CHAPTER - 6

SPATIO - TEMPORAL DIMENSION OF HUMAN RESOURCES UTILIZATION

The terms, spatio - temporal, are related to space and time respectively. By space is meant the area in which something - any phenomena - is distributed and by time the fixed period during which changes take place in the distribution of any phenomena. The changes can be brought about by nature or by human power or both working together. The changes caused by nature are called natural changes while the changes caused by human power are known as human - made changes. The changes can be both in respect of space and/or time. The outcome of the combined efforts of nature and human is called cultural resources that satisfy social wants. The creation of cultural resources by the exploitation of natural endowments in the process of human resources utilization is an eternal cycle going on in space and time. Here human's importance in the creation of anything that is useful for human well beings is underlined. It is, therefore, essential to evaluate the role of man as a resource in space and time. This evaluation is assessed

only in the context of human resources utilization in the space (area) of Dhanarua Block and the time span of ten years from 1971 to 1981. With this end in view, attempts have been made to map out the spatial pattern of human resources utilization in Dhanarua Block on the two points of time, i.e., 1971 and 1981, and note and interpret the distribution and the changes taken place during the time - span.

For showing the spatio - temporal dimension the entire human resources have been classified into ten categories according to their utilization in different economic activities. The first nine categories are together called utilized human resources and the last one is called unutilized human resources or non-workers, as there is no contribution at all of this category in social production.

The first and second categories are called agricultural human resources which comprise cultivators and agricultural labourers. The third, fourth and sixth to ninth categories have been combined into one category that has been termed as non - agricultural human resources or human resources engaged in other services. The fifth category comprises the industrial human resources. But in Census of India 1981 this category has been divided into two - V(a) and V(b) - where, the former stands for those

who are engaged in industries other than household industries . The lattèr has been included in the category of non - agricultural human resources or human resources in other services.

Agricultural Human Resources

These are the backbone not only of the rural sectors but also of the urban sectors of economy. All round development of a region depends primarily upon the agricultural human resources who produce different kinds of products that satisfy various human wants. In fact agriculture is the largest and most important activity in the rural sector which absorb maximum number of workers. Agrawal (1982, p. 223) says that more than 70 % of the people depend upon agriculture, and about 80 % live on it in villages. Even 20 % people who live outside villages belong to agriculture in more than one ways - through trade in agricultural products, through work in agro-based industries, etc. But a paradox is also true that most of the rural people are still very backward in all respects.

Dhanarua Block is not an exception. Here also the majority of human resources is engaged only in agricultural activities and most of them are poor in their skills.

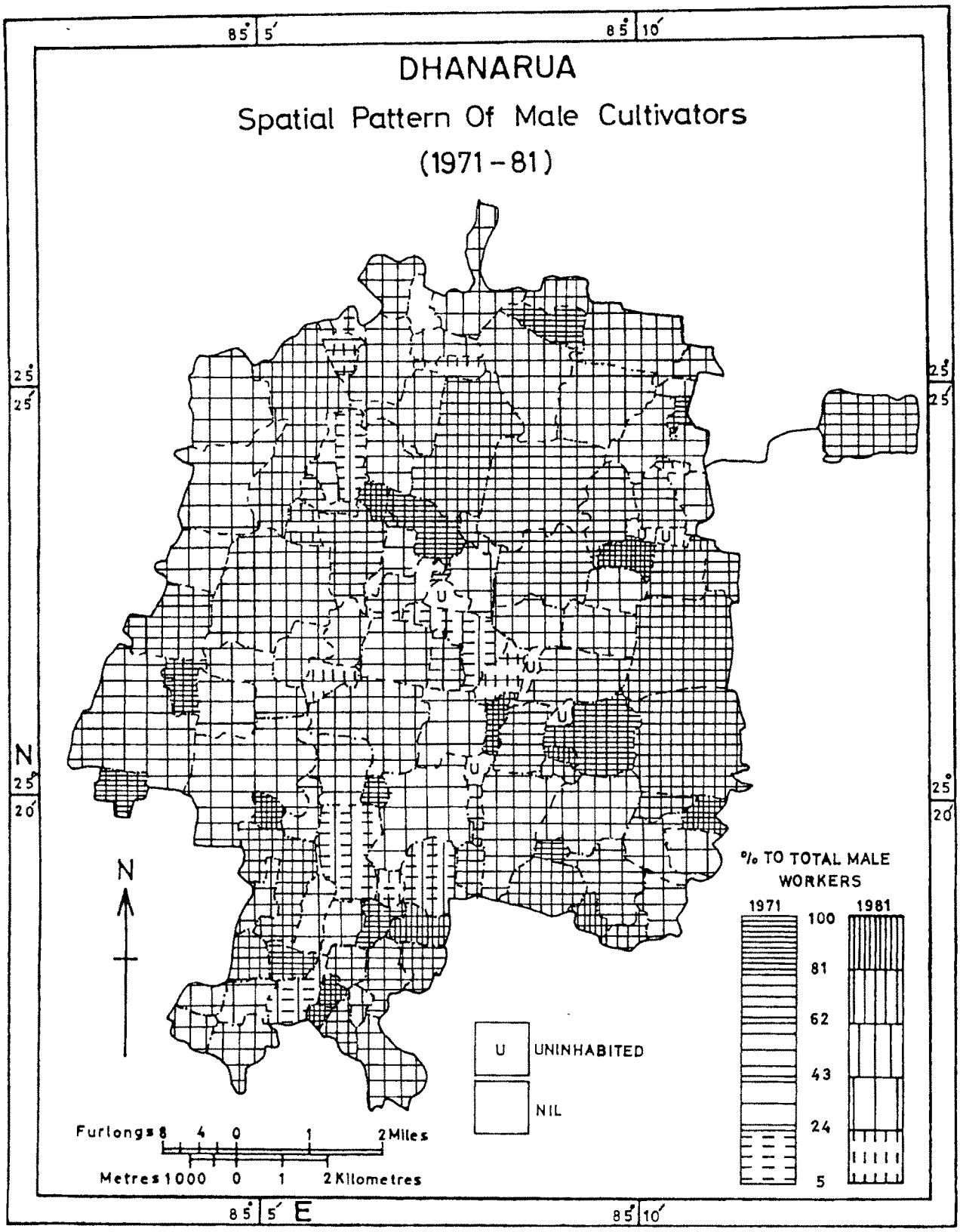
DHANARUA
Spatial Pattern Of Male Cultivators
(1971-81)
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Fig 6·1.

The percentages of male and female cultivators and the percentages of male and female agricultural labourers to total male and female workers have been calculated and villagewise percentages have been grouped into five levels which are shown in the following tables and figures.

Male Cultivators :

Table 6.1 shows the levels of male human resources utilization in the villages in the years 1971 and 1981 and the map (Fig. 6.1) exhibits distributional pattern of male cultivators in space (in the villages of Dhanarua Block) and time (span of ten years). The map clearly exhibits the changes in the pattern of male human resources utilization in the time span of ten years.

18 villages (15.65 %) showed very high level (81 - 100 %) of male human resources utilization in 1971 which came down to ten (8.70 %) in 1981. Besides, only eight villages of 1971 maintained their levels, the remaining ten villages slumped down to the high level category by 1981 (Appendix 4-A). However, two villages (Shahopur and Baghbar) of 1971 uplifted themselves from high level to very high level by 1981. This level comprises those villages in which more than

81 % of male workers are cultivators. If "he or she is engaged in cultivation by oneself or by supervision or direction in one's capacity as the owner or lessee of land held from government or as a tenant or land held from private persons or institutions for payment of money, kind or share", he or she is called a cultivators. But "a person who merely owns land but has given out land to another person or persons for cultivation for money, kind or share of crop and who does not even supervise or direct cultivation of land will not be treated as working as cultivators", (Census of India, 1971, p. 1 XIX). Most of these cultivators do not possess better educational levels and that is why they can not shift into non - agricultural activities and consequently they remain as cultivators.

High level of human resources utilization (62 - 81 %) was seen in 34 villages (29.57 %) in 1971. Out of 34 villages of 1971 only 15 maintained their grade till 1981 and from the remaining, two villages upgraded to the very high due to increase in the percentage of cultivators, 12 degraded to the medium, three to the low and two to the very low level category by 1981 (Appendix 4-A). Degradation is only because of the decrease in the percentage of male cultivators in one decade. Shifting in grades depends upon the

varying rate of enterance of workers as cultivators.

TABLE - 6.1

Spatial Pattern of Male Cultivators

(1971-81)

Levels of Utilization	Percentage to total Male Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	81 - 100	18	10	15.65	8.70
High	62 - 81	34	28	29.57	24.35
Medium	43 - 62	32	37	27.87	32.17
Low	24 - 43	24	33	20.87	28.70
Very Low	5 - 24	7	7	6.09	6.09
TOTAL		115	115	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

Out of the remaining villages of 1981 ten were in the very high, two were in the medium and one was

in the very low level category in 1971. Figure 6.1 clearly shows the villages upgraded and degraded in ten years. Upgraded villages show gain in the percentage of cultivators whereas degraded villages show the loss. The gain and loss are the changes in the pattern of distribution of cultivators in space and time.

In the medium level category (43 - 62 %) there were 32 villages (27.87 %) in 1971 which went up to 37 villages (32.17 %) in 1981, a happy change in trend in the earlier two categories. All villages of 1971 however did not maintain their levels till 1981. Only 19 of those villages did so and out of the remainings, two (Khurrampur and Patharhat) went up to the high level, ten slumped down to the low and one to the very low level category within the decade (Fig. 6.1 and Appendix 4-A). It means there were 32 villages in 1971 in which more than 43% male workers were cultivators and cultivators of only 19 villages maintained their level for the whole decade. But in 13 villages temporal changes came about out.

Out of the remaining villages of 1981 eleven villages were in the high level, three in the low level and four in the very low level in the year 1971 (Fig.6.1

and Appendix 4-A). It means that eleven villages of 1971 which entered into this group in 1981 lost the percentage of cultivators whereas seven got increased percentage of cultivators.

This level comprised the largest number of villages in 1981 and indicates the maximum number of male cultivators among the total male workers. All the villages of this group were dominated by the people of higher castes though the percentage of lower castes people increases in comparison to the first two levels of utilization. The increasing percentage of lower caste people decrease the percentage of male cultivators to total male workers and increase the predominance of agricultural labourers in the total agricultural manpower resources in the area.

Low level category (24 . 43 %) comprised 24 villages (20.87 %) in 1971, which went up to 33 villages (28.70 %) in 1981. But only 18 villages out of 24 maintained their level till 1981 while three (Kashinagar, Satparsa, and Hasanpur) upgraded to the medium level and other three (Rasula, Sahru, and Atarpura) to the very low level category during the same period (Fig. 6.1 and Appendix 4-A). It means that only three villages got an increase in the number and percentage of male cultivators and three experienced decrease.

Out of the remaining 15 villages of 1981 four were in the high, ten in the medium and one was in the very low level category in 1971. It indicates that only one village of this group got slight positive increase from very low level of 1971 to low level in 1981 and 14 villages came down from high level and medium level of 1971 to low level category of 1981.

Increase in the number of villages in this category in 1981 may be due to entrance of new cultivators during the ten years period. It may also be the effect of change in age and sex composition during the decade. The villages of this group show the decreasing percentage of cultivators because of the increasing percentage of lower castes people who rarely possess their own lands for cultivation.

In the very low level category (5 - 24 %) there were seven villages (6.09 %) in 1971. In 1981 there was no change in the number and percentage of villages. It is remarkable that only one village (Panditganj) of 1971 maintained its grade till 1981. From the remaining six villages of 1971, one (Nemra) upgraded to high level, four (Bhagwanpur, Dhanarua, Khardiha and Bara) to medium level and one (Nataul)

to low level category by 1981 (Fig. 6.1 and Appendix - 4-A). It indicates that all villages that did not maitain their level show gain in the percentage of male cultivators. But the villages of 1981 show that one village slumped down from high level, four from medium level and one from low level category of 1971 due to loss in the number and percentage of male cultivators in the total of male workers.

This level shows the least number of villages having lowest percentage of male cultivators among the total male workers of the concerned villages. This is only because of the fact that most of the villages of this group are dominated by the people of lower caste (particularly Scheduled Castes) who possess very small holdings of land.

From the above description the following observations concerning the utilization of male cultivators in the area may be made :

Firstly, all the villages falling under the very high and high level utilization categories of agricultural human resources are Cultivator Dominated (CD) villages. Medium level of utilization category comprises 78 % CD villages and 22 % Agricultural Labourer Dominated (ALD) villages. Low and very low levels of utilization

category comprises only ALD villages.

Secondly, the highest percentages of male cultivators are only in those villages that are absolutely dominated by the people of higher castes and most of them are owners of cultivated land. The size of their holdings is also larger and most of them are busy in handling and managing the works of cultivation. Some of them get their work done by the agricultural labourers to whom they pay wages as per scheduled in the society.

Thirdly, the maximum number of male cultivators in the area belong to the medium level category of agricultural human resources utilization and their percentages range between 43 and 62 %. This also includes the largest number of villages, 78 % of which are CD. This group of villages is also dominated by the people of higher castes.

Fourthly, the last two levels of utilization of agricultural human resources comprise a small number of villages in which the percentage of male cultivators is very low. This is only because of the fact that the villages of these levels are dominated by the people of lower castes and only some of them are owners of their land. So the ratio of cultivators to total male workers varies greately.

On the whole, it can be concluded that as the percentage of cultivators decreases in the area the predominance of agricultural labourers and lower castes people increases.

Here it can be said that there is great influence of cultivated lands in the utilization of cultivators. The possession of land particularly by the people of higher castes is another factor in influencing the utilization of cultivators and ultimately it makes sharp differences in the economic and social status between the people of higher castes and the people of lower castes.

Female Cultivators :

Table 6.2 and the map (Fig. 6.2) clearly show the distribution of female cultivators through space and time. Only 39 (34 %) of the total inhabited villages utilized female human resources as cultivators in 1971, while a majority of 76 villages (66 %) had no female cultivators at all. However, by the year 1981 their percentage increased as 53 (46 %) villages were having female cultivators while only 66 villages (54 %) had none.

TABLE - 6.2

Spatial Pattern of Female Cultivators

(1971-81)

Levels of Utilization	Percentage to total Female Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	80 - 100	6	4	15.39	7.55
High	60 - 80	1	2	2.56	3.77
Medium	40 - 60	3	4	7.69	7.55
Low	20 - 40	9	7	23.08	13.21
Very Low	0 - 20	20	36	51.28	67.28
TOTAL		39	53	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

In 1971, six villages (15.39 %) showed very high level utilization (80 - 100 %) of females as cultivators, which came down to four villages (7.55 %) in 1981. Only one village (Aurangpur) of 1971 maintained

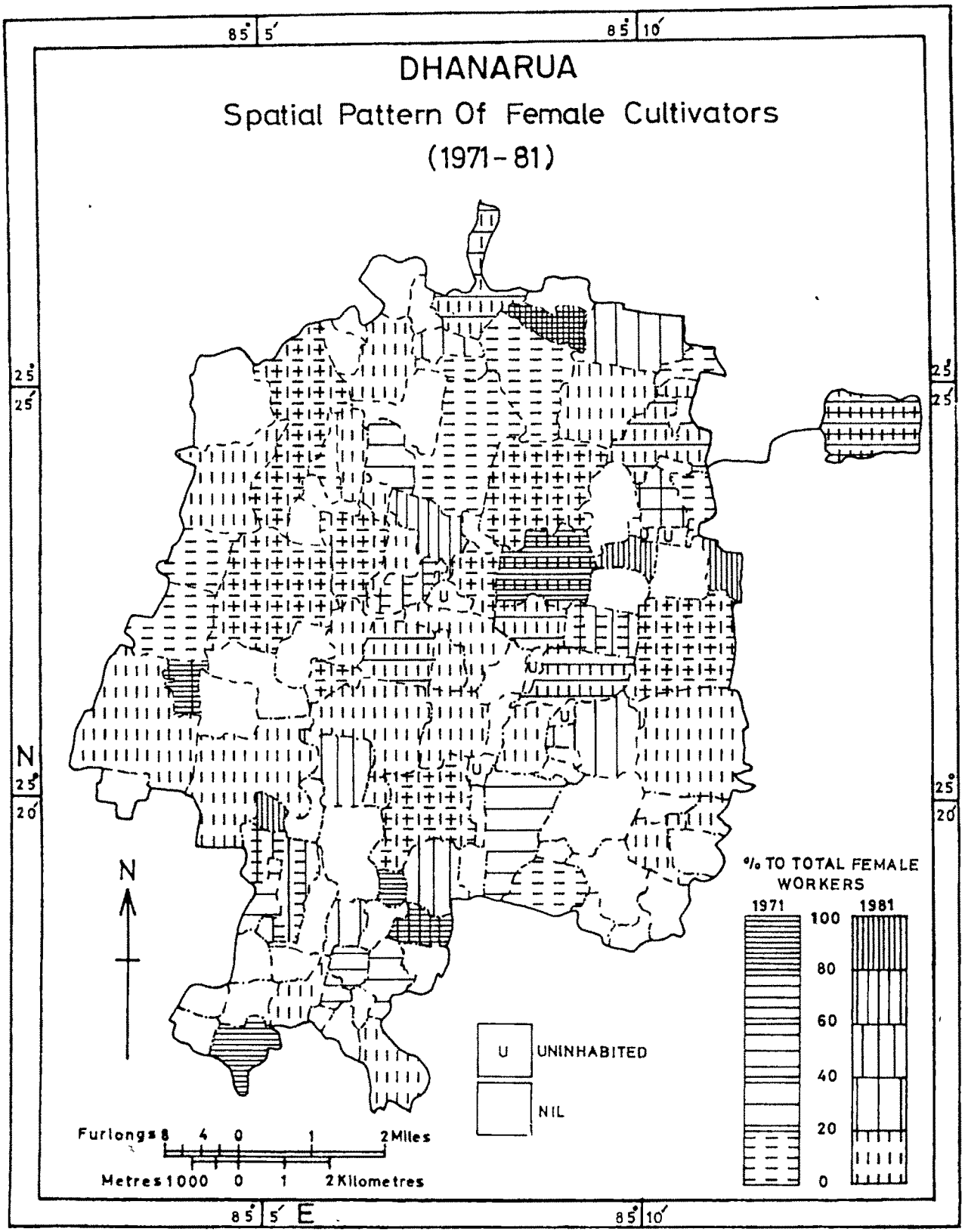
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Fig. 6 · 2.

its grade till 1981. Out of the remaining five villages, one (Shahopur) degraded to the high, another one (Ashrafganj) to low, two (Bhakhri and Parmanki) to very low level and one (Pakaura) lost all female cultivators. It means that except one village all other villages lost their former status in terms of the number of female cultivators. This may be the result of female cultivators being pushed to the category of agricultural labourers by 1981.

All the remaining three villages (Chhitrauli, Daulatpur and Tarwa) of 1981 were having no female cultivators in the year 1971, and hence show a rapid rise from nothing to very high level of utilization of females as cultivators. All these were dominated by CD villages. All these villages show 100 % female workers as cultivators.

The high level utilization category (60-80%) was observed in only one village (Nanauri) in 1971 which rose to two (3.77 %) in 1981. However, the 1971 village slumped down sharply to the very low level category. Villages entered this category in 1981, one (Shahopur) coming down from very high level category while another one (Gauspur - Dubhara) coming up from nil category. All these villages belong to the cateogry of CD villages.

Similarly, if we view closely the various levels of utilization of females as cultivators in the area, we would find that only some villages have maintained their level, while others have either come up from their levels or gone down from higher to lower levels. The map (Fig. 6.2) can give a distinct idea of the spatial pattern of distribution of female cultivators and of the particular villages moving up or down the levels.

Table 6.2, however, is clear in indicating that the highest positive shift (more than 66 %) within the decade has taken place in the very low category utilization. Other categories show only slight difference varying between 75 % and 13 % . This is a clear indication that overall utilization of females as cultivator is declining. This is supported by the decline in very high utilization category and in the number of villages in low level category. A slight positive shift is seen in high and medium level utilization but these involved only four villages in 1971 which increased to six by 1981.

More than two-thirds of the number of villages were having very low level of utilization of females as cultivators in 1981. And taking the area as a whole only

7.61 % of the female workers in 1971 and 7.05 % in 1981 were working as cultivators. This low participation of females as cultivators and a continuing negative trend is indicative of withdrawal of females away from this work category. This may be due to several factors. One may be the trend towards diversification of occupations. More people both males and females are being deviated to some occupation other than agriculture, how so ever slight it may be. This is reflected that in the decrease in the male participation as cultivators also as stated earlier. 54.50 % of male workers in 1971 and 51.41 % in 1981 were engaged as cultivators in the area. So the trend is not confined only to the womenfolk, but in a general phenomenon, though the magnitude of shift during the decade is higher among the males (3.09 %) as compared to females (0.56 %). This is but natural in view of fractional involvement of females as pure cultivators.

Females are involved as cultivators only in two eventualities, either she be a widow in which case this occupation has devolved on her after the death of her husband who was a cultivator or she is owning lands as cultivator jointly with her husband. The latter can be of two - types - one who are cultivators only by vertue of owning land, the actual works of cultivation being

performed by hired labour, the other who own land as well as personally work in the fieds. Most of loss in the category of female cultivator seems to be in the latter category.

They exemplify another factor of withdrawal of females from the category of cultivator - with growing prosperity, whatever slight it may be, there is a feeling in keeping with the traditional norms of the society in which so called high caste people do not like their womenfolk to work in the fields, the workers cultivators withdraw their better halves from the fields and engaged them in works other than cultivation, may be as household helpers, petty shop-keepers, household or cottage industry workers. Only withdrawal of females from the fields would not deprive them of their status as cultivators, as they will enjoy this status by virtue of their being the wife of cultivator, only when they take up alternative job they loose their status as cultivator.

The occupational diversification may be a healthy sign in the matter of balanced utilization for HRD as well as in relieving the pressure on lands, but the loss of female labour may cause some anxieties on the part of owner cultivators belonging to the non-Scheduled

class. This aspect will be a topic of discussion in the following pages dealing with the agricultural labourers, the other section of agricultural human resources.

Agricultural Labourers

They "are persons employed in fields, gardens etc., and perform various tasks in connection with planting, preparation of soil, ploughing, sowing, weeding, pruning, harvesting, plucking fruits or flowers, etc. Their labour is performed under the direction of someone else and they work in return of payments in cash or kind or in both" (Census of India, 1971, p. 1 XIX). Like cultivators, they also contribute their knowledge, skills, mental and physical capacity, in the production of goods or in any other services. In this way they are the foundation not only for the development of agricultural sectors but also for the development of non-agricultural sectors of economy in the area. The agricultural labourer has been defined as "a person who works in other person's land for wage in money , kind or share"(Saxena, 1969, p. 333). In this sense labourer could have no right of lease or contract on land on which he/she works. He/She does not exercise any supervision, or direction in cultivation.

Tables - 6.3 and 6.4 show the distribution of villages grouped under five levels of the utilization of agricultural labourers and the maps of spatial pattern of male (Fig. 6.3) and female agricultural labourers (Fig. 6.4) show the changes in their utilization during the intercensal years 1971 - 1981.

Male Agricultural Labourers :

In the very high level of male agricultural labourer category (80 - 100 %) there were four villages (3.70 %) (Bhagwanpur, Khardiha, Daulatpur and Nemra) in 1971 whereas in the year 1981, there was only one village (Safipur) (0.90 %) in which lived only the agricultural labourers. This village was uninhabited in 1971 but by 1981 only scheduled castes people immigrated here. All these four villages belonged to the category of labourers dominated villages but in the year 1981 three of them were replaced by the predominance of cultivators; here the percentage of agricultural labourers to total male workers decreased and the percentage of cultivators to total male workers increased. However, the percentage of cultivators was not so high and they belonged to the low and very low level utilization category in 1981.

TABLE - 6.3

Spatial Pattern of Male Agricultural Labourers (1971-81)

Levels of Utilization	Percentage to total male workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	80 - 100	4	1	3.70	0.90
High	60 - 80	11	11	10.19	9.91
Medium	40 - 60	27	26	25.00	23.42
Low	20 - 40	48	56	44.44	50.45
Very Low	0 - 20	18	17	16.67	15.32
TOTAL		108	111	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

Under high level category (60 - 80 %) the number of villages was eleven in 1971 which remained the same till 1981. Only their percentages slightly decreased from 10.09 % to 9.91 % due to change in the

total number of villages. But all the eleven village of 1971 did not maintain their level in the year 1981. Only four of them did so and out of the remainings, four slumped down to the medium and three to the low level category of utilization, (Fig. 6.3 and Appendix 4-C). All these villages belonged to the category of ALD villages but four of them were replaced by the predominance of cultivators in 1981 which shows the betterment in the socio - economic status of the people concerned .

Medium level category (40 - 60 %) comprised 27 villages (25 %) in 1971, 26 villages (23.42 %) in 1981. But all the villages of former year did not maintain their level. Only 12 of them did so and out of the remainings, only three upgraded to high level and showed gain in the percentage of male agricultural labourers. Eleven of them degraded to the low and one to the very low level category in 1981, (Fig. 6.3 and Appendix 4-C). All these twelve villages show loss in the percentage utilization of agricultural labourers.

Only three villages of 1971 belonged to the category of cultivators dominated villages and rest to the agricultural labourers dominated villages. It means the utilization of agricultural labourers between 40 % and 60 % was also in three villages of cultivators

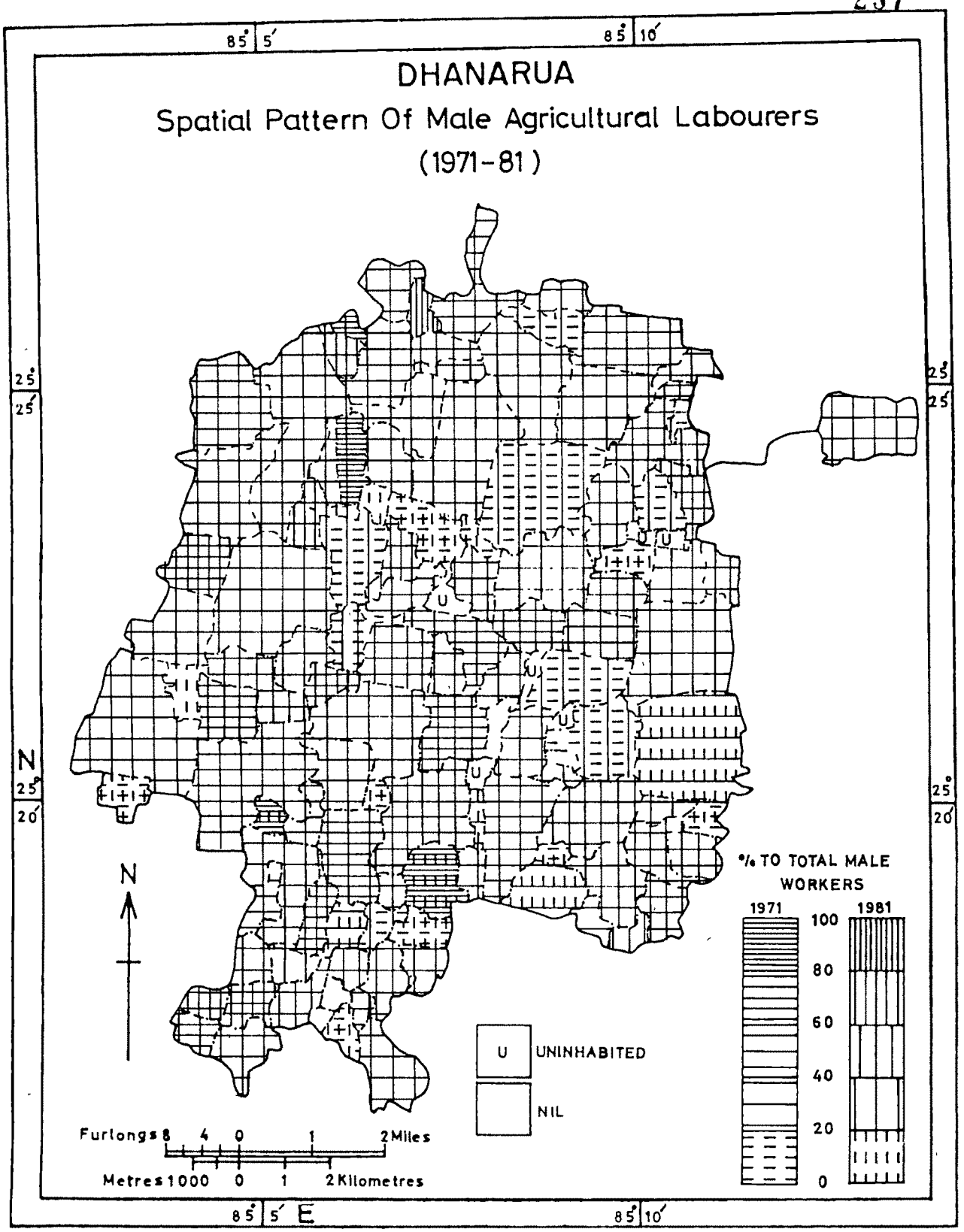
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Fig. 6 · 3.

group but in between the same percentage the number of villages in cultivators group increased to seven in 1981 because of the predominance of cultivators. This change is only due to more new entrants as cultivators in working age group during the decade.

Out of the remaining villages of 1981 three were in the high level, ten were in the low level and one were in the very low level category in 1971. It means eleven villages of 1971 upgraded from their respective utilization category and only two degraded from their levels. Except four villages of 1981 all others were in the category of agricultural labourers dominated villages which indicate the predominance in the utilization of agricultural labourers.

Low level category (20 - 40 %) comprised 48 villages (44.44 %) in 1971 and 56 villages (50.45%) in 1981. It is clear from the Figure 6.3 and Appendix 4-C that all the villages of 1971 did not maintain their levels till 1981. Only thirty one villages did so and out of the remainings, four went up to the high and nine to the medium level category. Three villages slumped down to the very low level and one to the nil category in 1981. It can, therefore, be said that thirteen villages, in which male agricultural labourers were utilized,

show gain and only four villages show loss in percentage utilization of agricultural labourers. Out of the total villages of this level thirty two (67%) belonged to the cultivators group and only sixteen (33 %) to the agricultural labourers group. It indicates that maximum utilization of male agricultural labourers under this is in those villages in which predominancy of cultivators exist and only minimum utilization of them is in the agricultural labourers dominated villages.

Out of the remaining villages of 1981 two were in the very high, three were in the high and eleven were in the medium level category. Eight of them were in the very low and one was in the nil category in 1971, (Fig. 6.3). It means that only nine villages of 1971 upgraded and sixteen degraded from their respective levels in one decade. Of the total villages of 1981 in this level, fourty three (77 %) belonged to the cultivators and only thirteen (23 %) to the agricultural labourers group. It represents that maximum utilization of male agricultural labourers in this level was in the cultivators dominated villages and only minimum utilization was in the villages of agricultural labourers group. One thing that has been observed is that all the villages of cultivators groups of 1971 remained in the same group till 1981. But seven villages of agricultural labourers group of 1981 were in

the cultivators group in 1971. Six maintained status quo during ten years.

Very low level category (0 - 20 %) comprised eighteen villages (16.67 %) in 1971 and seventeen (15.32 %) in 1981. The Figure - 6.3 shows that all the villages of the former year did not maintain their level till 1981. Only nine of them maintained and out of the remainings, one slumped down to the medium and eight to the low level category in 1981 (Appendix 4-C). All these show loss in the percentage utilization of male agricultural labourers. All eighteen villages belong to the cultivators group and from them only two villages entered into the predominance of agricultural labourers.

From the Figure - 6.3 it is also clear that only nine villages of 1981 were in the same level as they were in the year 1971. And out of the remainings, two were in the very high, one was in the medium, three were in the low and two were in the nil category in 1971. It means all eight villages lost their grades in one decade.

From the above discussions it becomes clear that in the very high and high level categories the utilization of workers was only in the villages of agricultural labourers group. Even in the medium level category the majority in utilization was in the agricultural

labourers dominated villages. But this generalized trend is overturned in the low and very low level category. In the low level the majority of labourers utilization was in the villages of cultivators group and in the very low level 100 % workers utilization was only in the villages of cultivators group.

Secondly, the maximum utilization of male agricultural labourers is in the villages of low level category, which includes the maximum number of villages of cultivaters group.

It can, therefore, be concluded that as the percentage of agricultural labourers decreases the percentage of cultivators and higher castes people increases or vice-versa.

This suggests that there is inverse relationship between the utilization of cultivators and agricultural labourers, because the villages in which the utilization of male cultivators to total male workers is higher, the utilization of agricultural labourers to total male workers is lower or vice-versa. Mainly due to this reason, in the low and very low level category the utilization of cultivators is lower because of the predominance of the villages of agricultural labourers and in the same levels the utilization of agricultural

labourers is lower because of the predominance of the villages of cultivators group, in which naturally the percentage of cultivators is higher than that of agricultural labourer dominated villages.

On the basis of this the utilization of male cultivators and male agricultural labourers to total male workers at Block level can be seen. The utilization of male cultivators and male agricultural labourers to total male workers in 1971 was 54.50 % and 35.46 % respectively. But the percentage of male cultivators and agricultural labourers in 1981 decreased to 51.41 % and 34.17 % respectively. It is, therefore, clear that the percentage utilization of cultivators in both the census years are higher than that of agricultural labourers. It is only because of the fact that Dhanarua Block is dominated by the majority of cultivators.

Female Agricultural Labourers :

Female agricultural labourers or working womanpower is an asset in the area and plays a very significant role in the production of goods which directly or indirectly satisfy human wants. Wompower is, therefore, not less significant than manpower but fundamental dilemma is that most of the womenpower is

unskilled. Besides, only a small fraction of the total womenpower is in the actual work force which creates problems by being dependent upon the working manpower.

TABLE - 6.4

Spatial Pattern of Female Agricultural Labourers (1971-81)

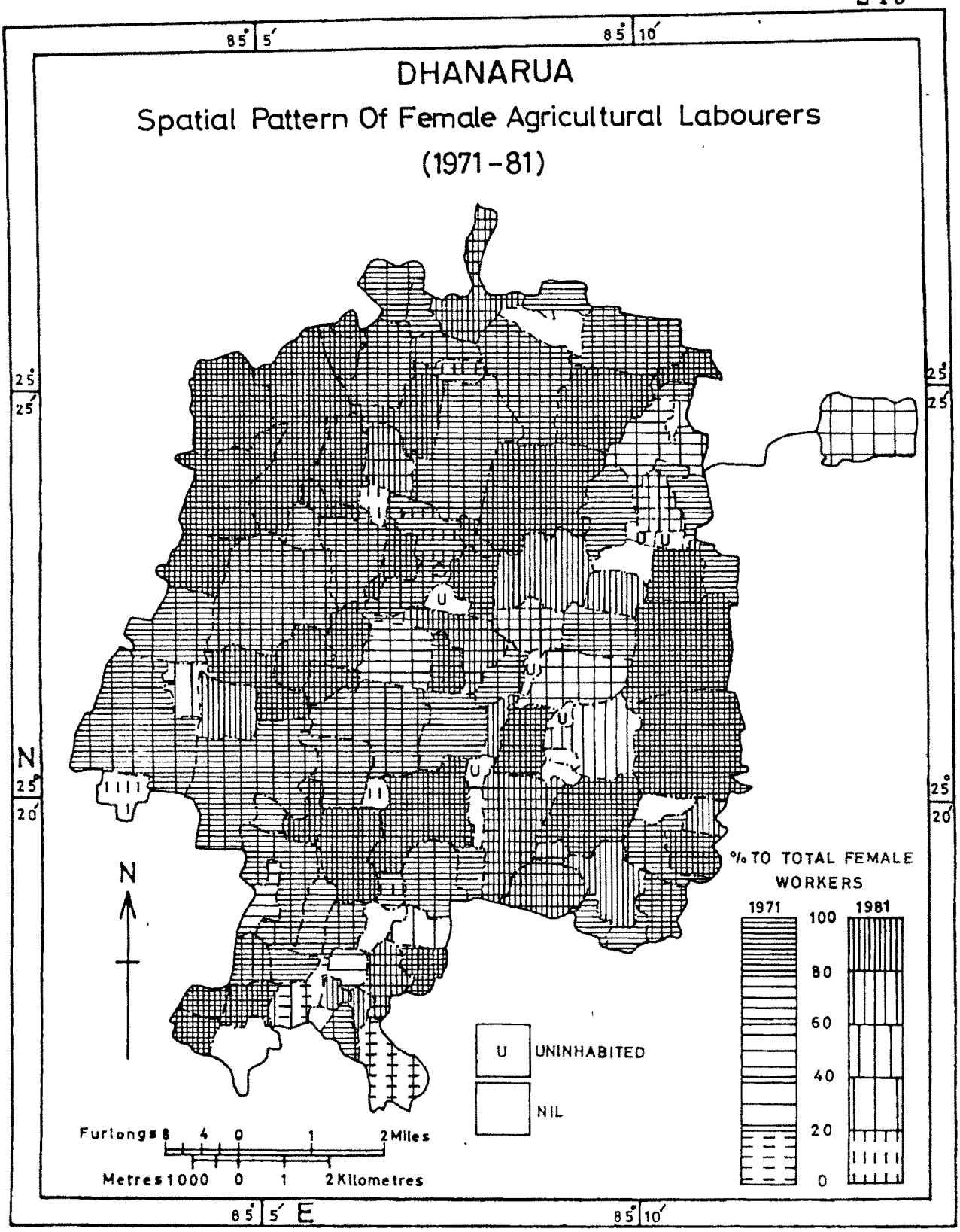
Levels of Utilization	Percentage to total Female Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	80 - 100	74	48	81.32	52.17
High	60 - 80	10	11	10.99	11.96
Medium	40 - 60	3	15	3.30	16.30
Low	20 - 40	2	12	2.20	13.04
Very Low	0 - 20	2	6	2.20	6.52
TOTAL		91	92	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

The above table shows the distribution pattern of the utilized womanpower in the villages and the Figure - 6.4 shows changes in spatial pattern within a decade (1971-81).

Table - 6.4 shows five levels of womanpower utilization in Dhanarua Block which have been arranged at the interval of 20 %.

Very high level category of womenpower utilization as agricultural labourers (80 - 100 %) comprised 74 villages (81.32 %) in 1971. The number of villages decreased to 48 (52.17 %) in 1981. This level comprised the largest number of villages of agricultural womanpower. Figure - 6.4 and Appendix 4-D show that only thirty three of them maintained their levels between 1971 and 1981 and of the remainings , eight slumped down to the high, twelve to the medium, six to the low, three to the very low and twelve to the nil category in 1981 because of the percentage loss of female agricultural labourers to the total female workers in the villages concerned. Out of the total villages of 1971, fourty (54 %) belonged to the ALD villages and thirty four (46 %) to the CD villages. It indicates that the utilization of females as agricultural labourers is slightly more in the agricultural labourer dominated villages.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Metres 1000 0 1 2 Kilometres

Fig 6-4.

Figure - 6.4 shows that thirty three villages of 1981 were in the same level as they were in 1971 and of the remainings five entered from the high, one from the medium, another one from the low level and eight from the nil category of 1971. It means, fifteen villages upgraded in ten years due to sharp increase of the female workers. Out of the total villages of this level, twenty seven (56 %) were agricultural labourer dominated and twenty one (44 %) cultivator dominated villages. It also indicates slightly more utilization of females as agricultural labourers in agricultural labourers dominated villages and slightly less in the cultivators dominated villages. This indicates that during ten years both category of villages maintained the same trend in terms of utilization of females as agricultural labourers.

Under high level category (60 - 80 %) there were ten villages (10.99 %) in 1971 and eleven villages (11.96 %) in 1981. Only two villages of 1971 maintained their levels till 1981 and of the remainings, five villages upgraded to very high level, two degraded to low level and one to the nil category (Appendix 4-D). Five villages show gain in the percentage utilization and three show loss in one decade. Out of ten villages eight belonged to the cultivators dominated villages and two

to the agricultural labourers dominated villages, which means female agricultural labourers were utilized more in the former category of villages.

It is clear from the Figure - 6.4 that only two villages of 1981 were in the same level in 1971 and of the remaining villages eight were in the very high level and one was in the nil category. Out of the eleven villages nine belonged to the Cultivator Dominated (CD) villages and only two to the Agricultural Labourer Dominated (ALD) villages, which means that the utilization of females as agricultural labourers was mostly in former category of villages. The same trend was also in the year 1971 which indicates the declining trend of the utilization of females in Agricultural Labourer Dominated (ALD) villages.

Medium level category (40 - 60 %) comprises three villages (3.30 %) in 1971 and fifteen villages (16.30 %) in 1981. Figure - 6.4 and Appendix 4-D show that only one village of 1971 maintained its level till 1981 and another one upgraded to very high level and third one slumped down to the nil category . All of them were cultivator dominated villages.

From the Figure - 6.4 it is clear that only one village of 1981 was in the same level in 1971 and of

the remainings, twelve were in the very high, one was in the very low and the last one was in the nil category in 1971. Nine villages of this level were cultivator dominated villages and six agricultural labourer dominated villages. It suggest that the maximum utilization of female agricultural labourers was in the villages of cultivator dominated. This also shows the decreasing rate of utilization of females in ALD villages.

Under low level category (20 - 40 %) there were only two villages (2.20 %) in 1971 and twelve villages (13.04 %) in 1981. It is clear in the Figure 6.4 that only one village of 1971 maintained its grade in 1981 and another one upgraded to the very high level. Both of these were cultivators dominated villages in 1971.

Figure - 6.4 and Appendix 4-D also clearly show that one village of 1981 was in the same level in 1971 and of the remainings, six were in the very high level category, two were in the high level, one was in the very low and another two were in the nil category in 1971. Nine villages of this level were CD and only three were ALD villages. This level also shows the same utilization trend as above.

Very low level category (0 - 20 %) comprised only two villages (2.20 %) of 1971 in which female

agricultural labourers were utilized and one of them slumped down to the medium and another one to the low level category in 1981 (Appendix 4-D). First village belonged to agricultural labourer dominated villages and last one to the cultivator dominated villages.

In 1981 there were six villages (6.52 %). From among them three were in the very high level, three were in the nil category in 1971. Four villages were cultivator dominated and two were agricultural labourer dominated and show the same utilization trend as it is under other levels of utilization.

From the above it is clear that in the very high level category the percentage of utilized females is more in the ALD villages because most of the people in this category of villages are landless, economically poor, socially and educationally backward which comple them to work only in the agricultural activities either alone or with their husbands. Agriculture is the only source of their employment because most of the females are incapable to work in non - agricultural sectors which require better levels of education.

High, medium, low and very low level utilization category show the predominance of cultivator dominated villages in which the utilization of females as

agricultural labourers is more than that of ALD villages. Though the percentage to total female workers decreases from high to very low level utilization category. It means that cultivator dominated villages do not stand only for cultivators who possess their land but they stand for agricultural labourers who are landless and the percentage of them to total workers is less than cultivators. The same case is also in the ALD villages in which the percentage of agricultural labourers is more than that of cultivator dominated villages. This suggests that the percentage of cultivators to total workers is more in CD villages and less in ALD villages or vice-versa.

In the Block as a whole, the percentages of utilized female agricultural labourers to total female workers in 1971 and 1981 were 89.01 % and 90.36 % respectively. It shows that less than 10 % of the total female workers was utilized in the sectors other than agricultural which indicates their total dependence on land.

It has been observed from the above that in Dhanarua Block the proportion of males as cultivators to total male workers is higher than the proportion of agricultural labourers to total male workers while the

reverse is true in the case of females as cultivators and agricultural labourers.

The cultivated land is the most crucial or determinant factor in the utilization of agricultural human resources in Dhanarua Block. The possession of land by individuals causes differences in the utilization of cultivators and agricultural labourers.

Combining together the utilization of cultivators and agricultural labourers in both sexes it has been observed that overwhelming majority of workers are engaged only in agricultural sectors. From the figures of 1971 and 1981 censuses it has been calculated that 89.96 % of the total male workers and 96.62 % females of the total female workers in 1971 were utilized as agricultural human resources whereas in the year 1981 the percentages were 85.58 % and 97.41 % respectively. It is obvious that only a very small percentage of male or female human resources are engaged in industries or non-agricultural sectors.

It would be very interesting and essential to know as to what extent land influences the utilization of agricultural human resources.

Land Resource and Agricultural Human Resources :

Agriculture is the area's largest and most

important activity which absorbs highest proportion (67 %) of the total utilised manpower (comprising 37 % cultivators and 30 % agricultural labourers). The total agricultural land is 15056 hectares constituting 82 % of the total geographical area.

Agricultural human resources and agricultural land are the factors of production, where the former is an active and latter a passive one. Both are closely related and one depends upon the other. Development of a region depends on the mutuality of natural and human resources. Here agricultural humanpower is a part of human resources and agricultural land a part of natural resources. In absence of the application of human knowledge, skills, energies, physical or mental capacity (human resources) natural resources do not have any quality of utility. It is the human resources which extract, occumulate, process natural endowments and produce usable goods from them and mobilize them to the consumers need, and constitute the ultimate basis for the wealth of a nation. In this way human resources play a very significant role as a producer and consumer of the resources. But natural resources also play a very significant role because the utilization of human resources depends primarily on the utilization of natural resources. Even in the study area the rate of agricultural human resource

utilization varies with the varying rate of the utilization of agricultural land. Both are closely related in that unit change in cultivated land causes changes in the utilization of agricultural manpower.

To evaluate or examine the strength of relationship between agricultural land (variable X) and agricultural manpower (variable Y), the Pearsonian Product Moment Correlation Coefficient (r) method has been employed. Pearson's r gives quantitative measurement of the degree and direction of relationship between two variables. To find out the nature, trend and the intensity of the causal relationship, simple Linear Regression Analysis has been done.

To know and identify the influence of a third unknown variable in determining dependent variable (Y), Residuals have been found out which give the spatial pattern of the intensity of operations of the factors other than cultivated land. For this all the 122 villages have been observed individually and the varying effects have been noted.

The Product Moment Correlation Coefficient r has been calculated by the equation.

$$r = \frac{\Sigma XY - \Sigma X \Sigma Y/N}{\sqrt{\left[\Sigma X^2 - \frac{(\Sigma X)^2}{N}\right]\left[\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}\right]}} \quad \ldots \quad \ldots \quad (i)$$

where, $\Sigma XY = 6209170$, $\Sigma X = 15056$

$\Sigma Y = 30450$, $\Sigma X^2 = 3397536$

$\Sigma Y^2 = 13385639$ and $N = 122$.

We obtained a coefficient (r) value of 0.82 which is significant at 0.01 level of confidence for 122 degree of freedom.

"The amount of change in the dependent variable, Y, for a given change in the independent variable, X, is indicated by the parameters of a regression equation" (Johnston, 1978, p. 21).

$$Y = a + b X \quad \ldots \quad \ldots \quad \text{(ii)}$$

where, $$a = \frac{\Sigma Y}{N} - b \frac{\Sigma X}{N}, \text{ and} \quad \ldots \quad \text{(iii)}$$

$$b = \frac{\Sigma XY - \Sigma X \Sigma Y/N}{\Sigma X^2 - \left(\frac{\Sigma X}{N}\right)^2} \quad \ldots \quad \ldots \quad \text{(iv)}$$

where, X = the observed value of independent variable (X)

Y = the estimated value of dependent variable (Y)

Now applying the above equation we got Regression equation of Y on X as

$$Y = 53.37 + 1.59 X .$$

SCATTER DIAGRAM FOR A CORRELATION-RATIO

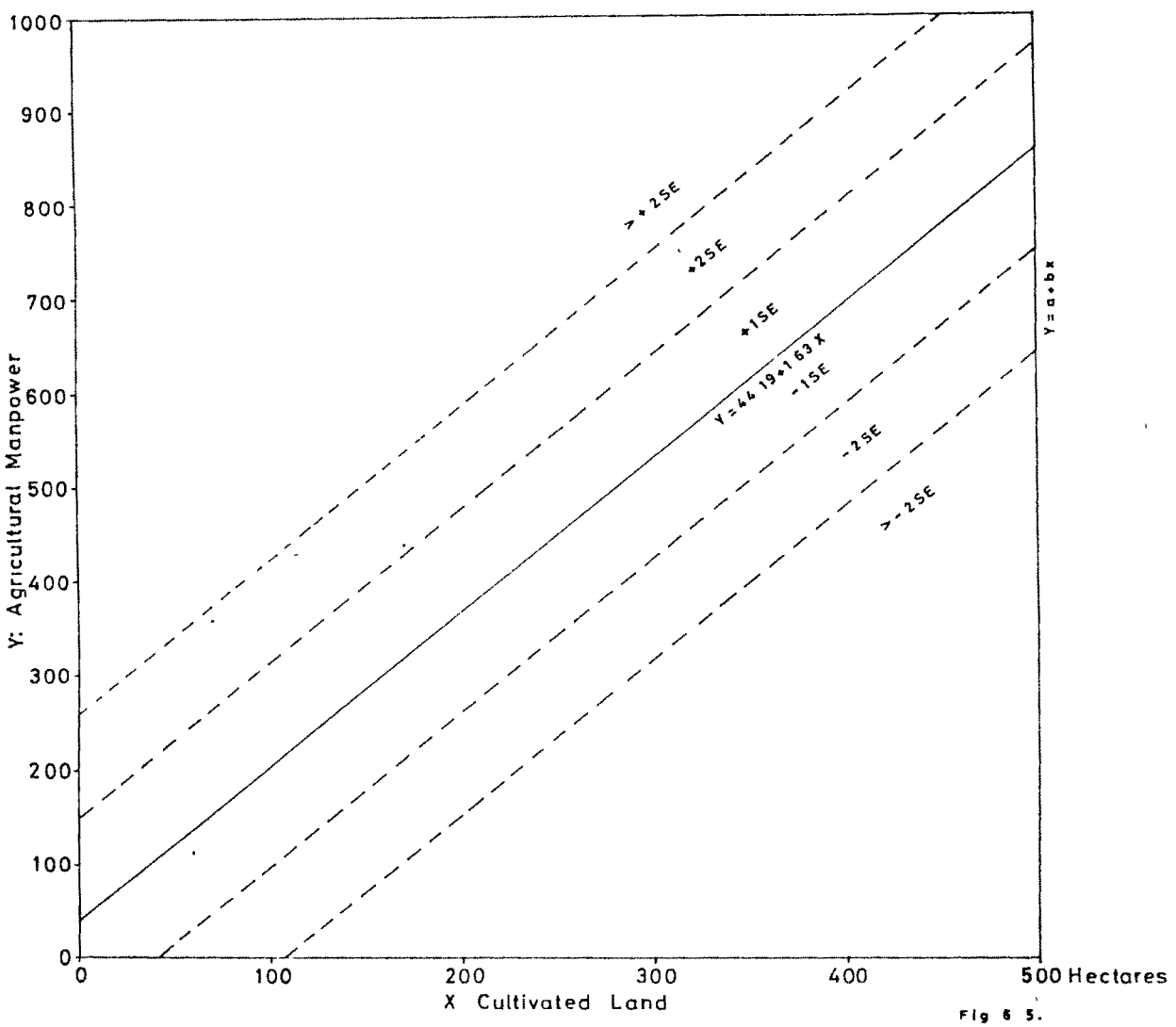

Fig 6 5.

Here "... . a and b are the constants with a determining the intercept of the straight line on the Y and b its slope indicating the rate at which Y changes with a change in X " (Pal, 1982, p. 174) "b is also known as regression coefficient" (Mahmood, 1977, p. 65) and shows the estimated change in agricultural human resources with respect to cultivated land, which is clearly shown on the scattergram (Fig. 6.5). Scattergram shows the general trend as expected.

Thus, from the regression equation it can be concluded that the relationship between agricultural human resources and agricultural land is causal in the sense that a hectare's change in cultivated land almost causes an increase of 1.59 human resources utilization in agriculture. This suggests that a great deal of agricultural human resources utilization depends on cultivated land and this conclusion may further be ensured by testing the significance of b by the following equation which gives the proportion of variation in Y as explained by X:

Total S. S. (Summary Statistic)

$$= \Sigma Y^2 - \left(\frac{(\Sigma Y)^2}{N} \right) \quad \ldots \quad \ldots \quad \text{(v)}$$

Explained S. S. $= b \left(\Sigma XY - \frac{\Sigma X \Sigma Y}{N} \right)$ ... (vi)

Coefficient of determination R^2 (the ratio between the explained or reduced and the original variance) shows - how well is the assumption of linearity in the relationship, or how well the regression line fits the pattern of dots on the scattergram. This is derived by the equation :

$$R^2 = \frac{\text{Explained S. S.}}{\text{Total S. S.}}$$

$$= 0.67 \quad \ldots \quad \ldots \quad \text{(vii.)}$$

Here, R^2 (0.67) is equal to the square of coefficient of correlation (0.82), or coefficient of correlation is equal to the coefficient of determination and shows that X and Y variables are (highly) linearly related in the area.

Here R^2 (0.67) is converted into percentage by multiplying by 100. This gives the percentage of the variance in Y which is associated with the variance in X and vice versa.

Therefore, it is clear that the coefficient of correlation is 0.82 and the coefficient of determination is 0.67, and the percentage of variance is 0.67 X 100=67%.

It is now concluded that 67 % variation in Y is determined by X and vice versa and tell that only 67 % of agricultural manpower is influenced by the cultivated land and 33 % of them is influenced by the factors other than cultivated land which is explained in the residuals (the difference between the observed, Y, and its estimated value Y^1).

Residuals show the intensity of operation of the factors, other than cultivated land, in influencing agricultural manpower, and are used to identify observations which lie some distance from the best fit linear band.

Here, residual is $Y - Y'$, where Y' (estimated value) is calculated by the equation $Y' = a + bx$.

If, $a = 53.37$, $b = 1.59$ and $x = 239$ then,

$Y_1' = 53.37 + 1.59 \times 239 = 433.4$.

If, $X = 27$

Then $Y_2' = 53.37 + 1.59 \times 27 = 96.3$

Similarly, the x values (cultivated land) of 122 villages have been taken and the estimated values from Y_3' ..... to Y_{122}' have been calculated.

The mean of the residuals - 2.2 has been

calculated by the equation :

$$\bar{X} = \frac{\Sigma(Y - Y')}{N}$$

"The mean of the residuals is - 2.2 that is negligible, though it should have been equal to zero because "the mean of all these different values of Y would be equal to the estimated value Y' . Even if no two values of X are the same, Y maintains the average position" (Mahmood, 1977, p. 67).

The standard error of estimates has been calculated by the equation .

$$\sqrt{\frac{\Sigma(Y - Y')^2}{N - 1}}$$

which amount to 107.

On the basis of S. E. of 107 residuals have been classified in the following six categories and the villages falling uner various categories have been hatched ad valorem with the particular shades as in the legend.

Table - 6.5 and Figure 6.6 show the spatial pattern of the villages in which the left-out factors influenced the utilization of agricultural human resources.

TABLE - 6.5

Classification of Residuals

Categories	Levels	Number of Villages	Percentage of Villages
2 S.E. to 3 S.E.	Very High Positive	5	4.10
1 S.E. to 2 S.E.	High Positive	12	9.84
0 S.E. to 1 S.E.	Medium Positive	33	27.05
0 S.E. to -1 S.E.	Medium Negative	55	42.62
-1 S.E. to -2 S.E.	High Negative	13	10.66
-2 S.E. to -3 S.E.	Very High Negative	7	5.73
TOTAL		122	100.00

Source : Based on Census Reports of 1971 and 1981.

This is clear from the above that only five villages (4.10 %) show very intensive operation of the

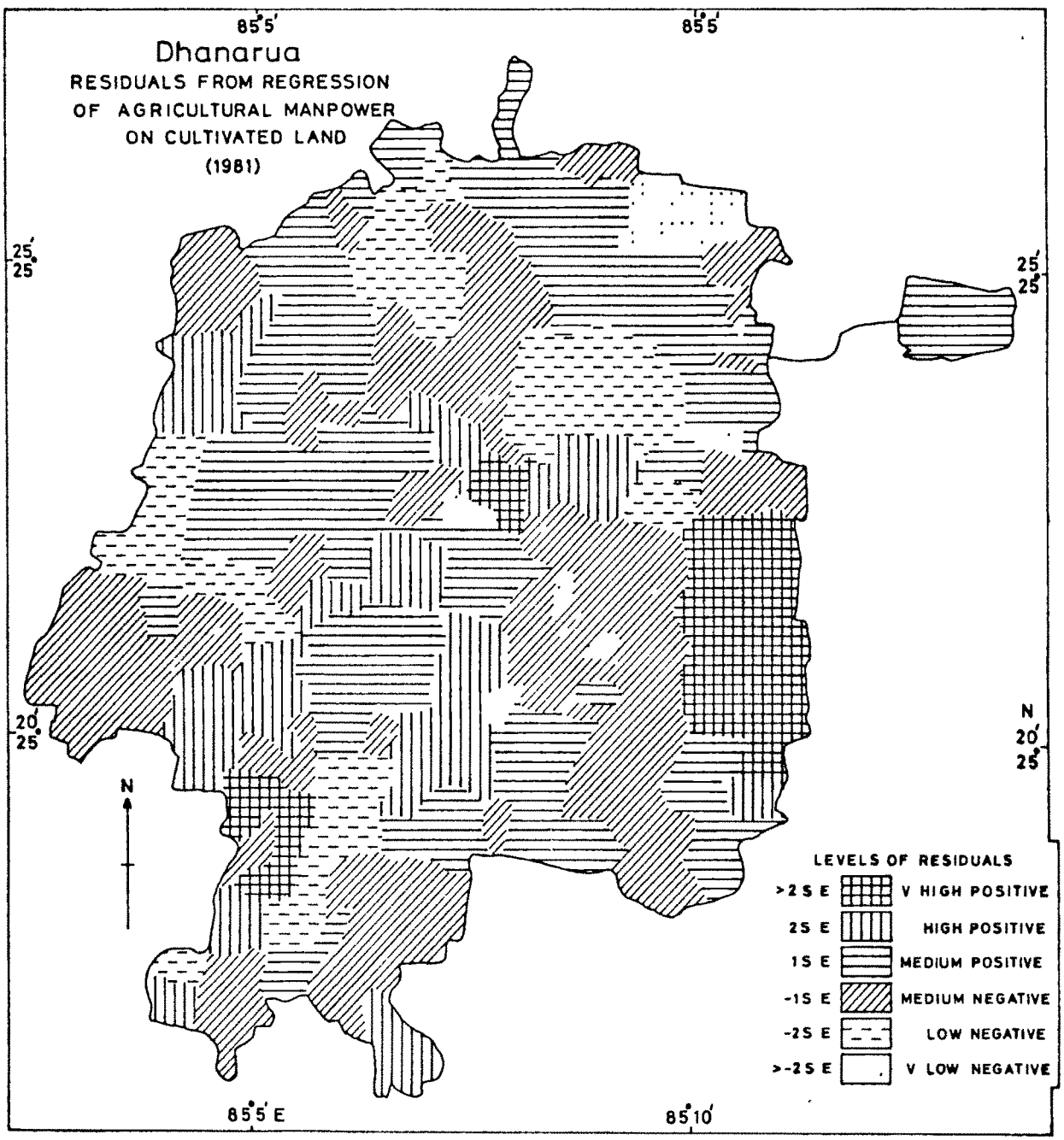
Dhanarua
RESIDUALS FROM REGRESSION
OF AGRICULTURAL MANPOWER
ON CULTIVATED LAND
(1981)
85°5'
85°5'
25' 25°
25' 25°
20' 25°
N 20' 25°
N
85°5' E
85°10'
LEVELS OF RESIDUALS
>2 S E V HIGH POSITIVE
2S E HIGH POSITIVE
1S E MEDIUM POSITIVE
-1S E MEDIUM NEGATIVE
-2S E LOW NEGATIVE
>-2S E V LOW NEGATIVE

Fig 6 6

factor other than cultivated land and seven villages (5.73 %) show very high negative operation of the factors other than cultivated land.

High positive and High negative levels show almost equal percentages of villages which are influenced by positive and negative factors.

Medium positive and Medium negative levels show the largest number of villages. It means maximum villages of positive groups are influenced moderately and require more operation of infrastructure and the villages of negative groups also show moderate negative influence of left - out factors and require greater use of agricultural infrastructure to raise the utilization rate of agricultural human resources which ultimately would increase the productivity of agricultural land.

Over all residuals show that in 41 % of the villages factors other than cultivated land (such as irrigation, nature of soils, rainfall and temperature, relief, cropping pattern, cropping intensity, consumption of fertilizers, variety of seeds etc.) have positive effect, while in 59 % of the villages they have negative effect. The villages handicaped in respect of the above factors other than cultivated land should be provided with similar facilities and in this way an

intensive utilization of agricultural land would be possible which would increase the demand of more manpower and the under utilized and unutilized manpower would be partly or wholly utilized in the area.

Industrial Human Resources : In Household Industries.

Industrial human resources consist of those persons who are engaged and work in any industry. They contribute their knowledge, skills, physical and mental capacity in transforming primary products into goods of any description that are useful and satisfy social wants. Industrial human resources can be classified into two types on the nature of their employment and production. One, the persons who are engaged and work in some production, processing, servicing or repairs within their homes or villages. They are called the human resources of household industries. A household industry has been defined "as an industry conducted by the Head of the household himself and/or mainly members of the household at home or within the village in rural areas and only at home in urban areas. The industry should not be run on the scale of registered factory. Thus the main criterion for a household industry is the

participation of one or more members of a household in rural areas" (Census of India, 1971, p.1 XXVIII). A household industry is related to production, processing, servicing or making and selling (but not merely selling) of goods. In the study area household industrial activities are : carpentry, blacksmithy, goldsmithy, pottery (earthen and metal),oil crushing, flour making, and grain milling, milk processing (Cream and Khoya), tailoring, bicycle repairing, bidi rolling, putting iron hoop on cartwheels etc.,

Second, persons engaged in manufacturing industries that always run on registered scale. It is the big factory in which different articles or materials are manufactured or produced on a large scale by the combined efforts of physical labour and mechanical power. "The term "manufacturing" includes those activities by which man changes the form or nature of raw materials, converting them into more useful products. These transforming operations are conducted in factories, to which are brought raw materials from various source regions and from which go finished products to diverse market regions" (Miller, 1962, p.1).

In this chapter, the human resources engaged in household industries have been considered. First, we take up the males engaged in household industries, then the females.

Male Workers in Household Industries :

Table 6.6 gives a comparative idea of the spatial pattern of utilization of males in household industries during the years 1971 and 1981.

The table clearly shows the low percentage of male workers engaged in household industries, the highest being 32.5 %. But within the percentage, the villages have been classified under five categories with variation of utilization between 0 and 32.5 % The terms 'high' and 'very high' should be understood under this qualification within the local range itself. But most of the villages fall under the last three categories - medium, low and very low. There was no village in high category (19.5 - 26 %) either in 1971 or 1981, and only one village in very high (26 - 32.5 %) category in 1971, which also slumped down to medium level in 1981. Most of the villages which have male household industrial workers fall within the last two categories, i.e. they

have not more than 13 % to total male workers under this category.

TABLE - 6.6

Spatial Pattern of Males in Household Industries (1971-81)

Levels of Utilization	Percentage to total Male Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	26 - 32.5	1	-	2.33	-
High	19.5 - 26	-	-	-	-
Medium	13 - 19.5	2	3	4.65	4.84
Low	6.5 - 13	8	3	18.61	4.84
Very Low	0 - 6.5	32	56	74.42	90.32
TOTAL		43	62	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

Only 43 (37.39 %) out of the total number of villages had this category of workers in

1981 the number of villages increased to 62(53.45 %). This indicates that more and more villages are having this category of workers. But total number of household industrial workers went down from 2.18 % in 1971 to 1.84 % in 1981.

Under very low level category (0 - 6.5) there were 32 villages (74.42 %) in 1971 and 56 villages (90.32 %) in 1981. All the villages of 1971 did not maintain their grade till 1981. Only 23 of them did so and of the remainings, only one belonging to the category of cultivator dominated villages upgraded to the low level and eight of them degraded to the nil category in 1981 (Fig. 6.7 and Appendix 4-E). Four of them belonged to the Cultivator Dominated (CD) villages and other four to the Agricultural Labourer Dominated(ALD) villages. Of the whole villages of 1971 nineteen villages belonged to the CD and thirteen to the ALD villages. This indicates the predominance of males, engaged in household industrial activities, from CD villages in 1971.

Figure - 6.7 and Appendix 4-E clearly show that 23 villages of 1981 were in the same level in 1971. Of the remainings, six villages were in the low level and 27 were in the nil category in 1971. Out of the total

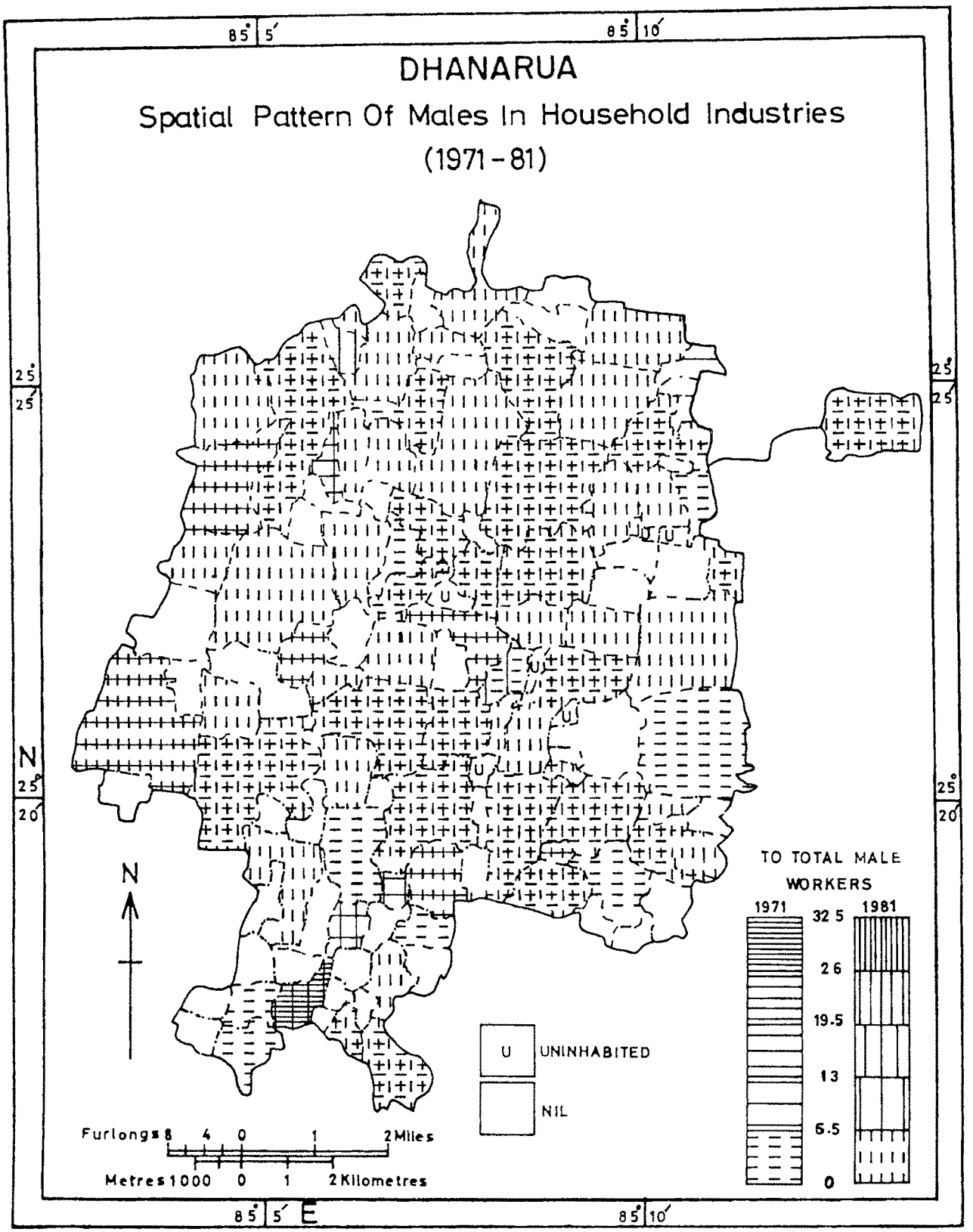
DHANARUA
Spatial Pattern Of Males In Household Industries
(1971-81)
85° 5′
85° 10′
25° 25′
25° 20′
N
E
TO TOTAL MALE WORKERS
1971
1981
32.5
26
19.5
13
6.5
0
U UNINHABITED
NIL
Furlongs 8 4 0 1 2 Miles
Metres 1000 0 1 2 Kilometres

Fig. 6 - 7.

villages 32 belonged to the CD and 24 to the ALD villages. An important thing is that approximately 50% villages of 1981 in this level upgraded from the nil category though the percentage of males in household industrial activities is very low.

It is clear, from what has been stated above, that in all the levels of utilization category, except very low level category, the maximum utilization of males is only in the villages of agricultural labourer dominated villages. It means that the percentage of males household industrial activities is higher in the villages inhabited by lower castes people and lower in the villages inhabited by higher castes people. The reason of this is obvious, mostly the carpenters, blacksmiths, pot makers, milk processors, bidi makers, flour millers, oil crushers and others are poorer and most of them belong to the category of lower castes people in the Block. Due to their poverty, they are not so educated so as to work in other services. Most of them are landless and ultimately they start their very small household industrial activities either in their houses or in the villages. They produce different kinds of goods according to their occupations. The goods produced by them are sold locally either in their own villages or in some other neighbouring villages. In this way they earn their remuneration

either in cash or kind for their livelihood.

In the cultivator dominated villages most of mele workers are engaged in agricultural activities due to availability of cultivated land. Only those occupational castes which traditionally own household industries, are occupied in producing goods for local consumption. But their percentages to total male workers in CD villages is very low.

Female Workers in Household Industries :

Table - 6.7 and the Figure - 6.8 show the spatial pattern and temporal changes of females engaged in household industrial activities. Only in 20 villages in 1971 and in 14 villages in 1981 females were engaged in household industries and 95 villages in 1971, 102 villages in 1981 had no female workers under this category at all.

In contrast to males engaged in household industrial activities the percentage of female household industrial workers is very high going up to 77.5 % (as compared to male's 32.5 %) . This is but natural as while the males may be working in agricultural activities, the female members of the family might be

working on some type of trade in the house itself. But the number of villages showing female household industrial workers was much smaller - only less than one half in 1971 and less than one fourth in 1981. This also shows that while male household industrial workers are on the increase in number and spread, the female household industrial workers show a declining trend. Most of the villagers, 16 out of 20 (80 %) in 1971 and 12 out of 14 (85.71 %) in 1981 have very low proportion up to 15.5 % of household industrial workers.

In 1971, very high level utilization category (62 - 77.5 %) consists of only one village (Nataul). This was an agricultural labourer dominated village. By 1981, surprisingly enough, there was complete absence of females in household industries. There were only 14 female workers in 1971 in Nataul, out of which eleven were engaged in household industrial activities. In 1981, the total female workers were only eight and six of them were engaged in agricultural activities and two in other services. It indicates that the females who were engaged in household industries entered into agricultural activities as agricultural labourers. They might have thought better prospects of their earning being employed in agricultural activities.

TABLE - 6.7

Spatial Pattern of Females in Household Industries (1971-81)

Level of Utilization	Percentage to total Female Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	62 - 77.5	1	-	5.00	-
High	46.5 - 62	3	-	15.00	-
Medium	31 - 46.5	-	-	-	-
Low	15.5 - 31	-	2	-	14.29
Very Low	0 - 15.5	16	12	80.00	85.71
TOTAL		20	14	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

High level category (46.5 - 62 %) included only three villages (15 %) in 1971. By 1981, one (Mai - Nataul) degraded to the very low level and two (Hansopur and Walipur) to the nil category . The

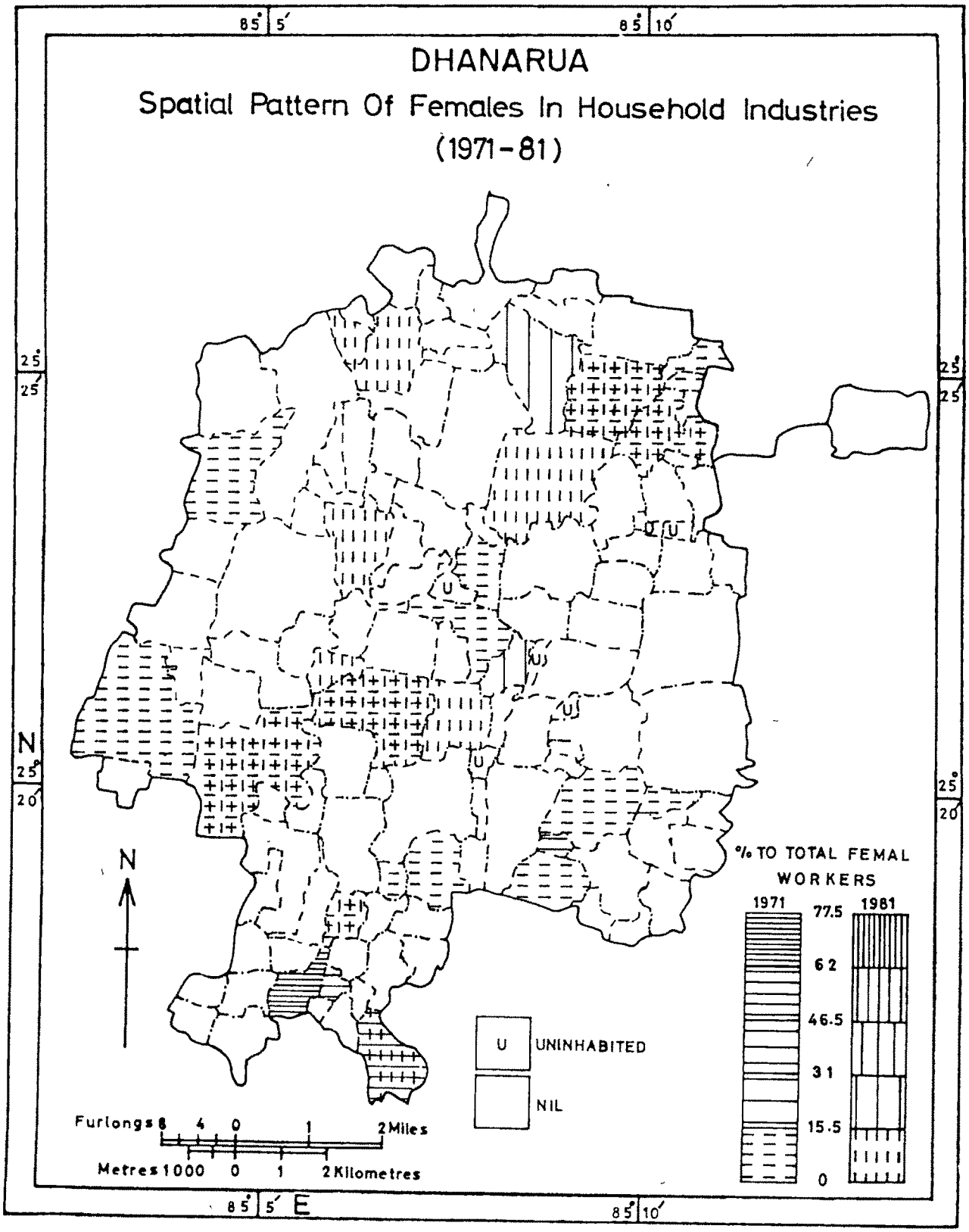
DHANARUA
Spatial Pattern Of Females In Household Industries
(1971-81)
85° 5′
85° 10′
25° 25′
25° 20′
N
E
U
UNINHABITED
NIL
% TO TOTAL FEMAL WORKERS
1971
1981
77.5
62
46.5
31
15.5
0
Furlongs 8 4 0 1 2 Miles
Metres 1000 0 1 2 Kilometres

Fig. 6 · 8.

above reasons might have compelled them to leave their traditional occupation and to enter into agricultural activities.

No village fall in the medium level category (31 - 46.5 %).

Under low level category (15.5 - 31 %) there was no village in 1971 but in 1981 there were two villages (14.29 %) and both of them had no female household industrial workers in 1971. One (Sonmai) of them belonged to the CD villages and another one (Sahru) to ALD villages.

Very low level category (0 - 15.5 %) comprised 16 villages (80 %) in 1971 and 12 villages (85.71 %) in 1981. Only five villages (Oiara, ,Bir, Moriawan, Sanda and Sewai) maintained their level and a majority of eleven villages lost all such female workers to other activities (Fig. 6.8 and Appendix 4-F). It is to be noted that only eight villages out of 20 (1971) belonged to the CD villages and 12 to the ALD villages.

Figure - 6.8 clearly shows that only five villages of 1981 were in the same level and one (Mai - Nataul) was in the high level and six were in the nil

category in 1971. Thus only six villages moved up from the nil category. 50 % villages of this year belonged to the CD and another 50 % to the ALD villages.

From the above it is evident that in 1981 in more than 85 % villages the percentage of females engaged in household industrial activities was below 15.4 % and in less than 15 % villages the utilization proportion ranged between 15.5 % and 31 %.

The participation rate or the proportion of females in household industries can also be seen at Block. The percentages of females to total female workers in 1971 and 1981 were 1.36 % and 0.68 % respectively. The proportion of both sexes in household industrial activities have declined from 1971 to 1981. This is not a good sign for the future development of the area. Villages and cottage industries, both traditional and non-traditional have been considered "... . as an alternative source of income, employment and expansion" (Rao, 1978, p. preface). Most of the females are unemployed and a fraction of them could be employed by establishing household industries in Dhanarua Block.

Non-Agricultural Human Resources : In other Services :

Non-agricultural human resources are also

valuable assets and play vital role in the development of a region. Non - agricultural human resources comprise those persons who are engaged in secondary and tertiary sectors of rural or urban economy and produce a use value of any description that satisfy human wants. Secondary and tertiary sectors include the following economic activities : livestock, orchard and allied activities, mining and quarrying, manufacturing industries, construction, trade and commerce, transport, storage and communication, other services. The Census of India (1981) has included all the workers engaged in these activities into one category that is known as 'other services' . The data of 1971 have also been converted to the category of 'other services'.

Male Workers In Other Services :

Table - 6.8 shows the spatio - temporal pattern of the villages in which non - agricultural male human resources were engaged in other services. The Figure - 6.9 shows the changes in the levels of villages between 1971 and 1981.

Under very high level category (36 - 45%) there was no village in the year 1971 but in the year 1981 there were two villages (1.89 %) in which non -

agricultural male human resources were utilized. Both villages (Sahru and Nadwan) were in the high level category in 1971. They belonged to the ALD category. This level shows the highest utilization of non-agricultural male human resources among the total male workers (Fig. 6.9). However it is not clear in which particular economic activity they are engaged . It is because of the fact that all economic activities except agricultural and household industrial activities have been put together in one category of non-agricultural sectors. Literacy shows positive correlation with these workers because in non - agricultural economic functions manpower is meant mainly for services that require relatively higher levels of education than that of agricultural manpower, of these two villages one shows 40% and the other 50 % male literacy.

High level utilization category (27 - 36 %) comprised five villages (5.44 %) and two villages (1.89 %) in the years 1971 and 1981 respectively. It is to be noted that not a single village of 1971 maintained their level till 1981, two villages upgraded to the very high, two degraded to the medium and one to the low level category by 1981 (Fig. 6.9 and Appendix 4-G) . Four villages (Nadwan, Nataul, Kalianpur and Panditganj) belonged to the ALD villages and one(Sahru)

to the CD villages. Both villages (Sewai and Raipura) were in the low level category in 1971. They belonged to CD and ALD villages respectively. The percentage of male literacy in these two villages were 51 and 45 respectively.

TABLE - 6.8

Spatial Pattern of Males In Other Services (1971-81)

Levels of Utilization	Percentage to total Male Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	36 - 45	-	2	-	1.89
High	27 - 36	5	2	5.44	1.89
Medium	18 - 27	4	20	4.35	18.87
Low	9 - 18	25	34	27.17	32.08
Very Low	0 - 9	58	48	63.04	45.28
TOTAL		92	106	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

to the very low level by 1981 (Fig. 6.9 and Appendix 4-G). This means that out of 25 only four villages lost their grades in one decade. Eleven villages were in the CD and fourteen in the ALD villages.

Figure - 6.9 shows that only thirteen villages of 1981 were in the same level in 1971 and out of the remaining, one was in the high, seventeen were in the low and three in the nil category in 1971. Of the total number of villages of 1981, twenty one belonged to the CD and thirteen to the ALD villages.

Very low level category (0 - 9 %) comprised 58 villages (63.04 %) in 1971 and 48 villages (63.04 %) in 1981, a clear indication of vertical movement of non - agricultural activity among the male population of the area. However, 29 remained on the same level as in 1971. Out of the remainings, seven villages upgraded to the medium level, seventeen to the low level category and five villages even slumped down to the nil category by 1981 (Fig. 6.9 and Appendix 4-G).

It is clear from the map that out of the total number of villages joining the villages of this category by 1981 three came down from the medium level, and four from the low level while twelve rose to join their rank

from the nil category. It means, nineteen villages show changes in their grades between 1971 and 1981. Of the total villages 34 belonged to the CD villages and only thirteen to the ALD villages which again shows that the percentage of males engaged in non - agricultural sectors is higher among the CD villages. The percentage of literacy is also higher in these villages as compared to the ALD villages.

From the above it is obvious that in more than 77 % villages the utilization of males in non - agricultural economic functions is below 18 % and only in 23 villages the percentage was between 18 % and 45 % .

Secondly, the percentage of males to total male workers utilized in non - agricultural sectors is higher in those villages that are dominated by the cultivators. This is mainly because of the differences in the levels of education between cultivators and agricultural labourers. Levels of education effect the employment rate of workers in non - agricultural sectors because manpower in non - agricultural sectors is required mainly for services which require relatively higher levels of education. The percentage of male literacy is obviously higher in the CD village than that of ALD villages.

Womenpower In Other Services :

Table - 6.9 shows the spatial distribution of villages in which the womenpower were engaged in non - agricultural economic functions. The Figure - 6.10 shows the changes in the levels of villages between 1971 and 1981.

TABLE - 6.9

Spatial Pattern of Females in Other Services (1971 - 81)

Levels of Utilization	Percentage to total Female Workers	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	80 - 100	-	3	-	7.89
High	60 - 80	-	-	-	-
Medium	40 - 60	1	2	4.17	5.26
Low	20 - 40	2	2	8.34	5.26
Very Low	0 - 20	21	31	87.49	81.58
TOTAL		24	38	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

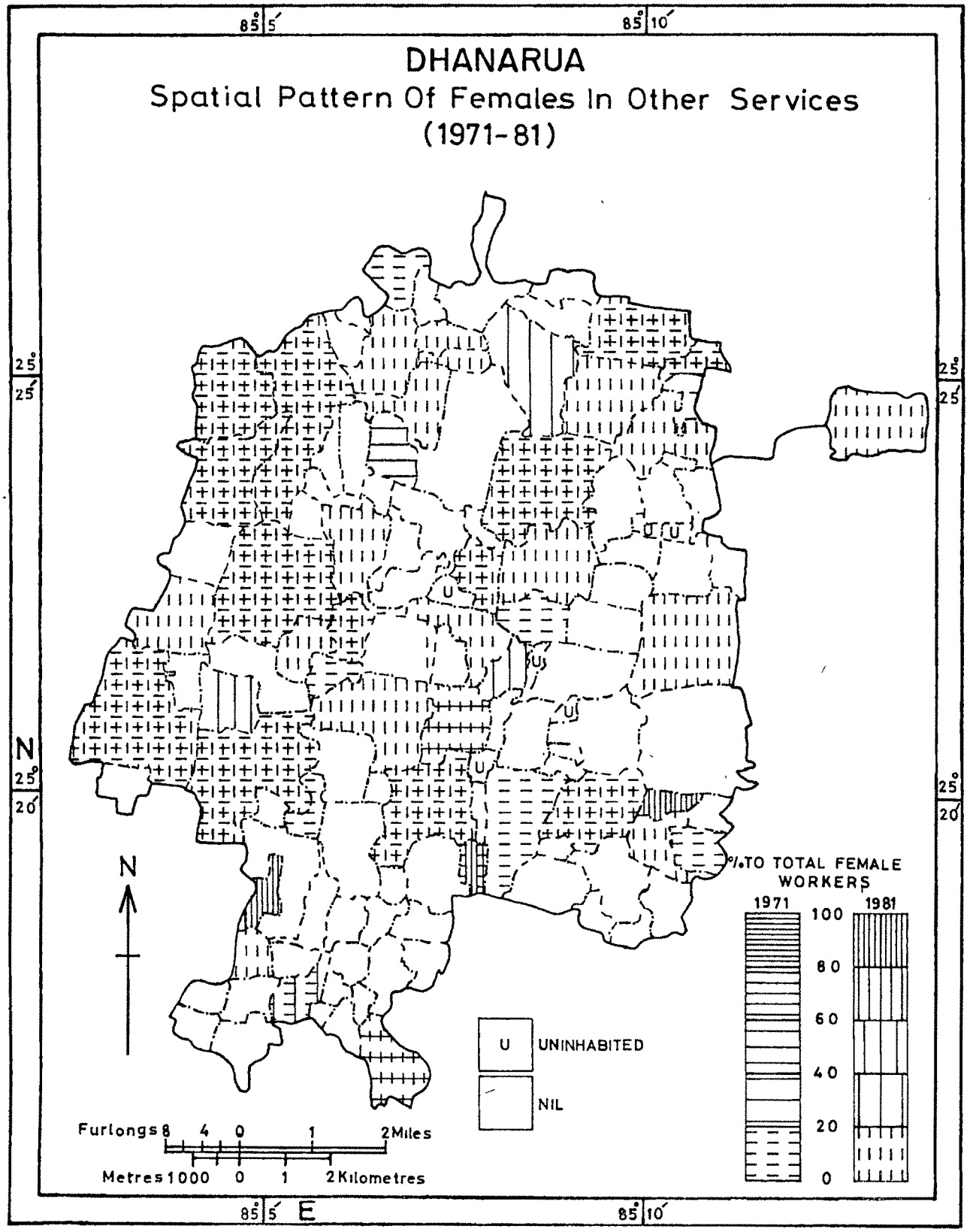
DHANARUA
Spatial Pattern Of Females In Other Services
(1971-81)
85° 5′
85° 10′
25°
25′
20′
N
E
U
U
U
U
U
U
U
N
U UNINHABITED
NIL
% TO TOTAL FEMALE WORKERS
1971
1981
100
80
60
40
20
0
Furlongs 8 4 0 1 2 Miles
Metres 1000 0 1 2 Kilometres

Fig. 6·10

Under the very high level category (80-100%) there was no village in 1971 but by 1981 three villages (7.89 %) rose to this level . These villages belonged to the CD villages; one (Nemrapali) of them rose from very low level and the other two (Milik Dewan and Nasratpur) took a long stride from nil category to the highest category. In these villages 100 % womenpower were engaged in non - agricultural economic functions, though their total number in all three villages was only four. The percentages of female literacy in these three villages were 23 %, 20 % and 3 % .

In 1971, there was only one village (Anjni) under medium level category (40 - 60 %) which also showed blank by 1981. The two villages (5.26 %) namely Sahru and Chistipur joined their rank by 1981 were in the nil category in 1971 and both of them belonged to the CD villages. The percentages of literacy were between 12 % and 10 % .

Under low level category (20 - 40 %) the number of villages both in 1971 and 1981 remained the same (two) but the villages were different. The villages of 1971 slumped down to the very low level category and of the two villages which entered their category by 1981, one came up from very low level and

another from nil category. The females literacy in these two villages was about 10 % .

Very low level category (0 - 20 %) comprised 21 villages (87 - 49 %) in 1971 and 31 villages (81.58 %) in 1981, showing an overall rise of about 6 % (10 villages). Only thirteen villages were common to both the years. One (Nemrapali) of the 1971 villages rose up to very high level, another one (Nataul) upgraded to the low level and six slumped down to the nil category by 1981. Of the 18 villages which rose to this category by 1981 sixteen were in the nil category and two in the low level category in 1971 (Fig. 6.10 and Appendix 4-H). Out of 31 villages of 1981 sixteen belonged to the CD villages and fifteen to the ALD villages . In seven villages of 1981 the percentage of female literacy was between 20 % and 30 % . In eighteen villages this varied from 10 % to 20 % and in six villages this was below 10 % . In general it can be said that the percentage of female literacy in this level is comparatively higher than in other levels of utilization. But the percentage of womenpower is below 20 %. Yet it can be said that it is literacy that has influenced the participation rate of females in non - agricultural sectors.

It is clear, from what has been stated above,

that in 82 % villages the utilization of womenpower in non - agricultural economic functions is below 20 % and in 18 % villages their utilization is between 20 % and 100 % .

Secondly, 65 % villages of 1981 belonged to the CD and 35 % to the ALD villages.

Thirdly the percentage of female literacy in CD villages is higher than that in ALD villages. This is the main reason of more females in non - agricultural activities in CD villages than in ALD villages.

So far as the Dhanarua Block as a whole is concerned the percentage of males to total male workers in the year 1971 and 1981 were 10.4 % and 14.42 % respectively. The percentage of female non-agricultural workers to total female workers in the respective years were 3.33 % and 2.59 % . It is obviously clear that in non-agricultural activities the utilization of females is very low as compared to the utilization of males. Secondly, the percentage of males utilization in this category has increased between 1971 and 1981 while the percentage of female has slightly decreased. On the whole, the percentage of males and females to total male and female workers is very low in non -

agricultural sectors of rural economy in Dhanarua Block. Though the participation rate of human resources in non - agricultural economic functions is on gradual increase which indicates the healthy sign of human resources development and shifting of human resources from agricultural to non - agricultural sectors which may ultimately lighten the pressure of workers on agricultural land.

It may be concluded that in Dhanarua Block the highest proportion of male workers is engaged as cultivators followed by agricultural labourers while the reverse is true in the case of female workers. But except for agricultural labourers all other activities absorb proportionately larger number of male workers than female workers. Therefore, female participation in working force in all economic activities except agricultural labourer, is proportionately as well as absolutely lower in Dhanarua Block.

Non-Working Human Resources

Non - working human resources are unutilized human resources. They are the major component of the total human resources in the area. A person who does not contribute his or her knowledge, skills, physical

or mental capability and other inherent qualities in any economically productive work is called non - worker. In other words, a person who is not working in any economically productive work or who is completely unemployed can be called unutilized human resources. United Nations (1965, p. 381), non - working human resources are also called as economically inactive population which includes persons possessing an independent source of income, retired persons no longer working, person preparing for an occupation or profession or studying on a scholarship, other independent persons who are not working or seeking work (income recipients, beggars and so forth), dependents like children under 14 years of age, persons performing household duties without remuneration, persons unable to work, etc.

Actually unutilized human resources are the burden on utilized human resources and in most cases pose obstacles in the development of the concerned area. It is mainly the lack of resources other than human resources which may create unemployment. It may be also because of undeveloped human resources, deep rooted tradition, uncontrolled forces of economic imbalance etc.

Male Non - Workers:

Table 6.10 shows the distribution of villages

in which non - working or unutilized males fall and the map (Fig. 6.11) shows the changes in their spatial pattern during a decade.

TABLE - 6.10

Spatial Pattern of Male Non-Workers (1971-81)

Levels of Non - Utilization	Percentage to total Male Population	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	69 - 81	1	1	0.87	0.87
High	57 - 69	3	9	2.61	7.76
Medium	45 - 57	90	88	78.26	75.86
Low	33. - 45	21	17	18.26	14.66
Very Low	21 - 33	-	1	-	0.87
TOTAL		115	116	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

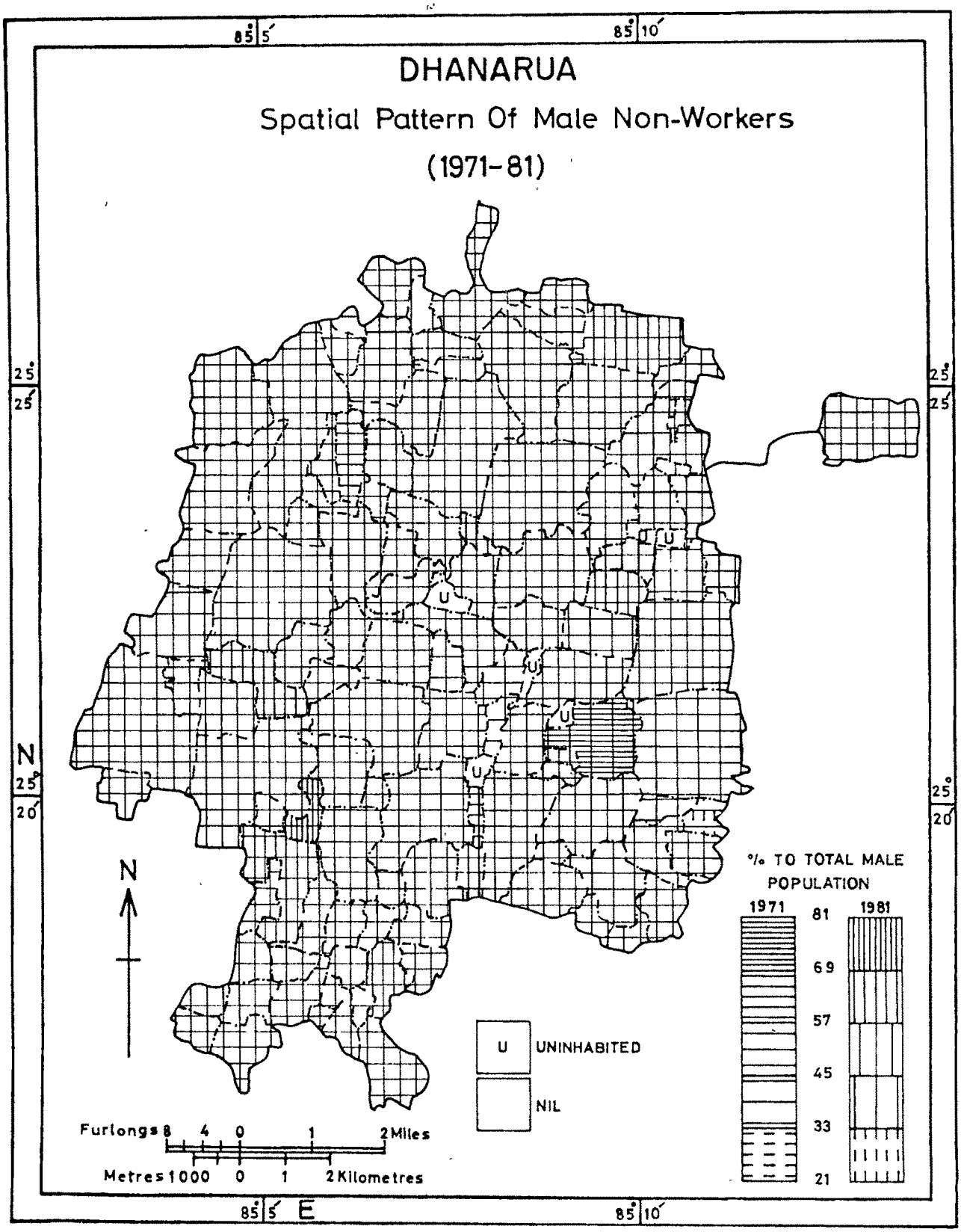
DHANARUA
Spatial Pattern Of Male Non-Workers
(1971-81)
85° 5′
85° 10′
25°
25′
25° 20′
N
U
U
U
U
U
U
N
U UNINHABITED
NIL
% TO TOTAL MALE POPULATION
1971
1981
81
69
57
45
33
21
Furlongs 8 4 0 1 2 Miles
Metres 1000 0 1 2 Kilometres
85° 5′ E
85° 10′

Fig 6 · 11.

The above table shows five levels of unutilized human resources of the males. Most of the villages - 111 in 1971 and 105 in 1981, which constituted 96.52 % and 90.52 % respectively - have 33 to 57 % males unutilized. They fall in the combined low and medium categories. High level of non-utilization was seen in three villages (Phulpura, Janakpur and Khardiha) in 1971 and nine villages in 1981. Very high level non - utilization was seen in only one village in both the census years. In very low level there was only one village (Semhari Khurd) in 1981. Thus the overall non-utiliation of male human resources in the area is of the low and medium category.

The trend within the decade is also apparent from the figures, the table and map. Within the medium grade the decrease was of the order of 2.4 % and within the low grade 3.6 % , they affected only two and four villages respectively. On the other hand there was an increase in high level of non - utilization (57 - 69%), in that the number of villages under this category increased from 3 to 9 within the decade, thus affecting addition of six villages in this category, which balanced the decrease of six villages in low and medium categories. This is an indication of growing unutilization or in other words, unemployment in the area.

It may, however, be noted that all the villages in one category in 1971 do not remain there to be joined to new villages, rather some of them go to other categories and others may come up or down, thus keeping the picture changing. For example, under medium level category (45 - 57 %) there were 90 villages (78.26 %) in 1971 and 88 villages (75.86%) in 1981. Only 72 of 1971 villages remained in this category, from the remainings, one village (Raipura) upgraded to the very high level, five to the high level, eleven degraded to the low level and one (Semhari Khurd) to the very low level by 1981 (Fig. 6.11 and Appendix 4-I). More than 50 % villages of this level belonged to the CD villages. It is clear that in 72 villages the percentage of unutilized human resources remained the same and in six villages the percentage of them increased and in twelve villages the percentage of them decreased.

Figure 6.11 shows that 72 villages of 1981 were in the same level in 1971 and from the remainings, two were in the high level and twelve in the low level in 1971 and more than 50 % of the total villages of this level were in the category of CD villages. This means that only in 72 villages the percentage of unutilized human resources remained the

same as it was in 1971. Only in two villages the percentage of male non - workers decreased and in twelve villages their percentage incresed.

Under low level category (33 - 45 %) there were 21 villages (18.26 %) in 1971 and 17 villages (14.66 %) in 1981. Only three villages of 1971 maintained their levels and out of the remainings, four villages upgraded to the high level and fourteen to the medium level in 1981 (Fig. 6.11 and Appendix 4-I). More than 50 % of the villages of this level belonged to the CD villages. It is obvious that except three all other villages show an increase in the percentage of male non - workers.

Figure - 6.11 also shows that three villages of 1981 were in the same level in 1971 and out of the remainings, one was in the very high, and twelve were in the medium and last one was in the nil category in 1971 . It indicates that only one village which was in the nil category got an increase and all other villages show decrease in the percentage of male non - workers between 1971 and 1981.

Under very low level category (21 - 33 %) there was no village in 1971 but in 1981 one (0.87%) village joined this category. This village belonged to

the CD villages and degraded from the medium level of 1971. It means that the percentage of male non - workers to total male population decreased in 1981 due to an increase in the percentage of male workers. Only this village (Semhari Khurd) shows the lowest percentage of male non - workers.

It can be stated that the higher percentage of children under 15 years of age, olds above 60 years and unemployed persons in working age groups are responsible for such a high percentage of male non - workers in the area.

Female Non - Workers :

Table - 6.11 and map (Fig. 6.12) show a clear contrast with the male unutilized human resources. In contrast to the most of the villages having low to medium unutilization of males, female non - utilization of high and very high levels is found in most of the villages - 92 villages in 1971 and 107 villages in 1981. Only thirteen and eight villages are seen under low and medium categories in 1971 and 1981 respectively. This also indicates another obvious fact that the levels of non - utilization is increasing. But one feature common to both male and female non - utilization is that the

number of villages under higher categories of non - utilization has increased while under medium and lower categories has decreased. There are very sharp decrease low and very low levels of non - utilization. Thus in both cases the undesirable trend of increasing unemployment is shown, rather in case of female unemployment it is more pronounced.

TABLE - 6.11

Spatial Pattern of Female Non - Workers

(1971-81)

Levels of Non - Utilizaion	Percentage to total Female Population	Number of Villages		Percentage of Villages	
		1971	1981	1971	1981
Very High	87 - 100	73	80	63.48	68.97
High	74 - 87	19	27	16.52	23.28
Medium	61 - 74	4	7	3.48	6.03
Low	48 - 61	9	1	7.83	0.87
Very Low	35 - 48	10	1	8.70	0.87
TOTAL		115	116	100.00	100.00

Source : Based on Census Reports of 1971 and 1981.

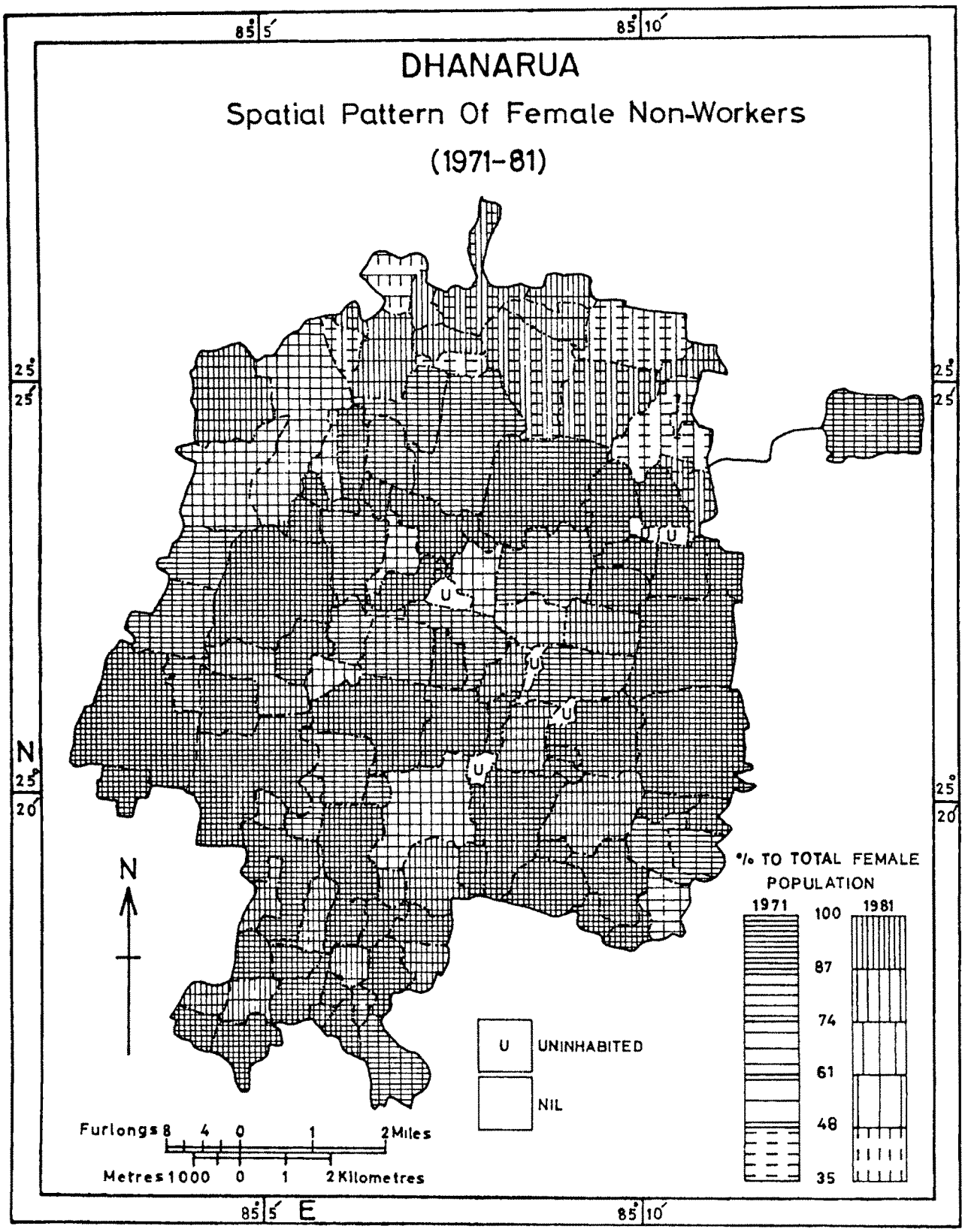
DHANARUA
Spatial Pattern Of Female Non-Workers
(1971-81)
85° 5′
85° 10′
25° 25′
25° 20′
N
E
U
U
U
U
U
U
U
N
U UNINHABITED
NIL
% TO TOTAL FEMALE POPULATION
1971
1981
100
87
74
61
48
35
Furlongs 8 4 0 1 2 Miles
Metres 1000 0 1 2 Kilometres

Fig 6-12.

It is also clear that in more than 68 % villages in 1981 the percentage of female non - workers or unutilized female human resources was more than 87%of the total female population and they belonged mostly to the category of CD villages. The main reason of this is that most of the cultivators families do not like to send their females in the fields . Most of the females in CD villages are more or less engaged in their domestic chores and just pass their time without any work.

In the Block as a whole, in 1971 there were 49.25 % males and 89.99 % females to total male and female population respectively as non - worker. Their percentages in 1981 were 49.90 and 88.97 respectively. It shows that there has been slight (though negligible) increase in the percentage of male non - workers and slight decrease in the percentage of female non - workers.