CHAPTER 3

ECONOMIC ACTIVITIES

3.1. Role of Agriculture

"Food occupies the first place in the hierarchical needs of man".

(SIXTH FIVE- YEAR PLAN)

Agriculture, in general, is always determined by physical and non- physical factors, however their variability is reflected by the variable agriculture types.

(a) Physical Factors

Karjan has a fertile and well drained plain mostly composed of black cotton soil, suitable climate etc. which had determining influence on the agricultural pattern, and the resultant economy of the area. Because of the favourable physical factors Karjan taluka was one of the leading cotton grower among the talukas of the cotton belt of southern central part of Gujarat Other minor ones were vegetables, fruits, oil seeds etc In recent years the sugar-cane has registered it-self in the list of its crops

(b) Non-Physical Factors

Non- physical factors also play a vital role in determining the agricultural pattern of any area Karjan has almost all the facilities to support

the agricultural activities. The farmers are well aware of the existing conditions, and the benefits of the uses of modern infrastructure, well developed road net work, facilities of marketing banking etc; above all their decision making aptitude in the light of the comparative advantages, out coming from the labour and capital invested gives a guide line for the selection of crops, and decides the cropping pattern.

Where in 1971 the traditional cash crops particularly cotton dominated the agricultural landscape of the taluka, in 1991 it almost vacated it for pulses specially tuver. It proves the fact that "all interactions between the capabilities and drive of human force and potentialities and endowment of nature varies according to the variation in relationship between man and nature" (Bishnoi and Singh 1980). However man's role is always significant in the design of cropping pattern. Thus "the cropping pattern is a time and space sequence in a given area" (Bishnoi and Singh 1980). "Crop pattern is one of the significant factors determining the income levels of a region. A large part of the difference in the level of income between different region can be accounted for by differences in crop pattern (M. Prahladchar1979).

According to the data gathered from the study area, there have been as many as eleven types of crops bearing significance in respect of their shares in the net sown area. They are classified as follows:(a)Cereals (b) Pulses, (c) Cash crops, (d) Oil seeds, (e) Fruits and vegetables, (f) Others.

Cereals

Cereals play a vital role in the cropland use of any area. Karjan had been over the year's cash crop dominated area. However, the significance of cereals can well be evaluated from their percentage share of the total

cropped area. They occupied 18.8 percent of the N. S. A in 1970-71 and 19.2 percent in 190-91. The staple cereal crops cultivated almost in all the villages of the area in order of their hectarage, are Jawar Rice, wheat and Bajri. Table 3.1

Table 3.1

AREA UNDER CEREALS IN KARJAN TALUKA

1970-71 & 1990-91 (in Hectares)

Cereals	1970-71		1990-91	
	Area Ha	%	Area Ha.	%
Jowar	5723.8	11.32	6101.80	12.30
Rice	2020.70	3 99	845 30	1 70
Wheat	1544 60	3 05	1951.40	3 93
Bajri	223.7	0.44	607 60	1.22
Taluka	9512.8	18.8	9506 20	19.20
I	4076.6	17.81	4381.8	20 33
II	993.2	10 62	1883.5	18 82
III	4443.8	32.39	3240.6	21 61

Jowar:

The environmental conditions of Karjan seems to be highly favourable for jawar, which is revealed from the highest percentage of crop land allotted to it at both the points of time.

In 1970-71, jawar superceded all other cereals with the largest percentage 11.32 of N. S A. at the taluka level. At the regional and village levels, its share was differing in percentage, but in each case it found to be a popular cereals crop occupying greater share of N. S A. at both the points of

times In 1990-91 it's share marginally increased to 12.30 percent ; slightly higher than the previous point of time . In spite of a major slash of about 1000 hectares in this year's total N S. A. the share of jawar both in hectare and percentage has increased It therefore shows that jawar has retained its significance, and made an upward swing in the bi-decadal pattern of change This is owing to the geographical suitability and comparative advantage (that its inputs are low as it matures in rainy season, it takes little chemical fertilizers, less manual labour, while returns accrue even before the maturity and final harvest) in comparison to the other cereals in Karjan taluka.

Rice:

The cultivation of rice (Oryza Sativa) needs abundant quantity of water right from its sowing to harvesting period. Karjan never gained significance in rice cultivation, it was basically a cash crop (cotton) dominated taluka. However among the cereals particularly in the alluvial soils rice has also been listed as one of the cereal crops.

In 1970-71 a meager share of 3.99 percent of the taluka N. S A was devoted to it in 1990-91 it could not retain even that and declined to 1.70 per cent. This itself is the evidence of the position of rice in Karjan.

Rice is a labour intensive crop the industrialization in the surrounding areas has attracted the agricultural labour, so much so that the rural areas face great labour problem, as a result the pattern of , cropping is shifting from labour intensive to labour extensive crops Moreover, the initial input ratio is also comparatively higher than jowar etc as it needs more chemical fertilizer, water either by rain or by irrigation However, the rains during this period were quite sufficient i e. around 1194.01mm, but because of other

related problems as mentioned above, rice substantially declined, giving way to bajri, oil seeds and tuer It is also worth consideration that its initial inputs are more, but the out put is unpredictable, often it goes into loss Labour wages have increased making such crops costly and less profitable.

Wheat:

The environmental conditions of Karjan taluka are fairly favorable for wheat (tritium Satium) cultivation The soils of Karjan i.e. besar, alluvium and black are highly suitable to it, as the first and last have moisture retentive capacity and their sustainability is also very high. Thus wheat has been traditional cereal crop of Karjan and its adjoining areas

Being, traditionally cash crop cultivating region the cereals like wheat etc were grown mostly for domestic consumption. Thus at the first point of time the share of taluka N. S. A to wheat was 3.05 percent which increased to 3.95 per cent at the other period of time. The increase in its share of the cropland was owing to the increased internal demand and still greater demand in the neighbouring metropolitan cities

Bajari:

It is a poor man's food crop. But it is liked very much by all classes of the people of Gujarat particularly during cold season During 1970-71 'desi bajari' was cultivated which gave low yield, and was mostly rain-fed. By the Second point of time hybrid bajri requiring chemical fertilizers and adequate water is widely cultivated It gives high yield and has a steady demand in the domestic consuming market It fetches prices almost equivalent to that of wheat Thus gradually its share of cropland is found increasing. In

1970-71 its share in taluka N. S. A. was only 0 44 percent, but at the second point of time it acquired 1.22 per cent. Even though , it gained increased percentage share of N. S. A. at the second point of time, it does not enjoy the environmental favourability and as much popularity among the growers as that of jawar. It is, as such the crop of Padra the adjoing taluka of Karjan, and creeped in it.

At the base year in region I all cereals together occupied 4076.6 hectares (17.8% of N. S. A). Region II devoted 993.2 hectares (10.62) and region III gave 4443.0 hectares (32.39). The occupancy of a fairly big percentage of the N. S. A. by the cereals that two during the sovereignty of cotton reflects their significance. However, jawar may be taken as the principal crop among cereals and next in order stands wheat. (table 3.1)

At the second point of time, when cotton declined, the area under cereals has increased by a narrow margin in region I, that was only 4381.8 hectares (20.33%). Region II, however, gave them greater significance by almost doubling the hectarage to 1883.5 (18.82%) with greater share of jowar. But contrary to the rampant trend, region III slashed their former occupied area by 122.4 hectares giving only 3240.6 (21.6%). This is mainly owing to a greater area devoted to tuer etc. It thus reflects that farmer's usually have an eye on the larger marginal gains and so according to the absorption capacity of the market in case of produce of near constant demand give relatively larger share of N. S. A to them. The area devoted to cereals in region III at the second point of time has been owing to a big decrease in N S. A. and the increased area devoted to tuer, vegetable and fruits, oil seeds etc.

A village wise survey of the distribution of cereals as revealed by the table 3.2, explains that cereals did not carry much significance at the first point of time in the whole taluka. This is also reflected from their regional distribution patterns. None of the villages of the region I had cereals in the very high range of 60 per cent and above, at the base year. Two villages were in the high range, . none in moderate 45 60 percent, nineteen in the low range of 15.30 percent and fourteen villages in the very low range of below 15%

At the second point of time cereals got a bit more significance that one village went to very high range of above 60 percent and above. One village in the high range, four in the moderate range, fifteen in the low and fourteen in very low ranges where all the 35 villages cultivated cereals at the first point of time, all of them did it at the second point of time also with increased percentage - of area and changed strains of crops. (Figure 3 1)

Table 3 2

PERCENTAGE RANGE OF N S.A. UNDER CEREALS IN THE VILLAGES OF REGIONS OF KARJAN (1970-71 & 1990-91)

NSA Occupied in %	1970-71			1990-91		
	I	II	III	I	II	III
Above 60	0	0	1	1	0	1
45 – 60	2	0	3	1	0	1
30 – 45	0	2	5	4	4	6
15 – 30	19	8	19	15	5	14
Below-15	14	4	16	14	5	22
Nil	0	0	0	0	0	0
Total	35	14	44	35	14	44

Cereals, according to the established cropping trend of the taluka, were not very popular in region II, as in others,. Out of 14 villages none were found to have its place in very high and high levels of 60 percent and above and 45-60 percent. All fourteen villages had the cereals ranging moderate to low ranges. Only two villages occupied their place in moderate, 8 in low and 4 in very low ranges.

At the second point of time cereals almost remained at the same levels as of previous point of time, however the trend of increase in cereal cultivation is reflected by the increase of two villages and their diametrically opposite shift of location. At the first point of time two villages Dethan and Keya on the western part of the region had cereals in the moderate range of 30 to 45 percent. The four villages on the same range at the second point of time are Kurali, Vermar, Kothav, and Nisalia at the extreme eastern margin of the region and also of the taluka (Figure 3.1.) Thus the three ranges make an interesting pattern of distribution from east to west with moderate in the east followed by low and very low ranges to westward and southward extents.

A view over the pattern of cereals distribution in region III at the first point of time reveals that the cereals bore significance being the sharers of N. S A in the very high range of 60 percent and above i.e. Sanspura.

Next in the status of cereal cultivators were three villages Somaj, Delwada and Nani Koral; having devoted 45 to 60 percent of N. S. A. were in the high range Besides five villages were in the moderate range of 30 to 45 per cent In the low and very low ranges of 15 to 30 percent and below 15 percent were 19 and 16 villages respectively. However, the fact note-worthy here is that this region is composed of fine fertile alluvial soils suitable for a

KARJAN TALUKA

CEREALS CULTIVATION

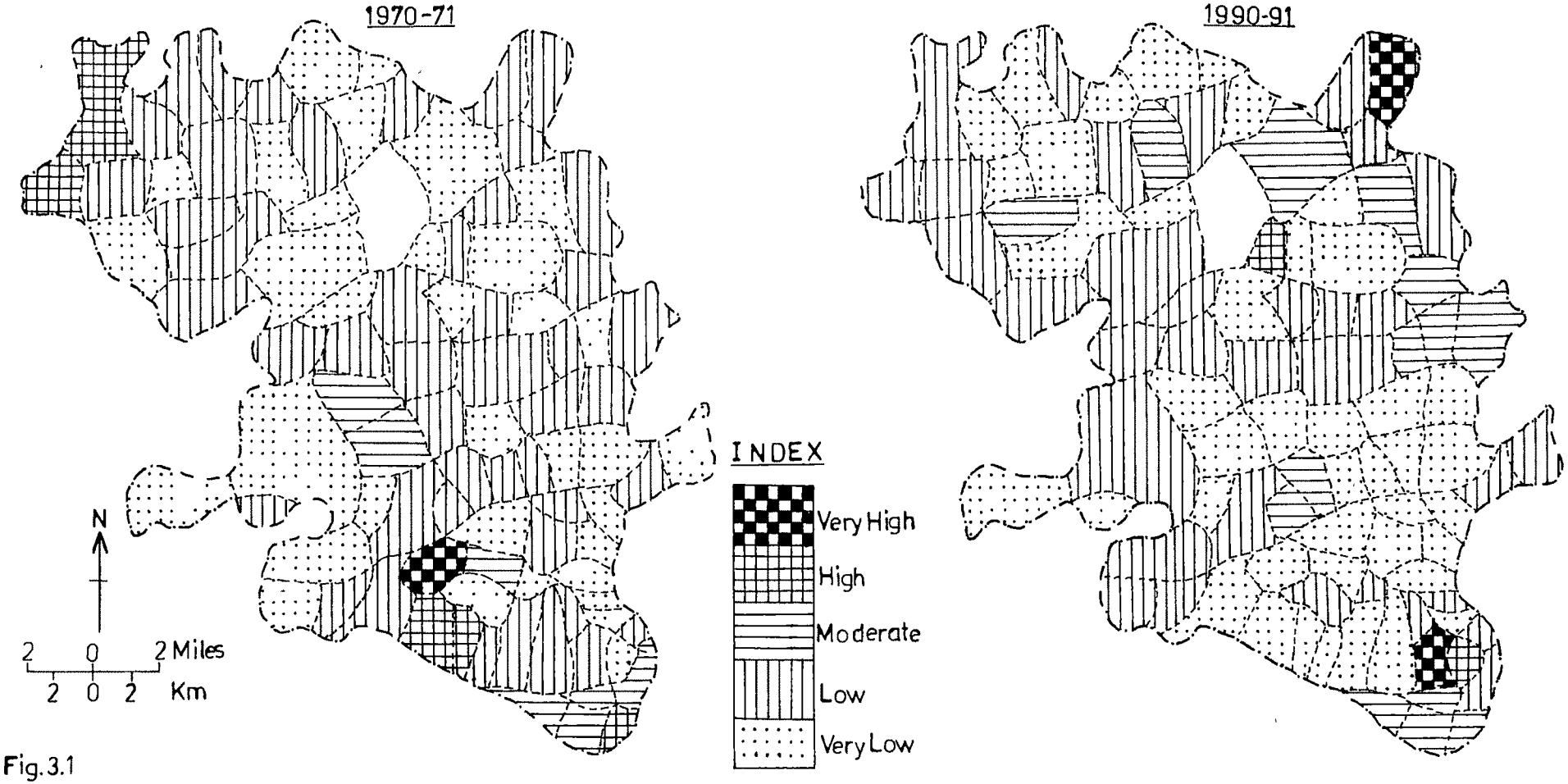

Fig. 3.1

variety of cereals, but more particularly for the Jowar, and therefore jawar among all other cereals, has grabbed highest percentage of N. S. A. in all different range distribution

The year 1990-91 displays an anti-wave for cash crops particularly cotton, over the entire cotton belt. It is therefore least surprising that the cereals have taken a sizeable share in the N. S. A. of the villages or the taluka. One village Malod in the Valley of Narmada devoted above 60 percent of its N.S.A to cereals as Sanapura did in 1970-71. A clear disparity is viewed in distribution of cereals in other ranges when compared with the same two decades ago. In the case of high range (45 to 60%) there was only one village Sagdol as against three of the past. In the moderate range of 30 to 45 percent were six villages against the former 5 In the low range the number of cereal growing villages were reduced from 19 to 4 But the very low range attracted 22 villages against 16. Therefore it is revealed that in the event of the dethroning of cotton cereals could not procure an assumed up lift in respect of their position among the other crops. Possibly it may have happened due to a sharp bent towards tuer

However, undoubtedly, the loss of cotton is the gain of other crops, cereals are one of the beneficiaries. This leads to admit that the increasing population has posed a great demand of the cereals not only locally but all over the state, and according to government policies a major part of the demand must be meted out from the local resources. Secondly the highly paying crop has lost ground, that had been enabling to import the food grain from the adjoining states. Thus it became obligatory for the cultivators to grow more food so as to spend least for it purchase. This has eventually developed

an environment of transformation in pattern of cultivation as well as its marketing in this region

Pulses:

Pulses are a significant crop of the tropical countries. India is a major producer of pulses in the world Practically all the states and each agricultural region of India grows one or the other kind of pulses. It has always served as a substance rich in protein to the dietetic system. However, a part from only being a subsistence crop pulses have been accounted as profitable commercial crop as well. The area under study is a good example in this respect. The fall of cotton paved the way for the rise of tuer and other kinds of pulses At the first point of time the pulses did not enjoy a sizeable share in the cropland use of this taluka, Probably because the cotton overwhelmingly dominated the agricultural milieu By the second point of time, owing to some adverse environmental conditions particularly biotic menace, cotton lost ground giving way to tuer, the most important among all the pulses cultivated in this region. Its significance can be assessed from its share of cropland of both the points of time under study. Where in 1970-71 it could share by only 1 78 percent of the total cropland. At the second point of time it prevailed over the cropland by acquiring around 50 percent (49.77%) of the total cropped are This is a major change in agricultural practice, At Karjan.

Table 3.3

AREA UNDER PULSES IN KARJAN TALUKA & ITS THREE REGIONS

(1970-71 & 1990-91)

Pulses	1970-71		1990-91	
	N. S. A.	%	N. S. A.	%
Tuer	791.2	1.56	24626.2	49.66
Gram	115 2	0.22	58.33	0.11
Taluka	906.4	1.78	24684.5	49.77
I	331.5	1.45	10628.2	49 33
II	201.3	2.15	4998.4	49.94
III	373.6	2.72	9057.9	60.41

Among the varieties of pulses there are tuer, gram, mug and urad Barring tuer, others are too insignificant to be taken into account Tuer has, by favourable circumstances, become the main rival or to be very precise main successor of cotton It has transformed the agricultural scenario of the taluka in the same ways as cotton did around a decade ago.

Comparative advantage between tuer and cotton is that the former even though not fetching prices as high as the latter, its initial inputs are far too low rather than cotton and thus fetches a fairly high margin of profit As such tuer, if other things remaining the same, gives a desired out put, least brunted by other phenomenal enemies. The hybrid tuer is also getting in road in this area and over-riding the traditional tuer Its advantage is that in quality it is as good as former, in duration it matures earlier and in output it is far better than the old strains If infrastructure is reliable, at least two crops a year of the hybrid tuer can easily be taken.

Tuer

Chief among the pulses cultivated here is tuer. It occupied the largest share of the cropland allotted to all species of pulses at the first point of time, and largest share of the cropland allotted to all crop at the second point of time (Table 3.3) Total share of cropland devoted to it was less than 2 per cent (1 56%) in 1970-71. The most important and most profit making crop of that period was cotton prevailing over the landscape. Others were sub order crops having received bits of the cropland.

By the second point of time the condition drastically changed in favour of tuer and against cotton, tuer occupied a sizeable share of the cropland to the tune of 49.66 per cent, and others could occupy just a nominal of 0 11 per cent of the N S. A. among them gram was relatively a bit significant. It no more remained a crop for domestic consumption only as in the former year but became a crop of commercial status. It attracted farmers owing to its low inputs and higher outputs as well as its certainty of a successful crop and better prospects on its price front.

Apart from the position of pulses at the taluka level, the pulses did not do well at the regional level also during 1970-71. The share for N. S A allotted to them in region I was just too small to the size of 1 45 percent and in regions II and III were 2.15 and 2.72 percent. That shows the value of pulses in cropping pattern of all the three regions At that time the motive behind their cultivation was only domestic use, not sale But the condition, within a period of two decades have gone so much in favour of these crops, and particularly tuer that the same regions have allotted around 50 percent and more of their N S. A. to this crop, as tuer alone stood the chief substitute of the dethroned

cotton. Region I devoted as big an area as 49.33,. Region II 49 94, while region III gıve more than 3/5th of its N. S. A. i.e. 60.41 percent to thıs crop.

At the first point of time both at macro and micro levels tuer was grown in the very low range of 0.15 percent only In spite of its in-significance in terms of the shares of cropland devoted to it.Itseems to have been a popular crop grown by almost all of the villages in all the regions of the taluka.

Table 3.4

PERCENTAGE RANGE OF N.S.A UNDER PULSES IN THE VILLAGES OF REGIONS OF KARJAN (1970-71 & 1990-91)

NSA Occupıed in %	1970-71			1990-91		
	I	II	III	I	II	III
Above 60	0	0	0	12	2	14
45 – 60	0	0	0	10	4	12
30 – 45	0	0	0	5	5	9
15 – 30	0	0	0	6	3	7
Below-15	32	14	44	2	0	2
Nil	3	0	0	0	0	0
Total	35	14	44	35	14	44

At the second point of tıme, as stated above, tuer became the first order crop occupying very high range of above 60 per cent of the N.S. A. in 12 of 35 vıllages of region I, 2 of the 14 villages of region II and 14 of the 44 vıllages in region III In the range of 45-60,percent were 10 villages of region I, 4 vıllages of region II and 12 of the 44 vıllages of region III In moderate range were 5,5 and 9 of the three regions respectively. In low range were 6., 3 and 7 villages of the three regıons ın order of theır sequence Whıle ın very

KARJAN TALUKA

PULSES CULTIVATION

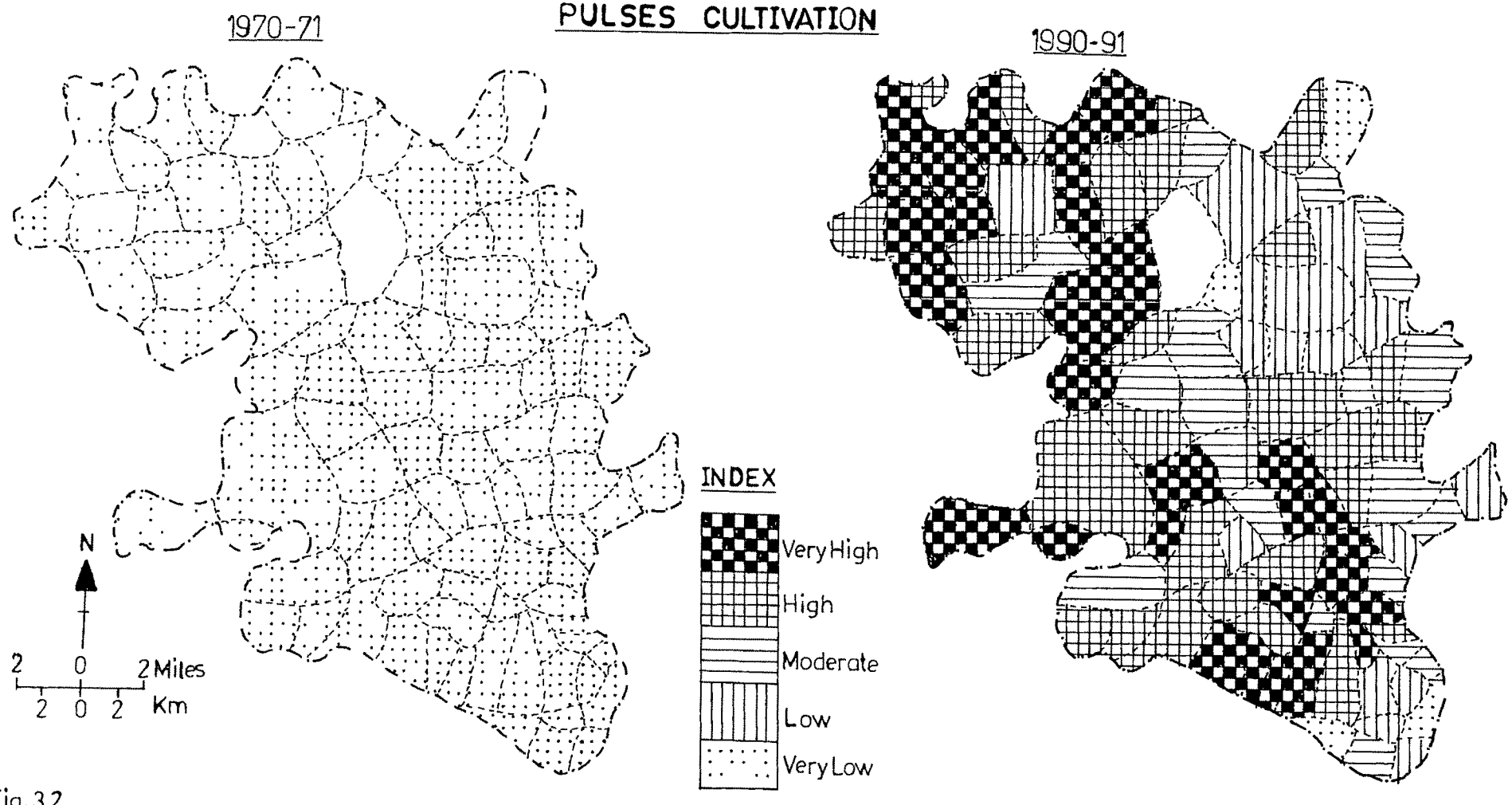

Fig. 3.2

low range of below 15 percent were 2,0,2 villages of the three regions (Table 3 4).

The upswing of tuer in 1990-91 may well be discerned from its villages wise distribution in contrast to its former position Where, at the first point of time it reeled only in the range of below 15 per cent . At the second point of time, two villages of region I, two of region III and none of region II had cultivated it in very low range of below 15 percent Thus tuer took the position of the principal crop of the regions asapart and taluka as a whole (Figure 3 2).

This substantial change in the agricultural milieu may be taken as a phase of transformation at the farming front of the study area.

Cash Crops:

Karjan was well known for the cash crops cultivation specially 'cotton'. Cash crops of Karjan taluka include cotton, spices, and sugar-cane etc. Cotton was, by far, the most important cash crop, at the base year, others had their sub order or casual appearance. By the second point of time, cotton substantially declined giving way to tuer as its principal substitute.

Cash crops, in all, took the largest share of 70.8 percent of N. S. A. at the first point of time of which cotton alone enjoyed 70.31 percent. Everything is changing in this changing world. Cotton, that ruled the cropping realm for several decades, was subsequently ruled by others especially tuer by 1990-91 Table 3 5).

Table 3.5

AREA UNDER CASH CROPS IN KARJAN & ITS REGIONS

(1970-71 & 1990-91)

Cash Crops	1970-71		1990-91	
		%		%
Spices	0	0	638	1 28
Sugar-cane	16071	0.03	1641 5	3.30
Cotton	35545.9	70.31	5071.9	10 22
Taluka	35574 0	70.80	7531.4	14.8
I	16749.9	73 12	3723.5	17.28
II	7323 6	78.33	1564 5	15 63
III	11500.5	83.85	2063 4	13 76

Cotton:

In 1970-71 cotton was widely grown in this taluka. Other cash crops as spices and sugarcane, enjoyed a meager share of N S. A. by only 0.00 and 0.03 percent respectively.

With the departure of cotton, around 1990-91 tuer took over as a significant cash crop of the area availing around 50 percent or so of the N S. A. Spices were new entrant in the crop ecology, with 1.28 percent of N S. A. sugarcane appeared in 1970-71 with 0.03 per cent and stabilized its position with increasing share of N S. A. The meagre share of 0.03 per cent went up to 3.30 per cent at this point of time.

Cotton- the dominant crop of the entire taluka had occupied the highest percentage of N S. A. in each region Region I devoted 73.12 percent

region II 78.33 and region III 83.85 percent during the first point of time. But its fall is also in the reverse order that it could retain only 17.28, 15.63 and 13.76 percent of the N S A. in the three regions However, region III that gave the highest percentage of all in 1970-71, was reduced to the lowest of all in 1990-91 While region I that gave the lowest comparative share remained the highest Region II remained in the middle under both the situations.

Table 3.6

PERCENTAGE RANGE P OF N. S. A. UNDER CASH CROP IN THE VILLAGES OF REGIONS OF KARJAN TALUKA (1970-71 & 1990-91)

NSA Occupied by cash crops in %	1970-71			1990-91		
	I	II	III	I	II	III
Above 80	10	3	2	0	0	0
60 – 80	21	9	29	0	0	0
40 – 60	2	2	5	5	1	0
20 – 40	2	0	5	6	6	5
Below-20	0	0	3	22	7	39
Nil	0	0	0	2	0	0
Total	35	14	44	35	14	44

In the village wise distribution, notable variation took place in the cultivation of cash crops, at both the point of time. In 1970-71 cash crops occupied substantially higher percentage of their N. S A of which the most significant was cotton In the very high range of 80 percent and above were 10

villages,in the high range of 60-80 per cent, were twenty one villages and in the moderate and low ranges were two each and none in the very low range of below 20 per cent.

At the second point of time a notable declining trend in cash crops is observed Where the cash crops at the base year were largely placed in the moderate to very high range and a few in low range,have drifted to very low in 22 villages, low in six and moderate in five villages, and nil in two villages, in contrast to all villages , having cultivated it in the former year Cotton, thus went off the scene turned upside down as a dominating crop, and was replaced by a sheer sub order crop tuer at the second point of time.

Region II has a very small extent comprising only fourteen villages sandwitched between two big region of I and III. At the first point of time all fourteen villages had cotton as their principal crop. Of them were three in the very high nine in high, and two in the moderate range and none in the low and very low ranges.

At the second point of time this region has also met the same fate as region I with largest numbers of villages 7 in the lowest range of below 20 percent. Six in the low range and only one in the moderate range rest all higher ranges remained blank. Table 3.6 and Figure 3.3

Region III with its 44 villages had two villages in the very high range of above 80 percent 29 in the high range of 60-80 per cent 5 each in moderate and low and the 3 in the very low range . This region covered all ranges of cotton's share in the N. S A. of all of its villages This shows the significance of cotton in this region at the first point of time But the plight seems, to have turned worst , when at the second point of time cotton was

KARJAN TALUKA

CASH CROPS CULTIVATION

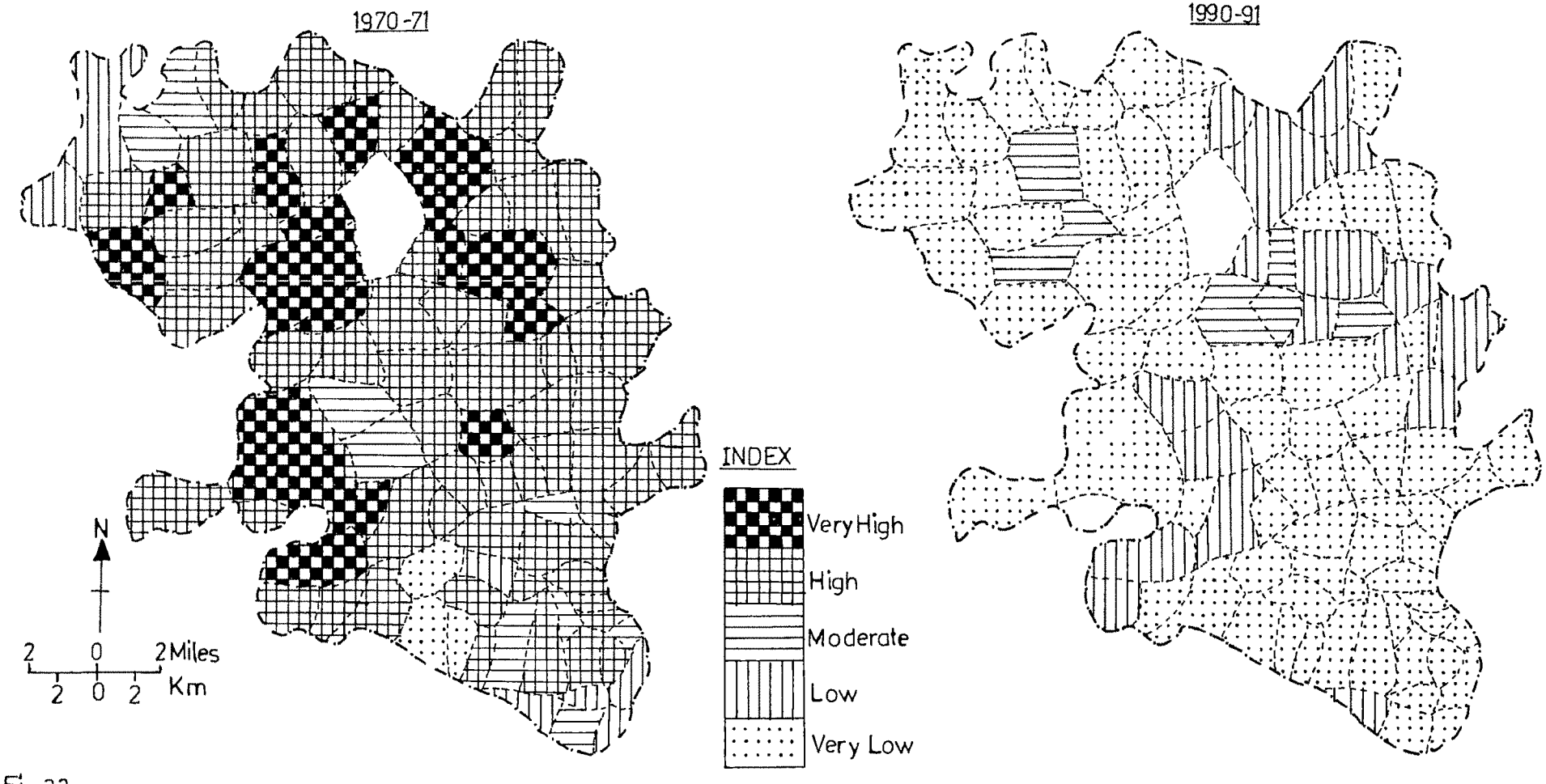

Fig.33

pushed down to stay only in the very low and low ranges. However, notable is the fact that cotton has not received a place even in the moderate range but was confined to very low with 39 villages and low with only five villages. However Its cultivation was not totally abandoned

To state, the significance of cotton has definitely slashed down in the cotton growing belt of which Karjan is a part, but it is well noted that in spite of a steep down swing in all the regions and practically all the villages, cotton has not totally vanished away from the agricultural milieu of Karjan. Though in proportion the lowly significant crops of the base year have got a chance of upswing, they could not displace cotton totally from its realm.

The down swinging status of cash crops especially cotton has brought greater degrees of agricultural and economic transformation i e. the decision making about the selection of crops, the assessment of local and market demands along with the input output factors This is found to have given a better and also less cost oriented alternative to the farmers The spatial view is also transformed from the mono crop cotton sweeping over the crop environment by multi cropping with greater stress on tuer oilseeds and cereals.

Oil seeds:

Oil seeds have always remained the sharers in the N. S. A , and a component of the cropping pattern of any cultivated area Significant among them are caster, ground nut, til (Sesamum) and the recently admitted soyabean. At the time of sole supremacy of cotton the oil seeds bore meagre significance At the first point of time N S. A , share allotted to them was in all 0.12 per cent Individually they occupied, caster 0.05 groundnut 0.01 and til 0.06 per

cent. This was a sheer negligible status, largely cultivated to meet domestic needs.

Table 3.7

AREA UNDER OIL SEEDS IN KARJAN & ITS THREE REGION IN

(1970-71 & 190-91)

Oil Seeds	1970-71		1990-91	
		%		%
Caster	26.4	0.05	1543.50	3.11
Groundnut	7.7	0.01	670.1	1.235
Til/Soya	32 9	0.06	276.4	0.55
Total	67.1	0.12	2490.1	5.00
I	26.6	0.17	968.8	4.49
II	2.9	0.03	385.0	3 85
III	37 6	0.27	1136 3	7.58

By the second point of time the pace of industrial development increased tremendously, employments venues have opened inviting migrants of all class of work force from the nooks and corners of the country. Baroda the cultural capital of Gujarat became an industrially developed city. Thus people of all shades, view points and tastes made an influx here. Their variable needs cast a deep impact not only on the immediate market but also on the agricultural vista in its vicinity and beyond. Thus the need based cultivation allotted a relatively large share of N. S. A. to oil seeds Caster being an oil of medicinal value demanded by pharmaceutical industries was bestowed larger share of N. S. A., than other oil seeds. Thus caster swung up from 0.05 per cent of 1970-71 to 3 11 per cent in 1990-91. Groundnet, went up from the mere 0.01 per cent to 135 times more occupying 1 35 per cent. Til (sesamum) and

soyabean, however did not get impressive status, but rose to 0 55 per cent from 0.06 per cent of the former year (Table 3.7)

The oil seeds in respect of their values at regional level were still worse than pulses during 1st period. Their occupied area was 0.17, 0.03, and 0.27 per cent in region I, II, and III respectively. But the second point of time raised their values to the tune of 4 49, 3.85 and 7.58 per cent in the three regions respectively. Region III, however exceeded other's by devoting 7.58 per cent of its N S. A. This rise is due to the fall of cotton, as well as their increased demand in the market. Table 3 7 gives the details of oil seeds at the two points of time

The village-wise distribution of oil seeds as shown by table 3 8 gives the trend of 1970-71, and 1990-91. The table displays the comparative position of oil seeds in and between each village of all the three regions at the two points of time. Figure 3.4 depicts the notable changes

Table 3 8.

PERCENTAGE RANGE OF N.S A. UNDER OIL SEEDS IN THE VILLAGES OF REGION OF KARJAN TALUKA (1970-71 & 1990-91)

N S.A , Occupied in %	1970-71			1990-91		
	I	II	III	I	II	III
Above -8	0	0	0	4	3	13
6 – 8	0	0	0	5	2	6
4 – 6	0	0	0	9	1	5
2 – 4	1	0	3	5	5	2
Below–2	9	2	8	5	2	11
Nil	25	12	33	7	1	7
Total	35	14	44	35	14	44

KARJAN TALUKA

OIL SEED CULTIVATION

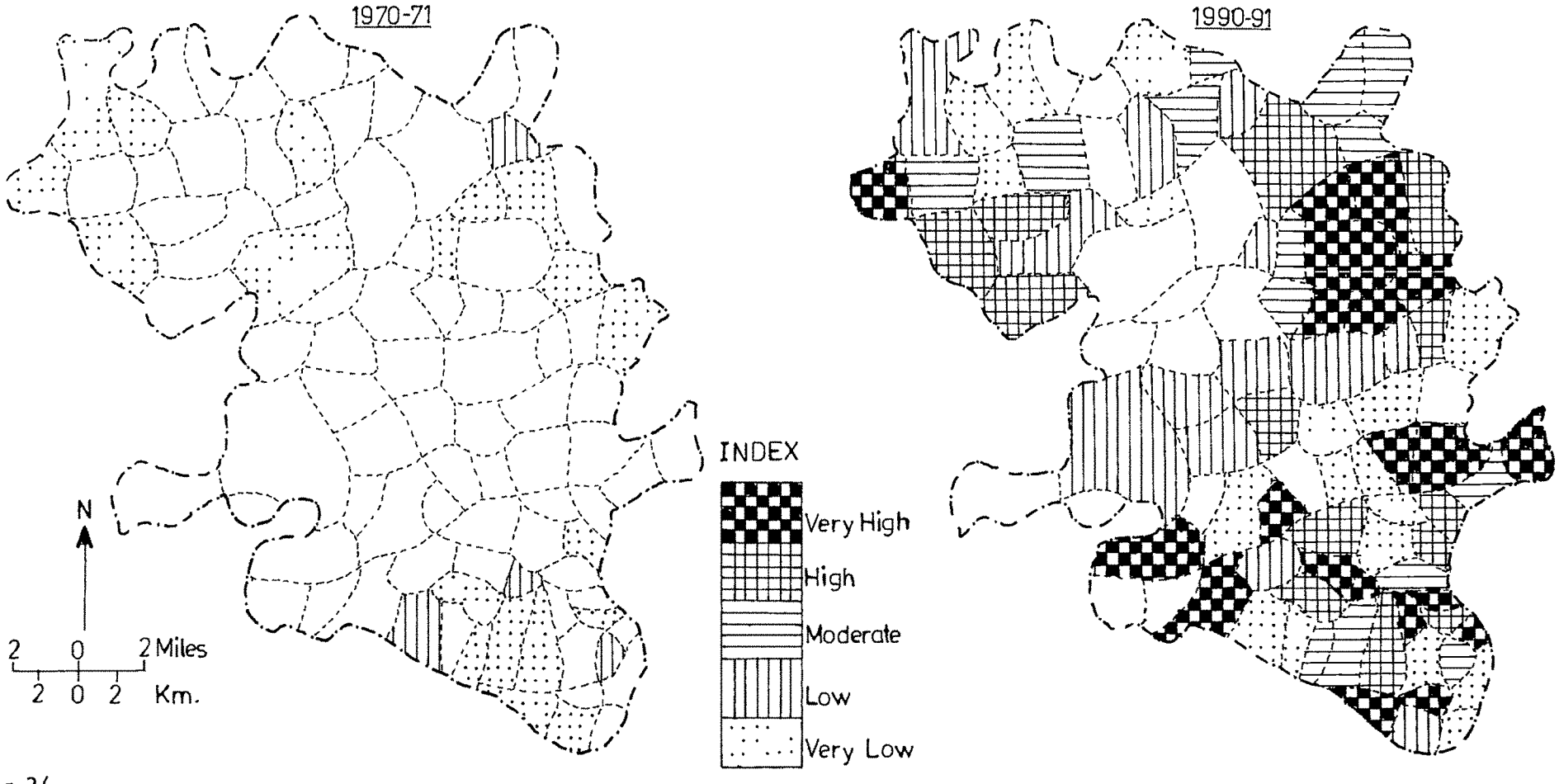

Fig. 34

Region I did it only in its ten villages of which one was placed in low range of 2 to 4 per cent and nine villages in the very low of below two per cent As many as 25 villages did not grow it at all, at the first point of time.

By the second point of time the oil seeds gained great significance They were uplifted from low and very low levels to high and very high position in 5 and 4 villages respectively and nine in moderate five each in the low and very low ranges. Only seven villages abstained from growing it.

Region II with its fourteen villages showed their presence only in two villages that too in the very low percentage range of below 2, and 12 villages kept them totally away But at the second point of time this region has also given due importance to them by raising them in 13 of its 14 villages Where in the high and very high ranges were two and three villages respectively Out of the rest, one was in moderate, five were in low and two in very low.

Similar pattern of cultivation of oil seed is notable in region III. It also placed them in the low and very low ranges in its three and eight villages respectively, and remaining 33 village did keep them away at the first point of time

Just an inverse picture is seen at the second point of time with 13 villages in the very high 6 in high, 5 in moderate, two in low and eleven in very low . However, only seven as against the former 33 did not grow it.

A notable feature of all the regions is that, owing to the cotton domination, their position was just futile confined to very low and low levels in a few villages and large number of villages (i.e R I 25, R. II 12 and R. III 33) did not give any place to them. But the down fall of cotton gave chance of up sowing to them and the majority of non-cultivators was converted to minority as only a few villages i e 7 of region I, 1 of region II and 7 of region III abstained from growing them

Fruits and Vegetables

Fruits and vegetables provide requisite nutrients to the human body and they are the important items in the daily food intake. However vegetables are an inseparable item in varying quantities and qualities in the food of each class of people Fruits usually serve the needs of upper economic class They are mostly grown for commercial purposes, but a part of that is kept for their domestic consumption too In Karjan like other talukas of Gujarat both fruits and vegetable are found to have been taking a share of the taluka N S A , at both the points of time Being a need based cultivation their share have been variable that at the base year the share of fruits in the N. S. A. was 1.01 per cent and that of vegetables was 2.60 per cent Among fruits banana, chikoo, guava, orange, water-melon were produced. In vegetables were green vegetables, ladyfinger, tomatoes, cauliflower etc. By the second point of time the cultivation of the vegetables exceeded that of the fruits. The former increased by 2 11 per cent over the former year, and the latter decreased by 0 66 per cent The most pertinent reason for the phenomenon of increase of one, and the decrease of the other may be the ready cash-earning quality of vegetables with less inputs The other takes enough labour and capital and also time to become marketable.

Table 3 9

AREA UNDER FRUITS/ VEGETABLES IN KARJAN & IT THREE REGION (1970-71 & 1990-91)

Fruits/Vegetables	1970-71		1990-91	
		%		%
Fruits	512.9	1 01	176.5	0.35
Vegetables	1317.2	2.60	2335.4	4.71
Talukas	1830.2	3.61	2511.9	5.06
I	735 9	3.21	333.3	1.54
II	309 9	3 31	833.2	8.33
III	784.4	5 71	1345.4	8.97

A more minute picture of N. S A occupied by fruits and vegetables emerging from the three edaphic regions exhibited from the table 3.9 given below.

At the base year, fruits and vegetables were devoted 3.21, 3.31 and 5.71. Percent of N. S. A., in all the three regions respectively. By the second point of the time, their share of N S A was 1.54, 8.33 and 8.97 per cent of the region's total N. S. A . Region I shows a decrease from 3.21 to 1.50 against normal trend of increase of the time, while other two regions, have substantially increased their percentage share to 8 33 and 8.97 from the former 3 31 and5.71 per cent. It has therefore revealed that region III has given more weightage to their cultivation followed by region II.

A glance at the village-wise distribution shows that the villages of the three regions grew them on varying share of their N. S. A Table 3.10

gives the village- wise distribution of fruits and vegetables in the three regions of Karjan taluka at the two points of time

Table 3 10

PERCENTAGE RANGE OF N.S.A. UNDER FRUITS AND VEGETABLE IN THE VILLAGE OF REGION OF KARJAN TALUKA

(1970-71 &1990-91)

N S A , Occupied in %	1970-71			1990-91		
	I	II	III	I	II	III
Above–40	0	0	0	0	1	1
30 – 40	0	0	0	0	0	3
20 – 30	0	0	0	0	1	2
10 – 2	3	0	5	2	2	4
Below–10	27	13	36	24	8	31
Nil	5	1	3	9	2	3
Total	35	14	44	35	14	44

At the base year 30 villages of region I grew them. Three of them in the low range of 10 to 20 per cent and 27 villages in the very low range of below 10 per cent At the second point of their status of cultivation in this region remained the same but went down in respect of cultivating villages In the low range a decrease of 1 village, and in the very low range that of 3 villages occurred. So there were only 5 non-cultivating village at the first, and 9 at the second point of time.

Region II with its total 14 villages, cultivated them in 13 villages in the lowest range of below 10 per cent , only one village Bhathali did not grow it at the first point of time. But the conditions have gone very much in favour of fruits and vegetables at the second point of time Though only 12 of

the 14 villages devoted their part of N. S A. to these crops, one village allotted above 40 per cent of its N S A. , another gave 20 to 30 per cent, two villages got 10 to 20 per cent and eight villages devoted below ten per cent In this region their significance was exalted from very low of the base year to an orderly ascent up to very high range However, majority (8) of the villages kept them only in the lowest range, and 2 villages did not grow them

Region III seems to have been comparatively more inclined towards the cultivation of fruits and vegetables. At the first point of time 41 of the 44 villages grew them but kept confined to very low and low ranges with 36 and 5 respectively Only 3 villages abstained from their cultivation of the secrops

At the second point of time though the number of growing villages remained unchanged they were devoted higher share of the N S A of respective villages ranging from very low in thirty one to low in four, moderate in two, high in one and very high i e forty and above in three villages (Figure 3 5)

An interesting transformation in the agricultural system of Karjan taluka is the increased importance of the cultivation of fruits and vegetables This shows a very deep impact of the growing urban and local markets around.

Other Crops

Fodder and grass have been clubbed and named other crops. Table 3 11 give their distribution pattern The grass occupied 5 27 per cent of the taluka N S A at the first point of time green fodder was non existent At the second point of time grass increased by 0 26 per cent This increase is

KARJAN TALUKA

FRUITS AND VEGETABLES CULTIVATION

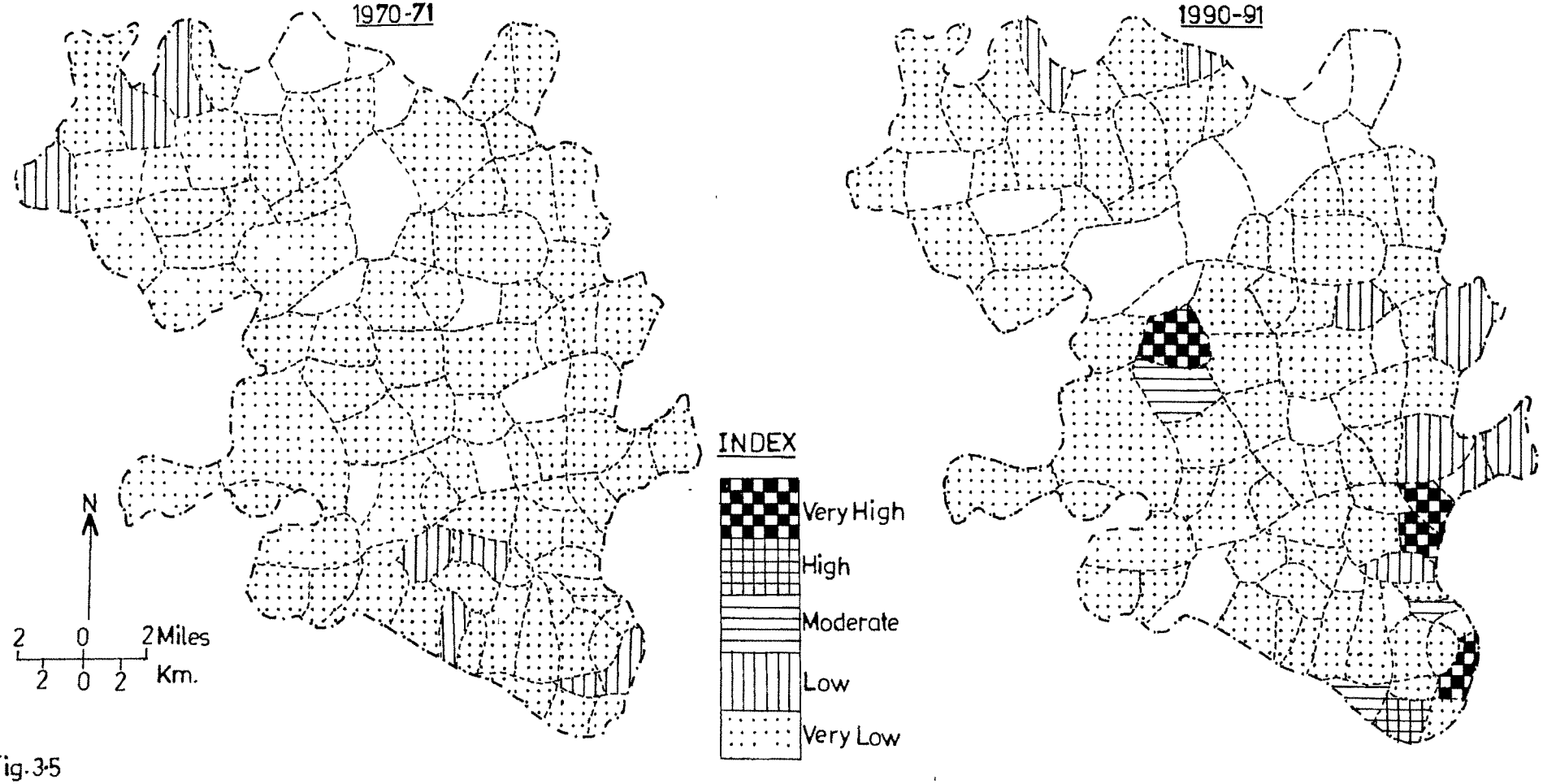

Fig. 3-5

definitely co-related with increasing bovine cattle owing to the programmes of dairy development encompassing all villages in each taluka of Gujarat, and so is in Karjan.

Table 3.11

AREA UNDER OTHER CROPS IN KARJAN AND ITS REGION

(1970-71 & 1990-91)

Other Crops	1970-71		1990-91	
		%		%
Grass	2666 9	5 27	2745	5.53
Fodder	0	0	230.3	0.46
Taluka	2666.9	5.27	2975.3	5.99
I	985 6	4.30	1507.3	6.99
II	517 6	5.54	343 5	3.43
III	1163.7	8 48	1124.5	7.50

These crops are as important to cattle as cereals to human beings. But their cultivation is always subjected to the number of their users i e draught and bovine animals. As draught animals are fast decreasing owing to mechanization of agriculture such crops also swing up and down in respect of the percentage N. S A. devoted to them. Table 3.11 shows their distribution in the three region of Karjan taluka at the two point of time.

At the base year, the percentage of N. S A. shared by other crops in all the three region was 4 30, 5.54 and 8 48 per cent respectively This crop at this point of time held third position in the cropping order superceded by cash and cereals crops at both the taluka as well as regional levels At the second point of time all the three region devoted 6.99, 3.43, and 7.50 percent of

their N. S A. respectively Region I and III gave relatively better weightage devoting 6.99 and 7.50 per cent of the N. S. A. than region II where their position was at a lower status However, their occupied percentage of N. S. A. has increased only in region I and decreased in the other two when compared to the percentage of the former year.

Other crops, at village levels may not be considered significant, as their distribution was mostly confined to the lower ranges at both the points of time, which is revealed from the table 3.12 and Figure 3.6 .

Table 3.12

PERCENTAGE RANGE OF N.S A. UNDER OTHER CROPS IN THE VILLAGE OF REGIONS OF KARJAN TALUKA (1970-71 & 1990-91)

N.S.A , Occupied in %	1970-71			1990-91		
	I	II	III	I	II	III
Above20	0	0	0	1	0	0
15 – 20	1	0	0	4	0	3
10 – 15	1	0	6	1	0	7
5 – 10	9	8	28	14	4	21
Below–5	23	6	10	12	9	9
Nil	1	0	0	3	1	4
Total	35	14	44	35	14	44

In region I, at the base year, their greater concentration was seen in the very low range i.e below 5%) in which it received its place in 23 villages and in the low range (5-10%) were nine villages, and one each in moderate and high, no cultivation in one village At the second point of time again its greater concentration was seen in the very low and low ranges done by the 12 and 14

KARJAN TALUKA

OTHER CROPS CULTIVATION

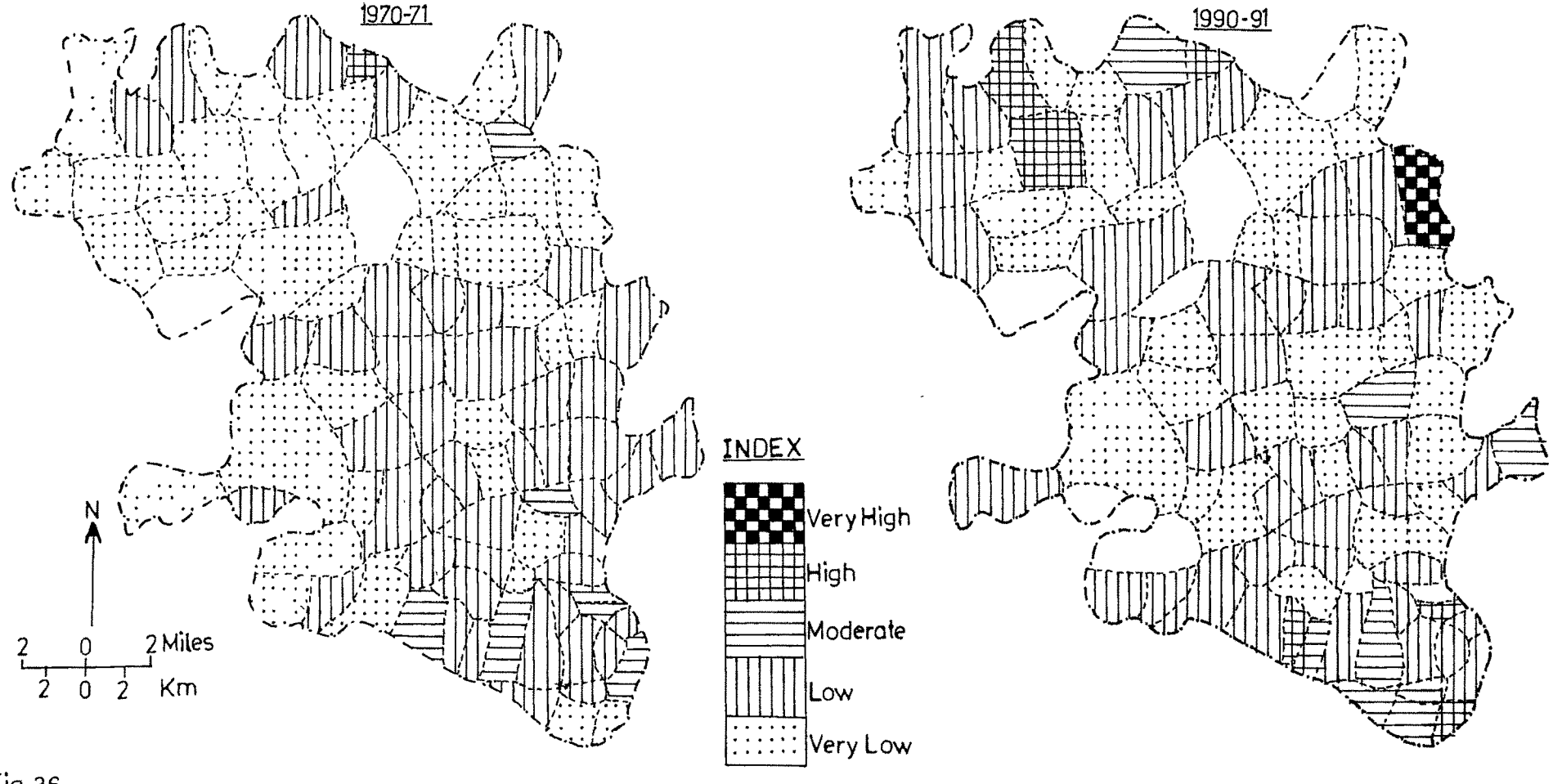

Fig. 36

villages respectively, out of the rest one was in the moderate, four in high and one in very high range This explains the importance of grass and green fodder which above all is owing to the dairy development schemes, as well as the programmes of the integrated rural development. This programme in Gujarat has been implemented in each taluka, but for selected villages and selected families. Usually the beneficiaries are helped for the functions other than the cultivation Milch cattle is the most common item of support . Grass is however cultivated not only for the domesticated cattle, but also for marketing, and it is purchased from various other places inside and outside Gujarat However the programme, of dairy development, and its benefits have the effect of retaining its cultivation on increased areas Though the share of N. S. A. in the cultivating villages has increased the number of non-cultivators also increased from 1 of the former year to 3.

In region II all fourteen villages did it in the low and very low range at the first point of time But by the second point of time, the number in the low range reduced to 4 from 8 and the very low went up to 9 from 6, and one village dropped its cultivation

Region III seems to have been a significant cultivator of this crop with six villages in the moderate, 28 villages in the low and 10 villages in the very low range during the base year But like region I, the importance of this crop has increased with the ascent of three villages in the high range, 7 village against 6 of the base year in the moderate range, 21 villages against 28 villages in the low range and 9 against 10 of the former in the very low range But in this year four villages abstained from its cultivation

The sizeable cultivation of fodder and grass at the first point of time was the need of the cultivators as they had to feed their plough-pullers and milk givers By the second point of time substantial mechanization has been noted largely replacing the plough pullers. But the desire of animals has not decreased, and more number of cows and buffaloes for milk and gobar gas purpose are kept by most of the farmers

Role of Industries

Even as early as 3000 BC. Indian gloried in its accomplished artisans, well-organized guilds of craftsmen Indian arts and crafts were well-known in ancient Greece and Rome The rulers of those times encouraged this skill of rural India Indian villages were self-sufficient and flourishing at that time But during the British period the cottage and village industries being unable to compete with the fine mill products were completely ruined The villages artisans were turned jobless.

India today is suffering from acute poverty of a big section of its population, which is a consequence of unemployment and the resultant disparities in income and wealth distribution Although a study by Vaidyanathan indicates that "Rural development so far has failed to create enough opportunities for productive employment to absorb the growing labour force". A socialistic pattern of society stands for economic welfare It aims at a justified distribution of wealth The chief objective of the rural industrialization has been to create opportunities of employment for the rural unemployed as the rural areas are yet in a state of under development as the supportive functions to their primary activities are lagging behind The decentralization of industries

from urban to rural areas was expected to pave the way for the rural economic uplift by arranging employment venues for them at their places of living

Rural Industries of Karjan taluka may be divided into two categories

(a) Medium Industries (b) Minor industries.

(a) Medium industries are:

- Diamond cutting and polishing
- Cement pipe
- Corn flakes.
- Dolomite powder
- Plastic
- Gur and khandsari
- Oil-crushers.
- Flour mills
- Others.

(b) Minor industries comprise:

- Pottery.
- Black smithy.
- Small scale gold smithy.
- Carpentry.
- Tiles and Brickiln
- Leather works.
- Other's.

(a) Medium Industries:

At the base year there had been 14 units of medium industries employing 313 workers in 10 villages But by the second point of time their number was raised to 51,spread over 30 villages employing 1050 workers.

Regionwise statement of medium industries is given in table 3.13 which reveales that region I was leading in industries at both the points of time. At the base year six units in the five villages, i.e. one each at Kandari, Badoka, Mangrol, Bharthana and two at Miyagam were established . In these six units around 147 workers were earning their bread However in 1990-91 they increased to 23, located in 12 villages one unit each at Virjai, Surwada, Kherda, Kanabha, Vermardi, Gampatpura and Sandarna. Two units each at Bodoka and Mangrol 3 units at Bhatrathana 4 units at Kandari, 5 units at Miyagam. These units, in all employed 473 workers

Table 3 13

REGION WISE DISTRIBUTION OF MEDIUM AND MINOR INDUSTRIES IN KARJAN TALUKA 91970-71 7 1990-91)

	Medium Industries				Industries		Minor Industries			
	1970-71		1990-91		Workers		1970-71		1990-91	
Regions	No. of villages	No. of Units	No o villages	No. of Units	1970-71	1990-91	No. of villages	No. of units	No of villages	No. of units
I	5	6	12	23	147	473	11	24	31	60
II	2	5	8	17	138	316	14	16	14	31
III	3	3	10	10	28	265	35	81	42	124
Taluk	10	14	30	51	313	1050	60	121	87	215

In region II, two villages viz Valan and Choranda had 2 and 3 units respectively, where 138 workers were working. By the second point of time, these units went up from 5 to 17 in eight villages viz 2 units at Kurali one each at Kasampur, Nisalia Dethan, Atali and Bachar. In these 17 units 316 workers were earning their livelihood.

Region III at the base year had only three units, one each at Rarod, Kantharıya and Pura, in which 28 people were working. At the second point of time seven more units were added one each at Kaliya, Sharupur-Timbı, Simali, Sanapura Sanyad, Pachhıyapura and Mankan. These units engaged 265 workers.

However, the increasing number of medium industries in rural areas is showing the pace of industrialization as a supportive function for the traditionally mono-functional habitats and is a good indicator of rural habitat transformation.

(b) Minor Industrial Units

There were 121 minor industrial units functioning in 60 villages of the taluka at the base year. Where as at the second point of time theses units increased to 215 spread over 87 villages.

At the regional level region I, at the base year had 24 units in 11 villages of them Bodoka and Miyagam had 5 and 4 units respectively others had 1 or 2 each. By the second point of time, their number went up to 60 distributed over 31 villages. Thus, except only four villages having none, each villages established one or two units. But Miagam and Bharthana had 7 and 6 units, Bodoka maintained the former number.

KARJAN TALUKA

DISTRIBUTION OF INDUSTRIES

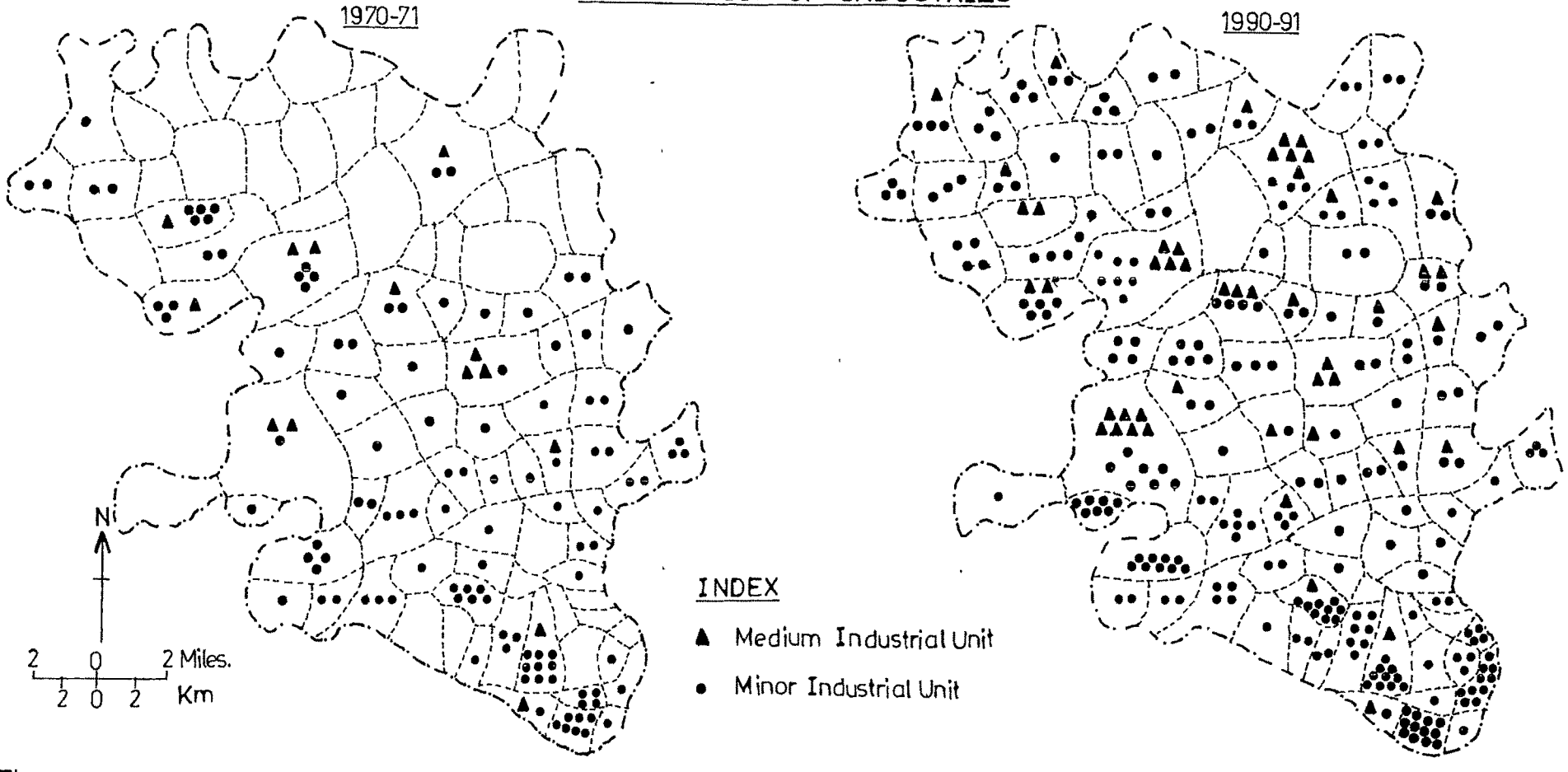

Fig.3.7

In all the 14 villages of region II were minor industries at both the points of time In 1970-71 there had been 16 units of which Kurali and Lokodra had two units each and rest of the villages had one each. At the second point of time, these units went up to 31, with major concentration of 6,5 and 3 units at Valan, Lakodra and Osalam respectively, other had one unit each.

In region III, at the base year 35 out of 44 villages had these industries to the tune of 81 units. Rarod, Moti-Koral, Nani-Koral had 9, 7 and 8 units respectively. By the second point of time 42 out of 44 villages had 124 units Rarod increased then from 9 to 11 and Moti-Koral from 7 to 12 Rest other villages had there units varying between 1 and 5.

However, the pattern of increase indicates the inclination of the rural folk to go for more such functions along with their ancestral one, It is also the need of the time ~~past~~ The agriculture with its increasing inputs has no more remained as profitable as it was in the past.The industrial activity if done with care has a greater margin of profit The hope for better income leading to better life-style is the key motive behind these developments. These are the factors that bring the rural habitat transformation (Figure 3 7)

3.3. Role of Commercial Activities

Both villages and towns are productive work shops producing consumer goods. The difference between two is that a village is characterized as a big agricultural work-shop using larger area, for relatively smaller production catering the basic needs of food, raw material for industries etc, and its counter part a town or a city is a non-agricultural workshop using smaller area for larger gainful production to satisfy the secondary and tertiary requirements of consumers. However, both are related with each other, in terms

of supply of goods produced at their respective places, to cater the needs of each other. Thus commercial activities are not only confined within a city or any non- agricultural functional centre but also both of these units of human habitation perform commercial activities at differential levels, within and between each other

This study is stream-lined on the commercial activities performed by the rural sector of the economy. In the villages, however, the majority is devoted to agricultural activities, there being comparatively a few of the industrial and commercial activities. A few of them work as artisans producing artifacts to supply the simple needs of the villages. However, the villages were not totally devoid of commercial activities. A few shops have ever been catering the needs of the village folk such shops are of the kind of "Kerana" (grocery) where most of the required things can be had Further, the weekly hats and bazaars also fulfil such needs The agricultural produce of the villages are sold either in the village itself where the wholesale purchasers come and settle the terms and carry away the purchased commodities themselves or the farmers take their commodities to respective 'mandies' in the near by towns or cities, and dispose them off

In the village hats and bazaars the old barter system in some form is yet in vogue, but the payment in terms of money is not uncommon . Now the commercial interaction within and between the rural areas and also between rural and urban areas is gaining strength as the infrastructure has substantially developed

Rural areas of Karjan have made considerable headway in marketing and shop establishments. Each village comprises more than one shop

and often the shops of different consumer goods come up together and give scenario of mini bazaar. This is generally found near the bus stops, as each a village is served by bus services.

The type and pattern of rural commercial activities are dealt in detail under the following head -

- Grain and Vegetable market.
- Hat and bazaar.
- Fair price shops.
- Fertilizers and seed stores
- Others.

Grain and vegetable market:

"Mandis' or agricultural produce market have always remained linked with agricultural goods producing areas Generally such 'mandis' have always been located in the near by towns or cities. Karjan being a town in the agriculturally productive area had two such "mandis", one for grains and the other for associated products, especially for cotton. Usually the second type of mandis were, in fact the storing place of ginning factories which are located in the Karjan town Besides Karjan. The 'mandis' are located at Padra, Baroda, and Dhabhoi etc., where the sale for agricultural products of Karjan taluka can not be ruled out It absolutely depends on the willingness of the sellers However, the distance factor and the cost of the transporting such products

usually do not allow their sale in the distant markets. As a result Karjan developed as a big mandi particularly for cotton as long as cotton was a rampant crop of the taluka

These are organised markets and cast their deep influences on the rural traditional economy. As long as the cotton was the principal crop of Karjan its sale, by and large, was in the Karjan ginning factories however, a small share was sent to Dabhoi and other towns with the down fall of cotton, the collection centers specially Karjan market is facing severe slack in its erstwhile booming business.

In respect of grains, especially, cereals, Karjan was never a surplus producer, rather imported for its domestic consumption from other cereal producing states viz Panjab, M. P etc., At the first point of time all business was centered round cotton but by the second point of time, the functioning of such mandis shifted towards tuer, oil seeds and vegetable, which have gained significance in the taluka's production, owing to the down fall of cotton.

Vegetabls and fruits, around the second point of time, gained significance in the agricultural milieu of Karjan which were quite in-significant at the first point of time. This took place mainly because, on one hand, the relative economic status of the taluka has improved consequentially improving the diatetie system, and on the other hand the sprawling urban areas in the surrounding have also opened an instant profitable market. This incentive and the resultant desired income has increased both production and sale of vegetables and fruits.

Thus, the developing marketing activities may also be taken as a significant factor in the rural habitat transformation. This is obvious from the bare witness of the villages, their agricultural practices, increasing commercial activities within and between the villages and the neighbouring townscape and the cities

HAT AND BAZAR

Hat and Bazar, are small size weekly assemblage of the sellers and purchasers They are assigned particular days of the week, in different villages, such as at Kandari on Tuesday, Miyagam on Thursday, Choranda on Wednesday and Valan on Saturday These hats and bazar were existing much before the base year. Two new hats were started after the base year in Mangrol and Moti-Koral. Both take place on Friday (Table 3.14) Thus there are 6 hats and bazars taking place weekly in the above named villages (Fig. 3.5). these hats trasnact business in a variety of consumer goods ranging from the daily necessities of food, and clothing to agricultural implements, electric goods etc.

Region wise distribution of hats and bazars is given below Region I at the base year had two hats and bazars one at Kandri and other at Miyagam. These are used by a majority of villages in their surrounding A new weekly bazar was started at villages Mangrol of the same region. It works on Friday, on the same lines as the other two. However, this increase indicates the needs of such markets in the rural areas

Table 3.14

DIFFERENT CATEGORIES OF COMMERCIAL ACTIVITIES IN KARJAN (1970-71 & 190-91)

Regions	Hat/Bazar		Fair Price Shops		Fertilizer Seed Stores		Others	
	1970-71	190-91	197-71	1990-91	1970-71	1990-91	1970-71	1990-91
I	2	3	4	14	3	9	17	52
II	2	2	2	7	4	4	11	25
III	0	1	1	14	3	6	13	63
Total	4	6	7	35	10	19	40	140

Region II had two weekly markets one each at Valan and Choranda. These markets cover some villages of region I and some of region III along with its own villages. These are old markets existing from much before the first point of time,. However, with the passage of time and with the increasing requirements of the consumers, these markets have included in their items of business the non-traditional goods along with the traditional ones. Thus, the hats or weekly markets have been largely improved overtime and have become capable of catering variety of needs i.e. social, functional and personal needs of the village people

Region III did not have any hat or weekly market during the base year. Its need was felt some times during the late seventees and a weekly market was started at Moti-koral taking place on Friday. This market is located in the southern most peripheral villages, which, by its location is very useful for the villages placed in its neighbourhood as these villages lie remotely from the market of region II. Its items of business are not different from those of the

other weekly markets of the other two regions Thus they are all general markets.

The need of the market itself reveals the purchasing trends, purchasing power and developing marketing behaviour of the people This is an indication of economic and behavioural transformation.

Fair Price Shops

The facility of fair price shop is provided by the government. At this shop villagers get mainly sugar and kerosence at controlled rate Cloth, cereals, pulses, notebooks, oil and soap etc are also on the list sold whenever available. In 1970-71, there were only seven fair price shops. One each at Kandari, Miyagam, Mangrol, Anastu, Valan, Choranda and Saring. These seven shops rendered services to all the 93 villages. Thus each shop, on an average covered 13 villages or more By the second point of time the number of these shops went up to 35 i e. 5 times more than the former year (Table 3 14) It therefore appears that the 7 shops of the former year had to bear a very heavy load of consumers However, their increase to 35 has relieved them from that high pressure and each shop has to meet the needs of 2-3 villages This indicates the development of commercial activity.

When seen in respect of regions, it is found that region I which was relatively more advanced in many respects than other two had four fair price shops, located at Kandri, Anastu, Miyagam and Mangrol, at the base year. They served around nine villages each. By the second year of study their number went up to 14 i e ten more shops were added at Bamangam, Gandhara, Dhavat, Navi-Jithardi, Surwada, Karmadi, Sanpa, Virja, Kanabha, Handod and Adhara decreasing their extent of service to 2 to 3 villages per shop

Region II, at the base year had only two shops at Valan and Chordanda, covering 14 villages, while at the second point of time five more shops at Lokodara, Kiya, Bachar, Kurali and Vermar were added making in all 7 shops.

Region III in 1970-71 was much behind the other two regions having only one shop at Saring with inalarge number of 44 villages This provision thus was too scanty to serve the needs sof people However, by the second point of time the need based provision added 13 more shops at Mesarad, Kaliyad, Sharupur-timbi, Sansrod, Haldara, Saniyad, Pachhiyapura, Chhanchhava, Kothiya, Malod, Alampura, Pura, Moti Koral and Nani Koral.

Thus, all the three regions were provided with sufficient number of fair price shops by the second point of time. This indicates the increased demand of the rural people. This may also be termed a rural transformation as rural areas have, by and large, adopted the life style comparable to that of urban areas.

Fertilizers And Seed Stores

"Necessity is the mother of invention". Since the fertilizers and H. Y. V. seeds are widely used by farmers, they had to bring them from the urban centers which was costly as well as time taking Now their supply is made available from the near by centers Several fertilizer godowns and seed stores have been opened in the villages. At the first point of time there were only 10 such stores which increased to 19 by the year 1990-91 Their region wise distribution is given below.

At the base year, there had been only three such stores supplying fertilizers and seeds They were placed at Kandari, Miyagam and Mangrol All villages of region I were enjoying their advantage However, the size of these stores was variable such as Kandari had a big store supplying to about 11 villages or so Miyagam served to 14 and Mangrol to 8 villages. By the second point of time six more such stores were opened, at Adhara, Umaj, Dhavat, Anastu, Juni-Jithardi and Kanbola.

In region II at both the point of time there were only four stores at Kurali, Vermar, Choranda and Valan. (Table 3.14 and figure 3 8) These stores were covering all the fourteen villages of this region, and about 20 villages of region III Though no addition in their number is reported, their size and extent of services did increase by the second point of time

In 1970-71 region III had three stores located at Saring, Alampura and Moti-Koral, they had to supply to big majority of all the 44 villages of this region In 1990-91 three more stores came up at Sherupura-timbi, Haldarav and Saniyad These three stores, however, facilitated availabity of requisite commodities and relaxed the former three stores from their heavy burden

It is notable, that each new provision which started at a low key during the first point of time has substantially increased to two times and some where to more than three times with a view to providing better and efficient services to the people of the village, this phenomenon itself is an evidence of multi faced rural habitat transformation

KARJAN TALUKA

COMMERCIAL ACTIVITIES

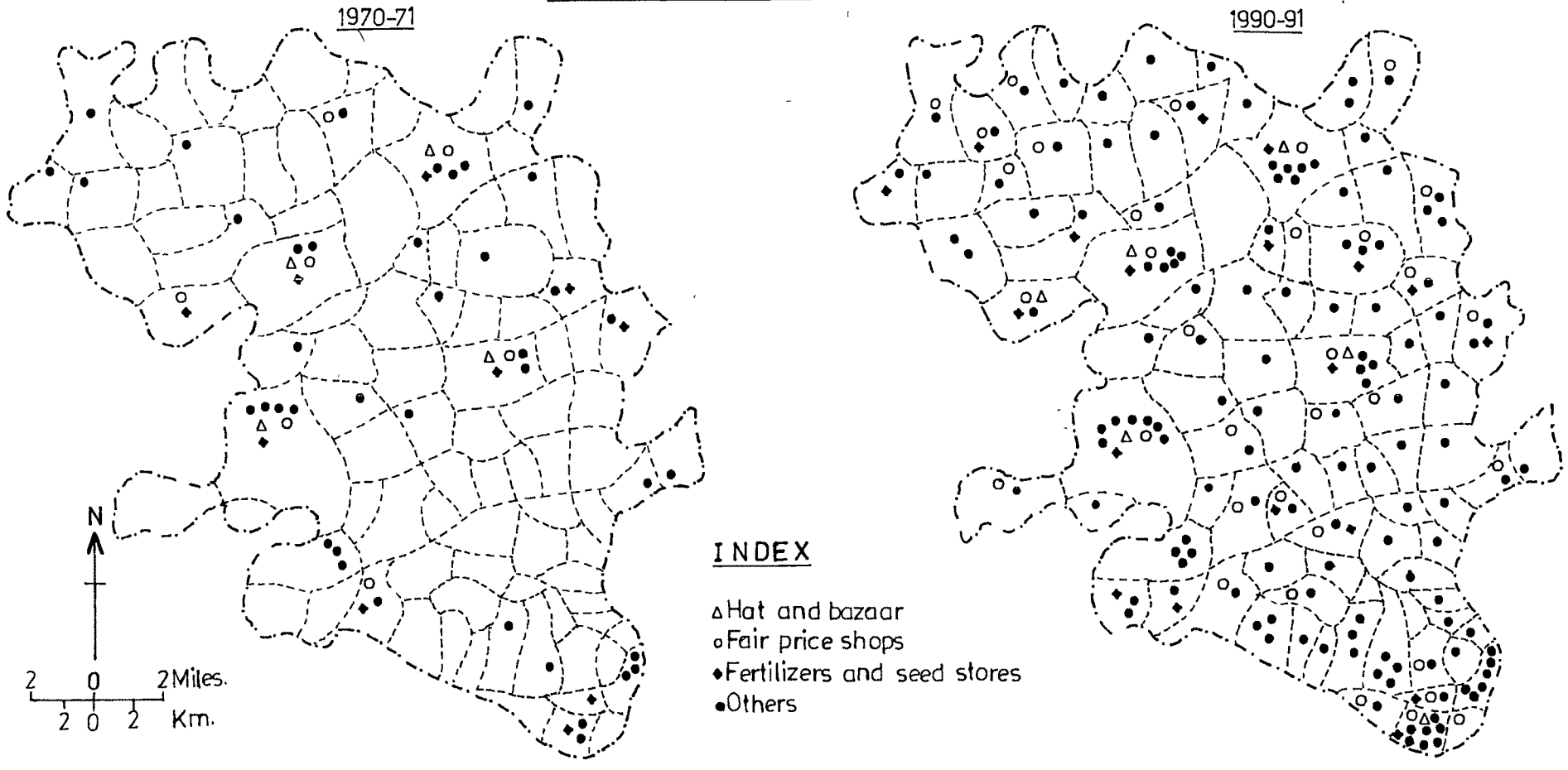

Fig. 3.8

Others

In the rural Karjan shops like Pan-bidi, tea and farsan, Kerana and general store, cloth shoe, cycle repair, T.Vs and radios cassettes sale and repair and agricultural implements and repair shops etc have grown over time.

At the base year 41 shops of different kinds of commodities were established in 34 villages. By the second point of time the number of these shops went up to 140 (Table 3.14) with each village having atleast one shop. these shops usually keep the commodities for the daily necessities of the local consumers

In regional perspective, region I had 17 shops at the bas year, that increased to 52 by the second point of time Region II had 11 shops during the base year, and by the second period went up to 25 In region III, 13 shops of the base year made an abrupt rise to 63 at the second period of study

From this abrupt change it is revealed that the commercial functions are gaining strength in rural areas along with their primary functions It is there-fore assured that a section of rural people instead of migrating from their villages, attempt to generate their economic bases at their own localities, and earn through their shops On the behavioral front it is innate of man to have their things of consumption at hand. So, any source of supply coming up at the locality is highly welcome.

3.4. ROLE OF SERVICES

Services in this context, mean the different types of supportive functions that grow in any area over time for rendering help to its inhabitans

These services belong to different categories viz, administrative services educational institutions, Primary health centers, government hospitals, private clinics and dispensaries electric power supply centers, drinking water supply, private and public transport banking , tele-communication etc. These services are the indicators of the economic and social status of the inhabitant of any area and they individually or collectively constitute the grounds for the habitat transformation

Prosperity of any area may be assessed by the availability of its service structure Heirarchy of services is closely linked with heirarchy of the area. However, such amenities have largely been associated to urban aeas and in most cases rural areas have been ignored for a long time Now the progressive agriculture,economic activities other than it,and rate of literacy and education, gradually growing in rural areas have started demanding increased and efficient services

Rural Karjan, the study area, however, like other rural areas is not served with developed and efficient services But owing to increasing rural urban interaction, growing economic and planned growth of rural areas have provided a few of them which are described here under

Administrative Services

As such these are usually centred in the urban areas or taluka head quarters. But their lower heirachical order is found in the rural areas. A few of them are police patel, talatis or patwaris, circle officers, panchayat sarpanchs and their staff etc

Educational Services

Education of the masses is the primary goal of the development plans because education improves the quality of human resources For this purpose primary, secondary and higher secondary schools are being opened in the rural areas. Primary schools are now provided to each and evey village of sizeable population. Secondary and higher secondary schools are located on the criteria of distance which is usally kept at aradius of 5 to 10 kms. In rural karjan at the base year were in all 62 educational centers , of them were 51 primary schools, 10 primary and secondary and 1 composite school having all the three levels These schools together were imparting education to ten thousand eight hundred and one pupils in the taluka At the second point of time the number of schools increased from 62 to 91, of them 77 primary schools, 11 primary secondary, and 03 primary secondary and higher secondary schools respectively. (Table 3 15) This increase is linked with the growth of population over two decades and also the increased demand of schools in view of making 100 percent literates in the country and thus the country side is taken as a basis to achieve this end These schools together enrolled and imparted education to 18209 students i e to 7408 more students in compassion to the base year This trend of improving educational facilities in the taluka and its regions indicate that in due course of time the desired coverage shall be made in the taluka for the achievement of the desired goal

Table 3.15

REGION WISE OF SCHOOLS IN KARJAN ATALUKA

(1970-71 & 1990-91)

Regio-ns	1970-71				1990-91			
	Primary School	Primary Second-ary	P/Sec./ Higher School	Total	Primary	Primary Seconda y	P-Sec Higher-Sec.	Total
I	25	2	1	28	30	3	1	34
II	9	2	0	11	11	2	1	14
III	17	6	0	23	36	6	1	43
Total	51	10	1	62	77	11	3	91

To see in the regional perspective, at the base year, region I had 28 schools in its 35 villages, out of them 25 were only primary schools, 2 primary secondary schools at Handod and Miyagam and one higher secondary at Kandari At the second point of time, the number of schools increased to 34 of them 30 were only primary schools, 3 primary and secondary schools at Handed, Miyagam and Bodaka, where the first two were of the base year and Bodaka schools was newly added imparting both primary and secondary levels of education The one at Kandari retained its former status.

Region II at the base year had 9 primary schools in nine villages, and two villages Choranda and Vemar had primary and secondary schools. In 1990-91 the primary schools increased from 9 to 11 and Vemar retained its primary and secondary school. A new such school came up at Valan. The one at Choranda retaining the primary and secondary status was raised to higher secondary status.

Region III in the base yea, had a total 17 primary schools in its 44 villages, 6 schools enjoyed primary and secondary status at Methi, Ranapura,

Kalıyad, Sansord, Pachhiyapura and Rarod. No hıgher secondary school exısted at that time. By 1990-91 another 19 prımary schools were added making atotal of 34. The above stated schools ın the 6 villages remained wıth no notable change, except at Rajod which was upraised to higher secondary status

This, however, ındicates the ıncreasing demand and supply of schools with ın a span of two decades, all the three regions have made substantial development in the case of prımary secondary and higher secondary schools Thus, provıdıng this amenıty wıthın the rural mılıeu ıs ın ıtself an element of habıtat transformation.

Private Clinics

Health of the masses has always been an essential consideration both ın the rural and urban areas However, urban areas have always been privileged and rural areas were mostly neglected Formerly 'ozas' 'bhuwas', (wıtch doctors) 'bapu's' and quacks were dominating health sectors of the ~~part~~ rural part of the taluka Vaids and hakims were casually found. The absolute sway of allopathıc system of treatment and great success attained by it particularly ın eradicating the epidemıcs and fatal diseases, led ıts demand to ıncrease day by day Our government has also gıven full support to the development of this system. All hospıtal, primary and secondary health centers and even the private clınıcs are mostly allopathıc based Rural folk have also understood the value of health care and thus deviating from the old dogmatic system have started gıvıng prıorıty to allopathıc system, it ıs owıng to ıncreasıng literacy rate as well as ıncreasıng ınteractıon wıth urban devellers

Karjan being an advancing taluka from 1970-71 has been served by small and big medical centers including the clinics of private medical practitioners Now, both at private and public level the provisions of health care measures are improving in its rural areas. There are several grades of such practitioners as the degree holders i e. M B. B S , the R M Ps. (Registered medical practitioners) and even the quacks are also serving the village community by their experiences of allopathic and some herbal and naturopathy types of treatments.

In 1970-71, the private medical services were restricted to only 29 villages of the taluka with maximum number in the northern part and in decreasing number towards southern part. (Figure39) By the second point of time, they went up to 42 covering most of the villages of the taluka. These units have been rendering services to around, 3 24 villages Thus at that time the population and medical service centre ratio was 3724.41.1 i.e. one medical unit was supplying its services to roughly 3724 people of Karjan taluka (These units do not give actual number of patients registered and treated, therefore absolute number could not be procured.) However, looking to the conditions of the developing countries or developing regions in respect of patient doctor ratio of 70,000 1 or so the condition of Karjan is highly prospective.

In 1990-91, the private medical service units went up to 42 giving a wide coverage to the villages even those far flung from the main centre. This increase has further decreased the villages and medical services ratio from 3 24 of 1970-71 to 2.2 in 1990-91. If assumed that all the village people take medical help from these medical centers the unit · population ratio would be 1 2801 07 this is a hope full state indicating a clear path of transformation of the rural health care conditions of the past It is expected that the growing

health consciousness would demand more efficient and reliable health care services in future.

Table 3.16.

VILLAGE WISE PRIVATE CLINICS IN KARJAN TALUKA AND REGIONS (1970-71 & 190-91)

Regions	Clinics in different number of Villages		
	1970-71	1990-91	Different
I	16	21	5
II	5	7	2
III	8	14	6
Taluka	29	42	13

Taking a view of regional distribution of the private clinics, it is found that there were 16 private clinics in region I at the base year Each of them on an average covered 2608 people. In 1990-91 another 5 clinics were added to the existing 16 covering, on an average 2336 people. (Patient to doctor ratio could not be worked out owing to unavailability of data). This development indicates the increasing demand of health care units among the people of region as a part and the people of taluka as a whole

In region II there had been only 5 such units attending to average 4294 people each at the base year. Another two units came up in 1990-91. Now all the clinics are covering a reduced figure of 3837 people.

In region III there were 8 private clinics at the base year that roughly covered 4928 people. By 1990-91 it went up to 14 units reducing the number of people attended by them to 3365 only

The above data reflects that the rural areas once unprivileged with such amenities have made hopeful headway in this direction. This development on one hand explains the economic strength of the people, that motivated them to make use of such amenities and on the other hand it shows that the traditionalism which was the characteristics of the rural areas is gradually vanishing away. It also exhibits that the spending capacity of rural people on their health care is also increasing It is thus an aspect of rural habitat transformation.

Primary Health Centers

The conciseness for keeping away morbidity and enjoying a good health has prevailed in rural areas in recent years. Government has also made serious strides in this matter. The criteria fixed by the Government as planned was that each health centers must cover atleast 25000 people of the villages.As such the primary health centers are not very popular among the village folk as a result the private clinics are flourishing and increasing.

Karjan was provided with 05 PHCs at the first and 06 at second point of time There distribution pattern and regional placement is given in table 3 17.

Table 3.17

LOCATION AND POPULATION COVERAGE BY PHCs

(1970-71 & 1990-91)

Regions	Location	Est Population Covered		
		1970-71	1990-91	Difference
I	Handod	22862	15932	3070
	Kandari	18862	23132	4270
II	Valan	10157	12351	2194
	Choranda	11314	14550	3236
III	Rarod	39424	26517	-12907
	Methi	-------	20551	20551
Total	06	102619	123033	20414

In region I two units of health centers were at Handod and Kandari villages. These centers extended their medical services to 22862 and 18862 people at the first point of time and 25932 and 23132 people at the second point of time.

In region II Phcs are located at Valan and Choranda. They roughly covered a smaller number of ten and eleven thousand people at the first point of time. However being located in the middle part of the taluka, their area of influence is perceived to have been extending in region I and III as well. At the second point of time they covered around more than twelve and fourteen thousand people respectively

In region III there was only one PHC at Rarod in 1970-71. It had to bear a heavy pressure of around 40,000 people, but by 1990-91 another

centre at Methi was opened which has relieved it by nearly half of the total load.

However, the provision of health centre along with private clinics has brought about the better prospects of rural health care their increasing use itself is an indicator of rural development at socio-economic and socio-medical fronts

Banks

Banks are the chief instrument of economic transformation of areas, they have ever played vital role in the economic growth Their number and size is taken as an indicator of development Once the banks were located in the towns and cities, but in view of the growth of rural sector of economy they are being located in the rural areas as well and known as "Grameen Banks'. There are several planned development schemes for rural areas financed by these banks One of them is the I. R D. P (Integrated rural development programmes). The most outstanding benefits to the rural folk, specially to the small and marginal farmers, from the banks is that they are liberated from the clutches of the indigenous bankers.

Rural Karjan is not deprived of the privileges of banking facilities. There are five branches of bank of Baroda located one each Handod, Kandari, Valan, Choranda, and Rarod villages Further two branches of Baroda Central co-operative banks located at Valan and Choranda are also rendering similar services Thus Valan and Choranda are privileged to enjoy the facilities the branches of national and co-operative banks It is also notable a that these two villages are located diametrically opposite to each other and have a wider area of coverage in all directions It is observed that the public response was

satisfactorily favourable for the banks from the periods of their inception up to date. Table 3 18 below gives the number of users of both nationalized and co-operative banks at the two points of time (Figure39).

Table 3.18

NUMBER'S OF ACCOUNT HOLDERS IN BANKS

(19970-71 & 1990-91)

Regions	Location	Account Holders N.B.		Account Holders Co-operative Banks	
		1970-71	1990-91	1970-71	1990-91
I	Handod	1165	5227	0	0
	Kandari	1982	7105	0	0
II	Valan	1564	6051	40	4328
	Choranda	897	5113	95	4129
III	Rarod	117	3201	0	0

In terms of regional distribution of banks there are two banks in region I located at Handod and Kandari. They have a big clientele to the tune of 165 and 5227, in one and 1982 and 7105 in the other at the two points of time The two banks in region II at Valan and Choranda have also large number of account holders of 1584 and 6051 and 897 and 5113 at the two points of time respectively. The bank at Rarod in the III Region seems to have remained unpopular with 117 and 3201 account holders at the two points of time respectively. This sluggish growth of banking in region III does indicate the relative position of the location of the bank near the extreme southern limit of the taluka. A big chunk of the extent of region III lies far removed in its northern part nearer to the banks at Valan and Choranda of region II Thus a

small and relatively less progressive area in the neighbourhood of Rarod enjoy the services of this bank. That may be the reason why its number of account holders are comparatively smaller than the other banks

Further Valan and Choranda of region II are also privileged with one branch each of "The Baroda Central co-operative bank Ltd , which had minimal account holders of 40 and 95 respectively in 1970-71 Having gained popularity they had 4328 and 4129 account holders respectively in 1990-91

On the basis of the available data the service area of the nationalized banks and also the co-operative banks may be tentatively delimited. The bank at Handod encompasses about 14 villages in its surrounding. The bank at Kandari stretches its influence to only 10 villages Valan, Choranda and Rarod cover 13, 17 and 23 villages respectively. However, the exact demarcation of their area of influence owing to over lapping is rather difficult as the paucity of data is a major crunch

Inception of banking services and their day by day progress is in itself a strong element of transformation of rural habitat. It therefore indicates that on the one hand rural economy is desirably progressive, and on the other hand the money earned, or demanded in rural area is, to a great extent canalized for better prospective and progressive purposes It is evident from the transformation of habitable areas, agricultural works, means of transportation and so on

Drinking Water Facilities

The most essential requirement of all living organisms including man is drinking water Man however, makes special arrangements for

KARJAN TALUKA

CHANGE IN SERVICES

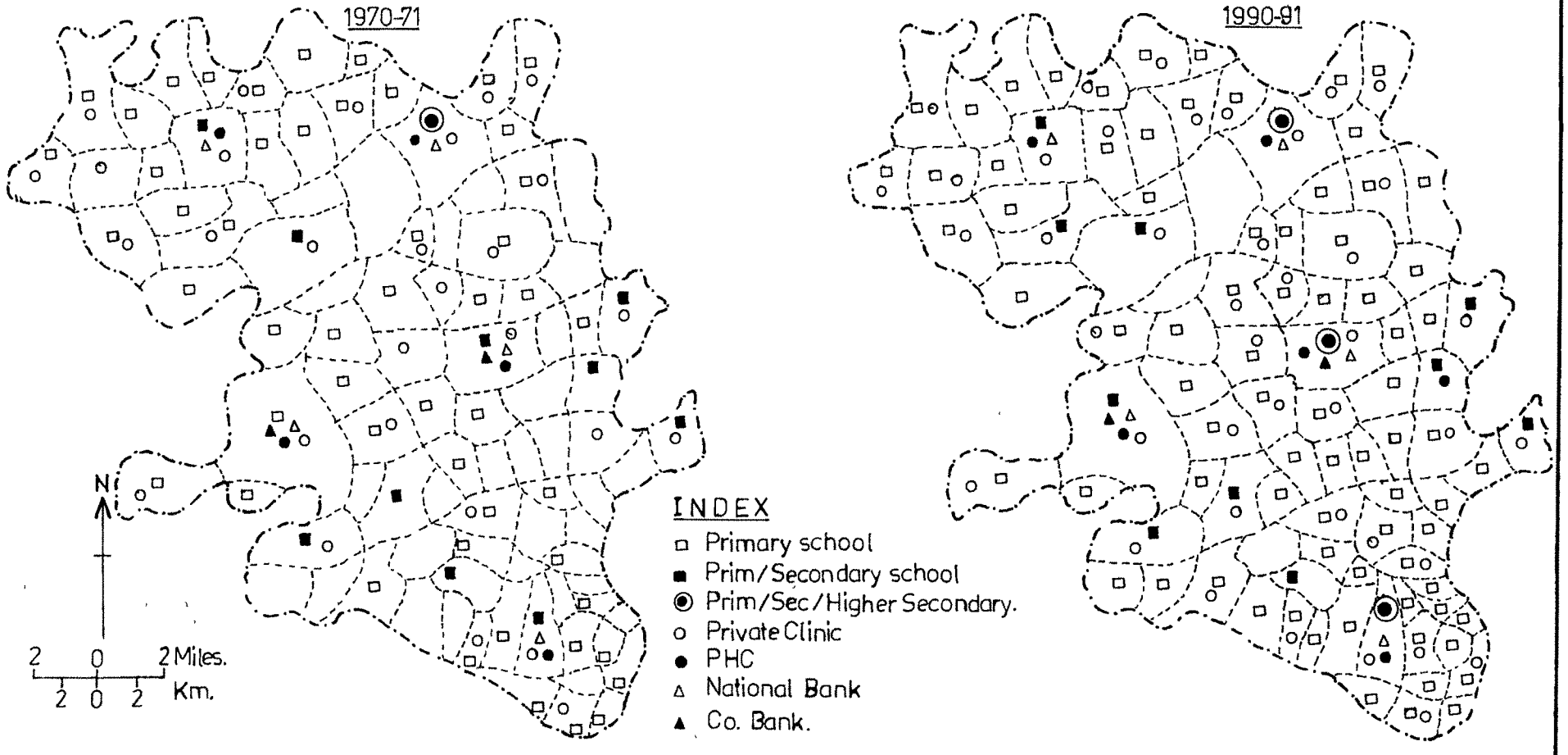

Fig 3 9

procuring drinking water. This procurement is always subject to terrain and the types of water resources available such as river tanks among the surface water supply, wells and tube wells among the suppliers from the underground water storage, canals also serve this purpose.

Karjan, for a long time prior to sixties depended on tanks specially constructed for storing rainwater for drinking. Since they largely depended on the duration and amount of rain per season they were not a reliable source of drinking water. Attempts were made to find out reliable sources of drinking water. In most cases wells giving brackish water failed to serve the purpose thus the tap water schemes were implemented in some villages from mid sixties later with the implementation of drinking water schemes by the taluka and village punchayats, tap water was being provided to a large number of villages in the pre and post 1970-71 period

The villages where sweet underground water could be procured, the tap facility was arranged by installing tube wells for irrigation and also drinking. Now barring only three villages all the villages in the taluka enjoy the facilities of tap water However for emergency purposes the tanks and the wells are kept in working condition and used as and when needed. Handpumps are also installed by the punchayts for public uses. Those who could afford have done it for their private purposes (Table 3.19) recently the drinking water is no more a problem for any village of Karjan

Table 3 19

VILLAGE WISE SOURCE OF DRINKING WATER IN REGIONS OF KARJAN TALUKA (1970-71 & 1990-91)

Regions	Tanks		Tube wells		Tap water	
	1970-71	1990-91	1970-71	1990-91	1970-71	1990-91
I	35	35	3	3	34	35
II	14	14	0	0	14	14
III	44	44	3	3	31	41

In respect of regional distribution of the sources of drinking water, it is seen that gradually the taps have replaced the tanks. The government scheme of supplying tap water to all villages has materialized to near cent per cent.

Table 3 19 above gives the distribution of sources of drinking water in all the three edaphic regions of the taluka. In region I all 35 villages had tanks at both the point of time, more used at the first and least at the second point of time. Now the pump sets installed by punchayats on wells and tanks have become a vital sources of drinking water supply. Almost same is the case of the other two regions. Thus their dependence on rains for drinking water was has reduced to a minimal. This is also an obvious transformation of rural habitat

3.5. Role Of Non Resident Indians

Transformation is a process of over all change It is caused by both indigenous and non indigenous factors. More often the spatial and

temporal changes taking place by the change in behaviour aptitude, quality of population, changing traditional set up, changes with in the ancestral economic activities socio-cultural conditions, customs traditional, additional earnings from in or outside etc However, often the non indigenous factors do contribute to fast changes within the specific habitats

NRIs are one of the non indigenous factors though many of them belong to the same habitat that can not be ignored or over looked in respect of the study of any habitat transformation. According to the concept of international trade, these N R. I. S are a type of export which fetch ample foreign exchange increasing not only the income of their families and native places but also swell the national exchequer. Since the relaxation of visa-passport laws, the rate of this export has tremendously increased, and in return their earnings and remittances increased the income of their families and at large that of nation

NRIs are usually sufficiently well off with affluence. They have far better capabilities of investments either at personal or national levels At personal levels, the investments on their own agriculture, the education of their children, opening schools, housing and accommodation, daily necessities like food, clothing , nuptial ceremonies, and so on. At national level they are now highly demanded for investments on industries and other productive works, so much so, that the state and national government is wooing them by granting desired facilities It is natural that their investments will be a great support to the governments on one hand and will speed up the industrial, and economic development on the other, as the investment is a vital force for transformation. One of the reasons for the development of Gujarat may certainly be stated as the direct and indirect influence of the NRIs Gujarat having a favourable

geographical location, has been a state with commanding number of its people in many of the foreign countries like Africa, U. S. A., U. K. and middle east. One peculiarity among them is found that they are very much home conscious, and have a desire for its all round development

A study of the NRIs behaviour in Karjan reveals the fact that a great deal of Karjan's development owes the N. R. I investments. A sample of ten villages of Karjan reflects the N.R.I Influence on their socio-economic environment. Even though a very small percentage of their population has migrated abroad, that is shown in the table 3 20. The economic environment of these villages are quite distinct in the total environment of the taluka.

Table 3 20

NUMBER OF NRIs IN THE TEN SAMPLED VILLAGES

(1970-71 & 1990-91)

Number of NRIs			
Regions	Name of Villages	1970-71	1990-91
I	Miyagam	15	23
	Umaj	01	1
	Kandari	07	15
	Dhamanja	00	1
II	Kothav	01	2
	Osalam	0	3
III	Moti-Koral	01	5
	Lilod	0	1
	Somaj	0	1
	Mesarad	0	4
Total		25	56

The sampled villages shown in the table are taken on the basis of purposeful stratified random sampling method from the three edaphic regions

of the taluka The following consideration have been strictly followed in the selection of the villages, (a) The villages should be selected from all over the region, (b) They should be from near the towns and away from the towns. (c) the villages should have greater number of NRIs. (d) The villages must have visible NRIs influence Thus the preliminary survey was first conducted and then the villages were chosen. Thus only ten percent of the total number of villages from each region, are selected. The fractions are rounded up to next higher figure.

Region wise selection thus gives four villages from region II and four from region III and two from region II. From region I Miyagam, Umaj, Kandari and Dhamanja are selected. From region II Kothav and Osalam. From region III are Moti-Koral, Lilod, Somaj and Mesarad.

In 1970-71 the total number of NRIs in the these villages was only 25, of them region I alone had 23 with 15 in Miyagam 7 in Kandari and only one in Umaj. Dhamanja had none. In the villages of region II and III one each is reported from Kothav and Moti-Koral respectively By the second point of time the speed and number of such migrants seems to have accelerated Miyagam increased its numbers from 15 to 23 Umaj remained stagnated Kandari added 8 more in its previous figure of 7 Dhamanja opened its account by one Region II had one in Kothav at the first point of time , added one more at the second point of time. Osalam of the same region opened its account with three. In region III were only Moti-Koral had only one, it added four more making a total five, Lilod and Somaj a got one each while Mesard went up from none to four

It is found that NRIs have better developmental consciousness. They are very much adoptive to latest innovations i e. latest machine, quality fertilizers, insecticides and pesticides, good quality seeds and proper care Their family look is always different from others, their style of life is highly urban on the patterns of the places they serve abroad Their domestic paraphernalia is unmatchable with those of locals Education of the children is their salient goal and that is why a few high standard residential schools have been opened. It is no less an N R I. Influence that high standard English medium schools are smoothly functioning in the pure rural Gujarat milieu Kandari has two English ,medium residential schools where most of the children of NRIs and a few of the local affluent class are educated Modern schools are in region II and III which are getting the pupils mostly from the NRIs thus instead of sending their wards to far away urban centres for primary education, they have made arrangements for the purpose nearer home.

In respect of their rural housing structure, the NRIs houses are distinctly visible, having all amenities of life. It may be rightly stated that their houses are an urban enclave in the rural milieu. rural shops are known for their inferior quality. Their status depends on the spending capacity of the residents But in the village where the NRIs live, these shops maintain a good standard according to the demand of these people and their families. The bread, butter, good quality biscuits, good quality cigarettes, chocolates, jams and many more are the consumer goods supplied by them to these purchasers.

Not only the daily consumer items find their place in the rural commercial set up , but the rural polities is also influenced by them. The political warriors seek their support and invariably win the elections

NRIs do have their influence on the transport and communication front They may be called initiators of the rural telephone facilities. which has not only benefited them, but also their other fellow men Most of them have two and four wheeler Some of them have their own tractor with trolleys and other have trucks, jeep and minibuses which are lent on hire This has facilitated people for various purposes These are additional transport facilities compensating the short comings of the public transport facilities

Further, their influence have not remained confined to themselves, but expanded to influence their neighbours . it is a natural rule that the immediate neighbourhood develops as a supply centre when the demand ~~sheps~~ arises The daily necessities of NRIs are somewhat greater, in order to supply their demands shops have cropped up in the village itself where they live. This has the effect of diversifying the monotonous traditional rural activities, and has in a way improved the economic status of at least, a few of their rural brothers

The NRI factor has, therefore, become a strong force of transformation in the rural Karjan, a as these people are affluent, and have greater spending capacity on different aspects of their life and activities. This, however, involves the culture of their work places abroad Thus the villages of Karjan under their influence have made relatively rapid and distinct transformation in many respects. However, the fact must not be ignored that the main key of transformation is 'money' The more it is invested, the greater is the rate of transformation brought in

Thus the N R I impact at several fronts of the rural sector have to be reckoned with, when any study of their habitat transformation have to be made

3.6. Role Of Energies

Electricity

One of the most vital factors of habitat transformation is electricity It has revolutionized the human work force and has diversified the economic activities. Its varied uses are not only confined to urban areas, but its benefits are enjoyed by the rural folk also. Right from the domestic lighting street lighting to agricultural and industrial fronts, the electricity is widely consumed in the rural areas One of its benefits to rural folk is notable, that all their working hours were limited to the duration of sunlight, and by evening fall they had to be completed or suspended, but now they continue their work till late at night. It has benefited all types of workers from house wives to students, industrial and commercial workers The street lighting arrangements have reduced the fears of theft. There are thus, numerous advantages accruing out of electricity in the rural areas

Karjan being a cotton growing area was economically well off from the sixties and even before Further their interaction with the countries abroad was well established. These attributes of the people themselves were the foundations for the progressive life in this taluka Electricity being the most required amenity was, therefore provided to all the village even much before 1970s By 1970-71 all villages of Karjan had been fully electrified, and their consumption of this power was quite substantial. It may be evidenced from the a variable consumption of 60 units per month in Vadava and 9933 units in

Valan during the same period of time There were five villages viz Kandari, Miyagam, Choranda, Sansrod, Mot-Koral having their electric consumption exceeding 4000 units per three month These were the days when electricity for industrial purpose was used which hardly exceeded 1787 unit (Table 3 21)

By 1990-91 several medium and minor industries were established, and several paraphernalia for domestic uses increased resulting into greater units of electric consumption. The villages mentioned in the preceding lines reported substantially big consumption to the tune of 22536 units Around 25 villages exceeded their consumption to 4000 units. In 1990-91 the unit consumption of a few of the village was. Kandari (19780 units) Miyagam (16524 units),Choranda (11476 units), Sansrod (17575 units) and Mot-Koral (16524 units). The industrial consumption also went up to 12335 units during the same period (Table 3 21).

Table 3.21

REGION WISE HOUSEHOLD AND INDUSTRIAL CONSUMPTION OF ELECTRICITY (IN UNITS Kwh) in 1970-71 & 1990-91

Regions	Number of Villages		Household consumption		Number of Industrial Units		Industrial Consumption	
	1970-71	1990-91	1970-71	1990-91	1970-71	1990-91	1970-71	1990-91
I	35	35	68368	193998	6	23	746	5749
II	14	14	36008	91634	5	17	600	3731
III	44	44	60001	177967	3	10	441	2855
Total	93	93	164377	463329	14	50	1787	12335

In 1970-71 region I had electricity connection in all of its 35 villages showing total consumption of 68368 units which was the greatest of all the three regions By 1990-91 it went up to 1,93998 units (tri monthly average

unit consumption). Region II being small in size comprising only 4 villages was fully electrified during the base year. Its average tri-monthly consumption was 36008 units, which went up to 91634 units i.e 2.54 times more than the base year in 1990-91. Region III was also fully electrified by 1970-71. Its the then consumption was 60,001, units that went up to 177967 units (i e. around 3 times) in 1990-91

Region wise consumption of electricity for industrial purpose has also sufficiently increased Region I having six industries in its 35 villages initially consumed 746 units. In 1990-91 with the spread of 23 industries in 12 villages consumption went up to 5749 units i.e. 8.26 times Region II had 5 industries in its 2 villages Valan and Choranda at the base year consuming an average 600 units By the second point of time 27 industries running in its 8 villages were consuming 3731 units. Region III at the base year had 3 industries in its 3 villages consuming 441 units By 1990-91, 10 industries came up in 10 villages and their power consumption went up to 2855 units. Thus the industrial activities are treading ahead in the rural areas creating a better economic environment. This is a phenomenon of habitat transformation in the areas of rural Karjan

Electricity And Rural Development

Energy has always been a vital factor in the growth of economy in the world. History proved that from the time man explored energies other than his own had started making progress and having more reliable economic activities He has explored the animate energies and thereafter inanimate energies The latter had increased the productivity of his labour. With the

discovery of electricity man attained climax. Now the level of development is measured in terms of per capita consumption of electric units

Electricity consumption in Karjan is found on rise with the passage of time. The level of economic development of rural Karjan may be assessed from its per capita average consumption of electricity units. Where in 1970-71 it was only 1 59 units, in 90-91 it swung up to 3.76 units However, these figures are inclusive of house hold and the industrial consumption. It may therefore, be stated that the consumption of electricity is showing ascending trend, indicating the gradual socio-economic progress of the rural habitat of Karjan.

Bio-Gas

A relatively new entrant in the list of energy sources the bio-gas: has, within its limits, changed the plight of rural houses (wherever used) by providing cooking and lighting gas and has made them resembling to urban in appearance. another benefit enjoyed by the farmers from the bio-gas plants is the high quality compost, a natural booster to the fertility of the soil. Gobar gas plants required abundant amount of cow dung With the increasing mechanization and decreasing number of farm animals it went initially in scanty supply, but thanks to dairy developments the increasing number of cows and buffaloes have supported the implementation and success of the scheme. Now, in all, the gobar gas plants are functioning well in 65 villages as against 46 of the former point of time However these plants are confined to only a few houses of the villages. (The exact number of houses could not be procured) Its services and benefits are attracting the farmers, as it saves a lot of expenses on fuel electricity lighting, and partly on fertilizers Thus the gobar gas plants are

now a significant factor added to other existing ones for the rural habitat transformation Their limitation is set by the quantity of cow dung which is not available to each and every house of the villages .Thus their benefits are also limited to these who could afford ample quantities of cow dung.

So far as domestic Kitchen fuel is concerned, at least in villages the major source has been fire wood or agricultural residues like cotton stalks, Jowar stalks, and Bajri stalks etc, The other source is cow-dung-cakes dry twigs and branches collected from the bushy areas orchards and gardens etc. The method of burning these fuels is extremely wasteful (table 3.22) where as incase of fire wood burning, the conventional method releases only 17 percent of potential heat, in respect of cow-dung-cakes, it is still lower about 11 per cent, thus 83 per cent of the fire wood and 89 per cent of the cow-dung-cakes are wasted in conventional chulas. Table 3.22 gives a comparative picture of the various sources of fuel used for cooking.

Table 3.22

VARIOUS SOURCES OF FUEL USED FOR COOKING

Sources of fuel	Calorific value (Kilocalories	Thermal Efficiency (%)	Effective heat (Kilocalories)
Gobar Gas (M^3)	4713	60	2828
Kerosine(Litre)	9122	50	4561
Firewood (Kg.)	4708	17	814
Cowdung Cakes (Kg)	2092	11	230
Electricity (Kwh)	860	70	602

The gas required for cooking at the rate of 0 227 cum per day/person, for lighting 0.127 cum per lamp of 100 watt power and for motive power 0.425 cum Per H. P per hour, water pump or generator can be connected to engine.

Cooking with fire wood causes health hazards too. Besides, fire wood burning emits a lot of smoke that blackens the kitchen and other part of houses also it becomes difficult to keep the houses clean. With the installation of bio-gas plant house environment becomes smokeless. Bio-gas is smokeless burning efficient fuel. It reduce the time of cooking compared to fire-wood and cow dung-cakes etc.

These developments at the domestic front (even though not enjoyed by all) have also been instrumental along with other factors in causing the habitat transformation.