracks but they become impassable during the monsoon. Buses do not ply on these roads and it is difficult to assess the quantity of goods that are moved on these tracks. The fact that they are only fair weather roads does not affect their use by the peasants because the harvests are in the fair weather and the products move to the markets during this season.

TRANSPORT AND ITS IMPACT ON THE SUB REGION OF KOSINDRA :

Villages in the sub region of Kosindra

Table : 55 : Bus services in Sub region I of Kosindra region :

Name of Village	Popul- ation. (1981)	Dist. from Kos- indra in km.	Type of Road	Daily frequency from Kosindra		Daily frequency to Kosindra	
				Fair weather	Monsoon	Fair weather	Monsoon
Vasna	2225	1½	mettaled	7	7	7	7
Chikhodre	1671	½	"	3	3	3	3
Rajbodeli	817	2 ½	"	2	2	2	2
Khareda	190	1 ½	"	2	2	2	2
Sarghi	758	3 ½	"	-	-	-	-
Desan	513	3	%	-	-	-	-

Villages in the 60% level :

There are six villages on which Kosindra exerts the greatest influence in the area. These are Vasna, Chikhodre, Rajbodeli, Khareda, Sarghi and Desan. Their nearness to Kosindra physically rather than man made transport facilities has been responsible for linking these villages to Kosindra. All of them are within 3½ km. of Kosindra which can be easily covered by bullock carts or on foot. Of these Sarghi and Desan are served only by cart tracks. It is also of interest that the villages with the highest frequency of bus services in the region of Kosindra are not associated with it as closely as some of the villages which are located near to it. The Kosindra-Bodeli road (Photo 12) was opened only in the sixties and while it extended the influence of Kosindra to more than 5 km. northwards, the old links of the nearby villages with Kosindra were strong enough to compete with the new facilities introduced with the Bodeli Kosindra road (Photo 12)

In the group of villages Vasna has the highest frequency of bus services (7 daily). Vasna is only $1\frac{1}{2}$ km. from Kosindra and its links with Kosindra was established before the bus route was opened. The opening of the road, Vasna's links with the Eastern state highway No.5 and its specialized administrative functions has brought it closer to Kosindra.

Chikhodra is only $\frac{1}{2}$ km. away on the opposite bank of the river (Photo 14) near enough to avail of the road facilities of Kosindra itself. The bridge (Photo 14) across the river between Chikhodra and Kosindra and its nearness have brought it within the influence of Kosindra. The bus frequency on this road is only 3 daily but its association with Kosindra was improved when the bridge over the Heran was opened. Chikhodra is on the opposite bank of the Heran from Kosindra and is now connected to it by a metalled road. The bridge and the road as well as its nearness to Kosindra ($\frac{1}{2}$ km) has encouraged it to cultivate bananas on a commercial basis and transport them to Kosindra.

Rajbodali and Khazeda are connected to Kosindra now by the canal road which is linked with the all important state highway No.5. They are only $2\frac{1}{2}$ and $1\frac{1}{2}$ km. from Kosindra.

Sarghi and Dasan are situated comparatively at a greater distance from Kosindra than the other villages in this group. They are both on a metalled road which branches off from the Kosindra Bodali road near Simelghoda, and joins the Indral Bhatpur Chorangle, a metalled road at Chorangle (Photo 30). The new metalled road followed an old cart track and it seems to have helped in extending Kosindra's influence towards the west. Both these villages are now developing fast although they are still small. The Patels who form the majority of their population have taken to commercial agriculture and their products have a market outside. They cultivate banana, sugarcane and cotton which are now exported to the markets in the plain. Kosindra is the link between these two villages and the state highway No.5.

The connection of Kosindra with the Eastern State Highway No.5 (Bodeli-Kosindra-Kaledia-Naswadi road) has made it the gateway to the east and to the plains of Gujarat. With the opening of this road the western orientation of the villages of the study area through Bhatpur to the Gujarat plains was shifted to Kosindra (and partly to Vasna) and to the east. But the road being comparatively of recent construction the new eastern orientation of the study area through Kosindra is still in the transition stage.

All the 6 villages in the 60% level of influence in the region of Kosindra are comparatively rich in commercial agriculture. Their main products are cotton, banana, sugarcane and cereals which find markets in distant places through the Eastern State Highway No.5. Their main link with the highway is Kosindra, through which their commodities go to Ahmedabad-Godhra-Bodeli-Kaledia-Naswadi etc. Most of the commodities move by bullock carts and tractors. Vasna has 8 tractors (Photo 8) and 50 bullock carts, Chikhodra 13 tractors and 70 bullocks carts, Rajhodli 3 tractors and 30 bullock carts, Sarghi 2 tractors and Dezan 2 tractors and 10 bullock carts. The people are forward looking and quite well to do, willing to take the risks of commercial agriculture. A large number of the land owning cultivators are Patels.

From an analysis of the transport facilities available to the villages in the first group (60% level) in the influence area of Kosindra, it is obvious that physical proximity has more or less been the determining factor in deciding the limits of the sub regions. However, the inclusion of Dezan and Sarghi within the region show the impact of the new state highway No.5 and its branches in the economy of the region and the changing role of Kosindra as the eastern outlet for some of the forward looking villages in the study area. Kosindra has the opportunity to supplant Bhatpur as the window of the region because of its links with the Eastern State Highway No.5.

VILLAGES IN THE INFLUENCE AREA OF KOSINDRA IN THE 40% LEVEL :

Table : 56 : Bus frequency in sub region II of Kosindra region : Map 38

TABLE 56

Name of the Villages.	Population 1981	Dist. from Kosindra in km.	Type of road	Daily frequency from Kosindra		Daily frequency to Kosindra.	
				Fair weather	Monsoon	Fair weather	Monsoon
Panej	1988	5	Tar Rd	14	14	14	14
Geharpura	171	5 ½	"	14	14	14	14
Navagam	580	3	"	2	2	2	2
Un	814	4	mettalled	2	-	2	-
Bhorda	504	3	cart track	-	-	-	-
Khodia	435	6	metalled	-	-	-	-
Kapadia	313	6	cart track	-	-	-	-
Vadadia	592	3 ½	"	-	-	-	-
Savjipura	101	5	"	-	-	-	-
Simalghoda	269	3	"	-	-	-	-

There are 10 villages falling into the 40% level of contact with Kosindra, of these Panej and Geharpura are near the Kosindra-Bodali road which has the highest frequency of bus services (14 daily). It is a tar road which was constructed in the 1960s. It gave Kosindra and all the villages situated on the route or nearby the road, access to one of the most important markets for cotton outside the study area namely Bodali. Bodali has several cotton ginning factories to absorb the increasing output of cotton in the study area. Although all the two villages can establish direct contact with Bodali, the early development of Kosindra as a large village in the area drew some of the villages to it. These contact continue to be maintained because of the other facilities available at Kosindra. They are comparatively at a greater distance from Kosindra (5 to 5½ km) than some of the villages in the 1st group but the superior road facilities permit the peasants to use tractors and take their commodities to Kosindra.

Navagam is situated on the opposite bank of the river Heran and its connection with Kosindra like that of Chikhodra has been strengthened with the bridge over Heran. The road is metalled and buses ply on the road but the frequency is not very great (2 daily). Navagam is a small village of 580 people with a large area under food crops.

It looks to Kosindra for some of its requirements.

Un is situated on an metalled road bifurcating from the Kosindra-Bodeli road to the east along the river Haran. The connection of Kosindra with the eastern villages is of recent origin and has still to be firmly established. The road is an old village road which was used by the vanzars since ancient time but it has not been improved to any great extent. Un gets cut off from Kosindra in the rainy season. But like Rajbodeli its agriculture is fast becoming commercial, food crops occupying only less than half of the cultivated area. Generally the villages of the east are under developed and have to look to Kosindra or Vasna for certain facilities. Their connection with Bodeli, Vasna or Bhatpur is through Kosindra.

The rest of the villages in the 40% level of contact with Kosindra are connected to it only by cart tracks (Map 35). Of these Khodia and Kapadia are comparatively at some distance from Kosindra (6 km). But they are very small villages of 435 and 313 people respectively. Situated near the river Unch their soils are fertile and they cultivate a large quantity of food crops. Kapadia has a large area under rice and Khodia cultivates jowar and Bajri. The predominantly food crop cultivating villages look to Kosindra for some of their requirements.

Savjipura is also situated some distance (5 km) from Kosindra and is connected to it only by a cart track. It is a small village of 101 people cultivating rice, jowar, bajri, maize and pulses. It has very few facilities of its own. The cart track links with Kosindra are put to full use to meet its needs.

Bhorda is on the eastern side of the Bodeli road some 3 km. away from Kosindra only half of its area is cultivated and its major crops are rice, jowar, bajri, maize and pulses. Kosindra is the nearest large village for most of the villages in this group.

Vadadia is $3\frac{1}{2}$ km. from Kosindra and is also a small village of 552 people. Much of its land is under maize.

Simalghoda is the small village of 269 people. It is connected with Kosindra by a cart track. More than $\frac{2}{3}$ of its cultivated area is under food crops. All the people of the village are scheduled

castes and tribes and as such it is rather backward.

The villages included in the influence area of Kosindra in the 40% level show the impact of modern transport links. The influence of Kosindra extends to more than 6 km. although cart tracks still play an important role in the area, the inclusion of Panaj and Geharpur seem to be distinctly due to the opening of Kosindra-Bodeli tar road. On the other hand the links of small villages like Khodia, Kapedia, Savjipura, Vadedla and Simalghoda etc are partly due to the lack of facilities in the villages themselves and partly due to the status of Kosindra as a central place village even before the tar roads were constructed.

Villages in the sub region of Kosindra Group III

(20% level) Table 57 Bus services in Sub region III of Kosindra Region.

Name of the village	Population (1981)	Distance from Kosindra	Type of Rd	Daily frequency		Daily frequency	
				From Kosindra Fair weather	Monsoon	to Kosindra Fair weather	Monsoon
Chudheli	804	5 $\frac{1}{2}$	Tar Rd	14	14	14	14
Teleti	578	4 $\frac{1}{2}$	Cart track	5	5	5	5
Perveta	2685	5 $\frac{1}{2}$	"	5	5	5	5
Lechhras	1123	3 $\frac{1}{2}$	Metalled	4	-	4	-
Chhechhadra	517	6	cart track	-	-	-	-
Lunadra	237	5	"	-	-	-	-
Sinhadra	510	5	"	-	-	-	-
Kadchhala	2797	6	"	-	-	-	-
Sarsinda	1282	6 $\frac{1}{2}$	"	-	-	-	-
Vadedla							
Chorengla	582	7 $\frac{1}{2}$	"	-	-	-	-

There are 10 villages in this group situated between 3 $\frac{1}{2}$ to 7 $\frac{1}{2}$ kms. from Kosindra. Of these Chudheli is on the Kosindra Bodeli tar road which has the highest frequency of bus services (14 daily).

Taleti and Parvata are also connected to Kosindra by metalled roads, cart tracks and they are on either side of the Haran along which old cart tracks were already in use before metalled roads were constructed. Lachhres has a fair weather road linking it with Kosindra. The hills (Map 2) West of it make the village look to Kosindra more than to Bhatpur.

The rest of villages in the group III are connected with Kosindra by unmetalled and cart tracks roads. They do not have any direct bus services with Kosindra. But people of these villages are coming to Kosindra for shopping and for other purposes.

BHATPUR :

Bhatpur has several roads converging on it but they are generally unmetalled roads and cart tracks (Map 38). Bhatpur is bypassed by the new metalled & state highway No.5. Yet its early start as a central place for the surrounding villages and the only village till 1960, which gave the study area access to the outside markets, has given it an influence area of considerable size than its present indifferent road links could justify.

The highest frequency of bus service is from and to Indral Songir and Khunwad (4 daily). Although the Indral songir road was metalled only in 1978 it is an old road which was used to transport sandstone and these villages have the advantage of longstanding commercial links with Bhatpur. It has helped to bring village like Khunwad situated at a distance of 5 km. within the influence area of Bhatpur (Map 38).

FREQUENCY OF BUS SERVICES : BHATPUR (MAP 38)

Table 58 Bus services in the region of Bhatpur :

Name of the village	Population 1981	Distance from Bhatpur in kms.	Type of Rd.	Daily frequency from Bhatpur		Daily frequency to Bhatpur	
				Fair weather	Monsoon	Fair weather	Monsoon
1.	2	3	4	5	6	7	8
Indral	1099	3 ½	Met-alloed	4	4	4	4
Songir	644	3 ½	"	4	4	4	4

1	2	3	4	5	6	7	8
Khunwad	2031	5	Met- alled	4	4	4	4
Chorangle	394	4	"	4	-	4	-
Timba	1414	2 $\frac{1}{2}$	"	4	-	4	-
Kenakuwa	621	3	"	4	-	4	-
Ramsingpura	116	3 $\frac{1}{2}$	"	3	3	3	3
Jarwan	942	3 $\frac{1}{2}$	Cart track	3	-	3	-
Deroli	659	4	"	2	-	2	-
Sarsinda	1282	5	"	1	-	1	-
Vagetha	866	3	"	-	-	-	-
Vatvatia	545	2 $\frac{1}{2}$	"	-	-	-	-
Kuberpura	185	3	"	-	-	-	-
Kachhata	458	4	"	-	-	-	-
Timbi	394	4 $\frac{1}{2}$	"	-	-	-	-
Amroli	474	5	"	-	-	-	-
Sunderpura	482	6	"	-	-	-	-
Padwan	661	4	"	-	-	-	-
Ramsari	240	5	"	-	-	-	-
Amarpur	170	4	"	-	-	-	-
Sardarpur	88	4	"	-	-	-	-
Ghentoli	369	5	"	-	-	-	-
Kothiye	91	5	"	-	-	-	-
Sarsinda Chhachha	460	5	"	-	-	-	-
Sarangpur	539	6	"	-	-	-	-

Transport and its impact on the sub region of Bhatpur Group I (60%) Level)
Map-38) Table 59 Bus services in the sub region I of Bhatpur region.

Name of Village	Population 1981	Distance from Bhatpur	Type of Rd.	Daily frequency from Bhatpur		Daily frequency to Bhatpur	
				Fair weather.	Monsoon	Fair weather	Monsoon
Kenakuwa	621	3	metalled	4	-	4	-
Vagetha	866	3	cart track	-	-	-	-
Vatvatia	545	2 $\frac{1}{2}$	"	-	-	-	-
Kuberpura	185	3	"	-	-	-	-

There are four villages on which Bhatpur exerts the greatest influence in the area all within 3 kms. of the central place. These are Kanakuwa, Vagetha, Vatvatia and Kubarpara. These villages cultivate a large quantity of cotton. Kanakuwa has 65.39%, Vagetha 89.97%, Vatvatia has 78.98 and Kubarpara 59.29% of their cultivated area under non food crops of which cotton is the most important. Further the Patels of Bhatpur own some of the lands in these villages. The rest of the population belong mainly to the scheduled castes and tribes. The percentage of scheduled castes and tribes in Kanakuwa is 90.33% Vagetha 62.01%, Vatvatia 99.65% and Kubarpara 100% (Map 35). They are mainly labourers who work in Bhatpur because the landowners are from Bhatpur. Cotton is transported to Bhatpur by two types of vehicles, i.e. Dandia (short bullock cart) and 'Gada' (long bullock cart) (Photo 20). From Bhatpur it was transported to the ginning centres of Kaledia, Bodoli and Bahadarpur till recently. But now the merchants from these ginning centres come to Bhatpur and take the cotton in their own tractors or trucks or send it to Handed (8 km) a new ginning centre.

Kanakuwa is situated on the Bhatpur-Vasna metalled road. The buses ply on the road only in fair weather (4 daily). It is a small village of 621 people.

Physically these villages do not have any outlet because of some kotara and river so they are under the direct influence of the Bhatpur and connected by metalled roads and cart tracks (Map 39)

Villages in the influence area of Bhatpur Group II (40% Level)

Table 60 Bus services in the region II of Bhatpur (40% level)

Name of the village	Population 1981	Distance from Bhatpur in km.	Type of Road	Daily Frequency from Bhatpur		Daily Frequency to Bhatpur	
				Fair weather.	Monsoon	Fair weather	Monsoon
1	2	3	4	5	6	7	8
Indral	1099	3 1/2	Metalled	4	4	4	4
Songir	664	3 1/2	"	4	4	4	4
Choranga	394	3 1/2	Metalled	4	-	4	-
Timbia	1414	2 1/2	"	4	-	4	-
Jarwan	942	3 1/2	"	3	-	3	-

1	2	3	4	5	6	7	8
Deroli	659	4	Metalled	2	-	2	-
Kachhata	458	4 1/2	Cart Track	-	-	-	-
Timbi	394	4 1/2	"	-	-	-	-
Amroli	474	5	"	-	-	-	-
Sardarpura	482	6 1/2	"	-	-	-	-

There are 10 villages falling in the 40% level of contact with Bhatpur. They are situated at a distance of 2 1/2 to 6 1/2 km. Of these Songir-Indral the twin villages are on the Sankheda-Bhatpur metalled road, which has the highest bus frequency (4 daily) in Indral 54.66% and in Songir 61.55% of cultivated area under non food crop. Some of its landowners are Patels from Bhatpur. The local Patels also grow cotton. The rest of the villages are linked to Bhatpur only by metalled cart track roads. These villages have contacts with Bhatpur due to their own lack of shops, education facilities and railway station.

Chorangla is situated on the Bhatpur-Sarghi metalled road but upto Ramsingpura it is unmetalled road (Photo 30). There is a koter between Ramsingpura and Chorangla (Photo 32) and the bridge on this koter is not built uptill now. In monsoon the buses go only upto the Ramsingpura. Some of its landowners are Bhatpur Patels. It has 76.41% of its cultivated area under cotton which is the main commercial crop.

Timba is a village of 1414 people with large area under food crops (65.43%) its people are poor. Irrigation facilities are few. The many kotars make the village almost inaccessible during the monsoon. Its nearness to Bhatpur (25 km) and the lack of facilities in the village make Timba look to Bhatpur for a market for its surplus food products and also for other facilities.

Jarwan is on a metalled road which was built recently. It is only 3 1/2 km. from Bhatpur. The majority of its population belong to the scheduled castes and tribes (62.10%) and hence it is backward.

Jarwan is also a large village (942) with a large area under non food crops. To Unch river in the north, make this village having look south to Bhatpur for contacts.

The rest of the villages in the 40% level of contact with Bhatpur are connected to it only by cart tracks and metalled roads. They are small villages and situated near the river. Unch its soils are fertile and they cultivate a large quantity of food crops, which find a ready market in Bhatpur. Their poor transport facilities and the nearness of the Unch river which gets flooded in monsoon make them look to Bhatpur which is within 4 to 6 kms.

The villages included in the influence area of Bhatpur in the 40% level show the impact of metalled roads. Although cart tracks still play an important role in the area.

Villages in the influence area of Bhatpur in the 20% level

Table 61 Bus services in sub region III of Bhatpur region

Name of the Village.	Population (1981)	Distance from Bhatpur in km.	Type of Road	Daily frequency from Bhatpur		Daily frequency to Bhatpur	
				Fair weather	Monsoon	Fair weather	Monsoon
Khanwad	2071	5	Metalled	4	4	4	4
Rameingpura	116	3 1/2	"	3	3	3	3
Sarsinda	1282	5	"	1	-	1	-
Paduan	661	4	Cart Track	.	.	.	.
Sarsangpur	539	6	"	.	.	.	.
Amarpur	170	4	"	.	.	.	.
Sardarpur	88	4	"	.	.	.	2
Ghantoli	369	5	"	.	.	.	.
Kuthgh	91	5	"	.	.	.	.
Ramsari	240	5	"	.	.	.	.
Sarsinda Chhachha	460	5	"	.	.	.	.

All these villages are within 5 km. of Bhatpur and their transport facilities are generally cart tracks and unmetalled roads. Khanwad and Ramsingpura are connected to Bhatpur by a metalled road. Khanwad is a large village of 2031 people and it cultivates a good quantity of rice (39.25%) of the cultivated area. The land under non food crop (Mainly cotton in the area) is 32.14%. Its cotton find a market in Bhatpur (5 km). Its large food output however enables it to look to its own resources for many of its requirements. It looks to Bhatpur only for some specialized facilities.

Ramsingpura is situated on the Bhatpur Chorangle road but it is only 3 1/2 km. away from Bhatpur. The road is metalled upto this village (Photo 30), frequency on the road is 3 daily. It is a small village of 116 people with a large area under non food crop (65.33%) of which cotton is the most important. Its land is owned by the Patels of Bhatpur, Chorangle and Vagetha (Kolis). Its population consists mainly of scheduled castes and tribes (80.57%). It does not have any facilities and it looks to Bhatpur for its needs.

Sarsinda is situated on the banks of the Unch. Hence the presence of Kotara limit its accessibility. It is linked to Bhatpur only by an metalled road which is a fair weather road. It is a village of 1282 people with 50.50% of its cultivated area under non food crops. It has contacts with both Bhatpur and Kamsindra. 77.33% of its population belong to scheduled castes and tribes.

The rest of the 8 villages in the 20% level of contact with Bhatpur are connected to it, only by unmetalled cart tracks. They are within 4 to 5 km from Bhatpur. Ramsari, Sarangpur, Paduan, Amarapur, Ghantoli and Kothia are situated on the banks of the Heran and Sarsinda, Chhachhadra are on the banks of the Unch. Sardarpura is situated on the kotara of Vagetha (Map 2), cart tracks are only means of transportation for these villages. In the fair weather bullock carts are used but in the monsoon the villagers have to come on foot. The land owners of these villages are from Bhatpur, Indral and Sangir. These villages consisting more percentages of scheduled castes and tribes (Ramsari 97.92%, Amarapura 95.88%, Sarangpur 60.77%, Sardarpura 100%, Ramsingpura 80.57% Ghantoli 82.52%, Kothiya 85.29% and Sarsinda Chhachha (80.17%). They

are mainly the labourers who come to work in Bhatpur. The area under cotton is more in the villages of Ramsari 88.25%, Sardarpura 78.25%, Nemsingpura 65.33%, Ghantoli 70.82% and Sarangpur 88.36% (Map 35)

The cart tracks play important role in the area. The villages in the group III 20% level have poor transport facilities, because of two rivers (Haran, Unch), the kotars. They are also mainly scheduled castes and scheduled tribe villages. Bhatpur is nearer to these villages than Kosindra and Vasna.

VASNA

Vasna, like Kosindra has been able to take advantage of the recent improvements in road traffic. The eastern state highway No.5 runs 1 km from the Vasna so it is connected to the Bodeli Kaledia and Navadi road.

Vasna attracts the people of the surrounding villages because of certain special facilities which are not available at Bhatpur and Kosindra such as the primary health centre (Photo 6) a branch of the Baroda Bank, Police chowky (Photo 5) and the Haran canal sub administrative offices (Photo 4). The Baroda Bank has extended several loan facilities to farmers. Till 1960 it was connected to Bhatpur only by an unmetalled fair weather road, which went out of function in the monsoon. But after 1960 the proximity to the state highway and Kosindra have given it a centrality.

FREQUENCY OF BUS SERVICES - V A S N A -

TABLE 62. Bus services in the region of Vasna.

Name of the village	Population 1981	Distance from Vasna	Types of Rd.	Daily frequency from Vasna		Daily frequency to Vasna.	
				Fair weather.	Monsoon	Fair weather	Monsoon
1	2	3	4	5	6	7	8
Kosindra	3850	1 1/2	Tar	7	7	7	7
Chudhall	884	7	"	5	5	5	5
Simalghada	259	6	cart track	5	5	5	5

1	2	3	4	5	6	7	8
Geharpura	171	6	Tar	5	5	5	5
Taleti	578	3 1/2	Cart track	5	5	5	5
Parvata	2685	4	"	5	5	5	5
Panaaj	1088	6 1/2	Tar	5	5	5	5
Lechhree	1123	3	metalled	4	-	4	-
Rajbodoli	817	4	"	2	2	2	2
Un	814	5	"	2	-	2	-
Kharak	190	2 1/2	"	2	-	2	-
Sinhadra	510	2	cart track	-	-	-	-
Lunadra	237	2 1/2	"	-	-	-	-
Sarangpur	539	4 1/2	"	-	-	-	-
Vadadia	552	4	"	-	-	-	-
Chikhoda	1671	1 1/2	" / metalled	-	-	-	-
Sarghi	758	4 1/2	"	-	-	-	-
Dasen	513	5	"	-	-	-	-
Kapadia	313	6	"	-	-	-	-
Savjipura	101		"	-	-	-	-
Khodia	435	7 1/2	"	-	-	-	-
Navagam	580	3	cart track	-	-	-	-
Sareinde	1282	6	"	-	-	-	-
Kedchhada	2797	8 1/2	"	-	-	-	-
Chhachha	517	6	"	-	-	-	-
Vadadia charangla	582	7	"	-	-	-	-

Transport and its impact on the sub regions of Varna;

Table 63 : Bus services in Sub region I of Varna region (Map 38)

1	2	3	4	5	6	7	8
Taleti	578	3 1/2	Metalled cart track	5	5	5	5
Parvata	2685	4	"	5	5	5	5
Lechhree	1123	3	metalled	4	-	4	-
Sinhadra	510	2	cart track	-	-	-	-
Lunadra	237	2 1/2	"	-	-	-	-

Villages in the 60% level - There are five villages on which Vaena exerts the greatest influence in the area. These are Talati, Parvata, Lachhree, Sinhadra and Lunadra. All of them are within 4 kms. of Vaena which can be easily covered by bullock cart or on foot. All are served by the metalled or unmetalled roads and cart tracks. These villages are the main source of labourers for the agricultural works in Vaena. Except for Talati (44.64%) and Parvata (47.69%) more than half of their population belong to the scheduled castes and tribes. Lachhree has 61.44% Sinhadra 80.78% and Lunadra 62.87% of scheduled castes and tribes (Map 35).

Talati is situated only 3 1/2 km. away from the Vaena. It does not have a direct bus service to Vaena. The Eastern State Highway No.5 is however is only 2 km. away from the village. It is a village of 578 people with a large area under food crops (61.35%). Its people have not taken to commercial agriculture because of poverty. It has to look to Vaena for some of its daily needs.

Parvata is situated on the left Bank of the Heran, 4 km. away from the Vaena, but only 1 1/2 km. from the state highway No.5.

It has a daily frequency of 5 bus services. Further its patapara Kaledie is a ginning centre. Parvata is a big village of 2685 people with a large area under cotton (57.35%). It is nearer to Vaena and Koeindra than the Bodeli ginning centre. Its transport facilities to Vaena are quite adequate.

Lachhree is situated to the west of the Vaena to which it is connected by an unmetalled road. Buses ply on road only during the fair weather. Before 1928 this unmetalled road was important for going to the Bhatpur railway station. Private buses began to ply on this road since 1928 to cater to the traffic. But in the 1960s the bridge over Orsang and Heran (Near Parvata) and the eastern State Highway No.5 were constructed. This has diverted the traffic to Bodeli, Kaledie Masvadi. Lachhree has a population of 1123 people with a large area under non food crop (84.28%). The landowners are mainly the shahs of Sankheda who are rich enough to take to commercial cropping.

Sinhedra and Lunadra are situated on the left bank of the Heron. They are connected to Vasna by cart tracks. They are small villages of 510 and 237 people respectively. Both cultivate mainly food crops. Sinhedra has 68.21% and Lunadra 82.45% of their cultivated area under food crops. Their landowners are from Vasna. A large number of their people belong to the scheduled castes and tribes Sinhedra (80.78%), Lunadra (62.87%) Map 35. They are mainly agricultural labourers who go to Vasna for work. In group I, these two villages are very important as sources of farm labour for Vasna.

Villages in the influence area of Vasna Group II (40% level):

Table 64 : Bus services in sub region II of Vasna region (Map 38)

Name of the village	Population 1981	Distance from Vasna in km.	Type of Rd.	Daily frequency From Vasna		Daily frequency To Vasna	
				Fair weather.	Monsoon	Fair weather	Monsoon
Sarangpur	539	4 1/2	Cart track	-	-	-	-
Vadadla	552	4	"	-	-	-	-

There are only two villages falling in the 40% level of contact with Vasna namely Sarangpur and Vadadla. They are connected with Vasna by cart tracks, but they are within 4 to 4 1/2 km. from Vasna.

Sarangpur is situated on the right bank of the Heron and has no bus services to Vasna. It is a small village of 539 people. But its main crop is cotton (88.36%). This village comes under the influence of Bhatpur as well. Its landowners are from Bhatpur. However, it maintains certain links with Vasna because of its special facilities namely the Health centre, the irrigation office and police chowky.

Vadadla is a village of 552 people, 99.21% of its area is under food crops. The people of this village are poor, and are not able to cultivate cotton, 65.04% of its population belong to scheduled castes and tribes. They are agricultural labourers and go to Vasna for work.

Villages in the influence area of Vasna in 20% level :

Table : 65 Bus services in sub region III of Vasna region : Map 38.

Name of the village.	Population 1981	Distance from Vasna in kms.	Types of Road	Daily Frequency From Vasna		Daily Frequency To Vasna	
				Fair weather	Monsoon	Fair weather	Monsoon
Kosindra	3050	1 1/2	Tar	7	7	7	7
Panej	1088	6 1/2	"	5	5	5	5
Chucheli	804	7	"	5	5	5	5
Simulghoda	269	6	cart track/ metalled	5	5	5	5
Geharpura	171	6	metalled	5	5	5	5
Rajbodali	817	4	"	2	2	2	2
Kharada	190	2 1/2	"	2	-	2	-
Un	814	5	"	2	-	2	-
Chikhadra	1671	1 1/2	cart track/ metalled	-	-	-	-
Sarghi	758	4 1/2	metalled	-	-	-	-
Dasan	513	5	cart track-	-	-	-	-
Kepadia	313	6	"	-	-	-	-
Savjipura	101	6	"	-	-	-	-
Khodia	435	7 1/2	"	-	-	-	-
Navagam	580	3	"	-	-	-	-
Sarsinda	1282	6	"	-	-	-	-
Kadehhala	2797	6	cart track- metalled	-	-	-	-
Chhachhadra	517	6	cart track-	-	-	-	-
Vadadla Chorangle	582	7	"	-	-	-	-

Cart tracks play an important role in the area. Eleven of the villages in the 20% level are connected to Vasna only 67 cart tracks. But due to the special facilities offered by Vasna people come from far off villages to avail themselves of the facilities. The nodality of Vasna has also increased steadily with the new roads and its influence has extended over villages situated 8 kms. from it. Nineteen of these villages in the 20% level of contact with Vasna are also found in the influence area of Kosindra, Vasna is only 1 1/2 km. from Kosindra and benefits by its proximity to the larger village which is fast becoming the main outlet of the study area.