

THE PHENOMENON OF POPULATION DISPERSION IN RURAL AREAS : A Case study of Poona District

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ABSTRACT : The central theme of this paper is rural population dispersion. The concept, as it is used here, relates mainly to those forces which have led to the dispersal of population, away from the original compact settlement area in the village, to hamlets among the fields. An analysis of the processes leading to spatial dispersion, and its repercussions on the resulting ruralscape is the chief concern of the study. In addition, reasons are sought as to why, only certain sections among the rural folks, show greater propensity to move. A temporal sequence of hamlet evolution for the area has been traced. Attributes of those who 'move', and those who prefer to 'stay behind', in the main village have also been examined with the help of micro-level analysis of a single village, selected specifically for the purpose.

INTRODUCTION

In rural Maharashtra, the phenomenon of population dispersion is fairly widespread in recent times. Yet, it is not uncommon to find, closely juxtaposed, the relics (still intact) of the original compact core reflecting the traditions and heritage of centuries of historical influences. A cursory observation of the rural landscape reveals that the genuine nucleated settlement of yore is fast disintegrating, giving rise in its wake, to a highly dispersed, hamleted type of rural topography.

Dispersion, hamletization, or 'Wadi' growth (as it is locally referred to) as a phenomenon, has not only brought about a radical change in the morphology of the rural settlements, but it has altered the classical

socio-cultural structure of the Indian village. In many an instance, the process of dispersion has progressed to such an extent that it has led to virtual depopulation in the original nucleus, which now appears 'ghost like'. The saga of the numerous houses, lying either in disuse, or in ruins in the countryside, bears testimony to the mass exodus of population that is currently taking place. In stark contrast to the above, are the cultivated areas, where structures have mushroomed, literally at will, with no semblance of order in the distribution.

STUDY AREA

Certain tehsils from Poona District with fairly diverse (physico-agro-eco) elements were selected to examine the process of population dispersion in the context of

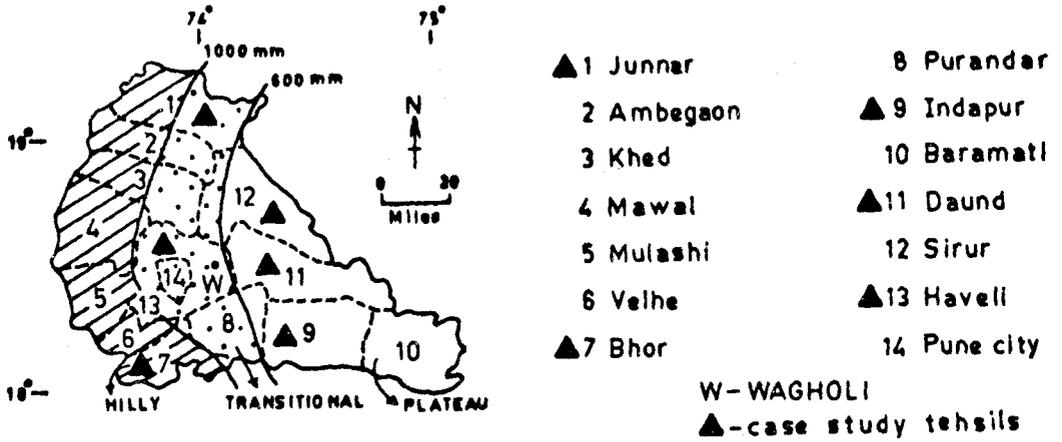


Fig.1: Location of Tehsils in Pune district

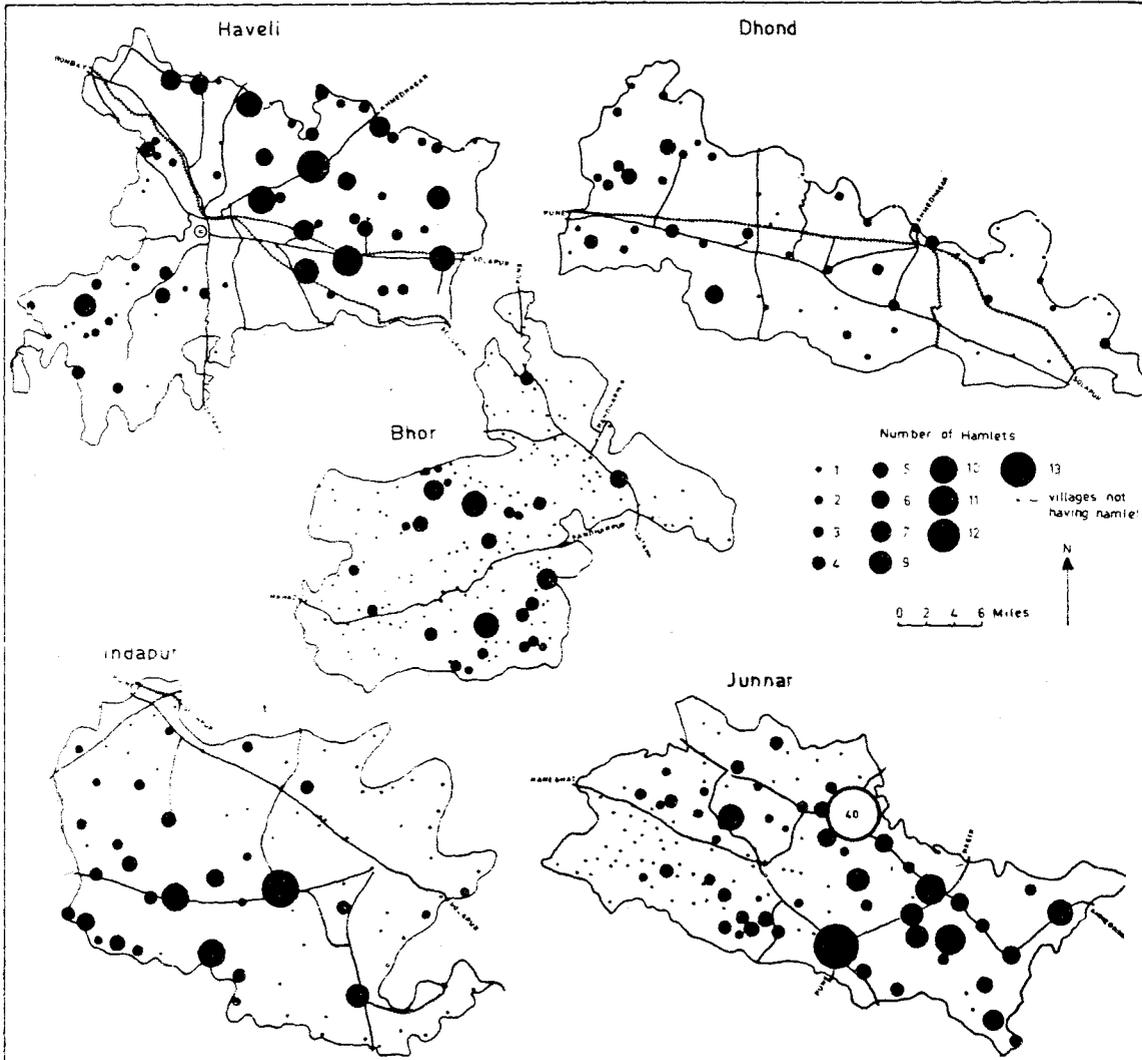


Fig.2: Spatial Distribution of Hamlets in Selected Tehsils of Poona District

rural areas. These tehsils (Fig. 1), can reasonably be considered a fairly representative microcosm of the State of Maharashtra as a whole.

METHODOLOGY

The entire analysis was carried out in two stages; for drawing generalizations, and laying out general principles of dispersion, village-level data on hamlets for the sample tehsils was employed. The overall factors favouring dispersion were identified with the help of the frequency distribution of hamlets against the background of their spatial pattern and distinct regional trends showing hamlet 'rich' and hamlet 'poor' areas could easily be discerned. By correlating the frequency of hamlets against the attributes of the villages, notions for typologies of villages which either favour or repel dispersion can be developed. A step-wise multiple correlation technique was applied to detect the significance between the various independent variables influencing dispersion.

In the second stage of the analysis, a village (in this case Wagholi) where a large number of hamlets had developed, was selected for making an indepth study of the actual process of population dispersion. A temporal sequence of hamlet growth was traced, and the chief causative factors, instrumental in the formation of hamlets were identified. Unique socio-economic features of hamlets, their morphology, growth characteristics and occupational structure were examined. These were compared and contrasted with that of the original village. Repercussions and implications of the dispersive tendency for planners, while planning for facilities in rural areas in general, and for the stability of the village in particular were visualized.

HISTORICAL FACTORS AFFECTING POPULATION DISPERSION

Before proceeding with the analysis of the spatial pattern of population dispersion in the area, a brief review of the earlier factors which have generally affected the overall process of population dispersion will be useful in providing the required background, for a better appreciation of the contemporary situation.

In the past, the prime need for defence, and safety from attack, must have been overriding considerations in precluding the growth of hamlets. Similarly, favourable man-land ratio (as land was plentiful and available for the asking), did not foster the need for dispersion of population. The structure of property rights, where land was generally held in common also did not stimulate private enterprise, nor the dispersive trend. Poor means of communication, as well as transportation, led to isolation, which in turn, further inhibited the dispersive tendency. Added to this, was the subsistence nature of agriculture, which in the absence of a market economy, did not encourage commercialization nor intensification of agriculture. All these factors were operative until the turn of the present century, when radical changes were being initiated, and which in no small measure were instrumental in providing the initial filip to the process of population dispersion, in recent times.

Among the earlier factors promoting the dispersive tendency, the abolition of the *Zamindari* system, the modification of tenancy rules and system of land tenure (land to the tiller), could be cited as important examples. Because, with the weakening of the '*Jajmani*' ties, no longer could be landlord (generally an absentee) have an exhaustible supply of cheap (virtually bonded) labour, from among the scheduled castes, the tenant farmers, or other landless peas-

TABLE I : FREQUENCY DISTRIBUTION OF HAMLETS IN THE SAMPLE TEHSILS OF POONA DISTRICT

No. of Hamlets per Village	JUNAR		AMBEGAON		BHOR		KHED		HAVELI		DHOND		INDAPUR	
	V	W	V	W	V	W	V	W	V	W	V	W	V	W
0	76	-	43	-	158	-	33	-	72	-	23	-	53	-
1	19	49	9	9	9	9	19	19	12	12	13	13	9	9
2	9	18	7	14	7	14	18	36	14	28	15	30	4	8
3	7	21	2	6	5	15	8	24	9	27	8	24	7	21
4	9	36	7	28	2	8	6	24	14	56	1	4	5	20
5	5	25	6	30	1	5	6	30	6	30	2	10	2	10
6	3	18	2	12	1	6	5	30	5	30	2	12	0	6
7	2	14	7	49	1	7	1	7	2	14	-	-	1	7
8	3	24	4	32	1	8	1	8	2	16	-	-	0	8
9	2	18	5	45	1	9	1	9	2	18	-	-	1	9
10	0	0	2	20	0	-	0	-	3	30	-	-	0	0
Over 10	4	79	6	79	0	-	2	32	3	35	-	-	1	13
Total	139	263	100	324	186	81	157	219	136	296	64	93	83	101

V = Frequency of Villages; W = Frequency of Wadis

ants. Under the '*Jajmani*' System, a grain share was paid for the services rendered to the agriculturist, by the village servants. The stoppage of this practice literally compelled the owner cultivator to cultivate his own fields, which would otherwise be transferred to the tenant cultivator, following the new tenancy laws. It was more convenient for the farmer to stay in a farmstead on the farm, rather than commute daily, with all the necessary agricultural paraphernalia, in the light of the changing situations. Finally, the pressures exerted by natural increase of population, further necessitated both, extensification as well as intensification in the pattern of land use. This has, in large measure, encouraged the dispersive tendency, in contemporary times.

SPATIAL PATTERN OF HAMLETS IN THE TEHSILS OF POONA DISTRICT

General observations based on village level data for the sample tehsils of Poona District suggest that, though dispersion as a phenomenon, affects a large segment of the rural population (over 60 per cent of the villages in the study area reported having hamlets), it is of a comparatively recent occurrence in the history of the settlements in the area. Further evidence gathered from the approximate date of origin of the hamlets offers conclusive proof, that a great majority of the hamlets have evolved, mainly during the last few decades, and only a small number were in existence, earlier than a century ago. The period of large scale proliferation of hamlets, thus begins after the turn of the century, and coincides closely with the advent and later development of irrigation in the area. Irrigation, therefore, could be cited as the single most potent factor, leading to population dispersion, or 'the flight to the farms of the cultivating classes', in the present times. More than fifty per cent of the villages with hamlets have stream bank locations, while nearly twenty-five per cent are located on main

highways.

Viewing the spatial pattern of hamlet development for the tehsils in Poona District, certain distinct regional trends of distribution can be discerned (Fig.2). The hilly tehsils, comprising Bhore, Velhe, Mulshi and Mawal, (located along the Western margins of the District) have lagged behind in the growth of hamlets. Here, less than fifteen per cent of the villages in the area have developed hamlets. Citing the example of Bhore tehsil, (located in an entirely hilly region), one observes that except for a sparse distribution of hamlets in the villages adjoining the lake, and a few near Bhore town, the entire area is totally devoid of hamlets. The major constraint to the evolution of hamlets in the area is imposed by the lack of cultivable land, as less than 12 per cent of the tehsil area can be cultivated. Small sized (areal as well as population) settlements, with a poor economic base, further restrict the scope for dispersion. In the tehsils located in the central transitional tract (Junnar, Ambegaon, Khed and Haveli), the process of population dispersion has progressed significantly (Table I). Nearly 60 per cent of the villages in these tehsils have on an average between two and three hamlets each. Here, even though the village size may not be considerable (being smaller than that in the eastern parts), fairly assured rainfall, fertile soils, widespread, well and canal irrigation facilities, high stream density, and a good system of communications, have all favoured large scale dispersion of population in the area. An interesting case is provided by Junnar tehsil, where a great deal of diversity in the pattern of hamlets is observed within a small area. Stretching from West to East, Junnar tehsil includes varied physical features within its boundaries. It is fringed on the West by the Western Ghats escarpment, while the central portion is occupied by the transitional tract; and the eastern parts of the tehsil merge gently into the plateau towards the East. The spatial

pattern of dispersion, follows closely the framework of the underlying geographical characteristics of the area. In Haveli tehsil, where Poona city is located, several factors working in conjunction have accelerated the natural process of dispersion. With the impact of large scale, urban industrial development in the Poona Metropolitan Region, phenomenal increase of population has taken place. This has generated a vast consumer market for perishables, with the result that the villages along the urban fringe have witnessed large scale extensification and intensification in the pattern of land use, leading to extreme dispersion of population from the original compact settlement areas. The rising pressures of population, coupled with acute shortage of housing in the city, has led to the development of dormitory, or ex-urban clusters, along the major transport arteries, radiating out of the city. In the drier eastern parts of the district, the tehsils of Dhond and Indapur show close correspondence between the areal and population size of a village, the area under cultivation and irrigation, and the degree of dispersion. The degree of dispersion, denoting the ratio between the total number of villages, plus their hamlets, divided by the total number of villages, was calculated for the region as a whole, and for the individual tehsils of the district. Index values ranging from as low as 1.44, for the hilly tehsil of Bhor, to as high as 4.24, for Ambegaon tehsil, located in the transitional tract were observed. Haveli tehsil, where Poona city is located, had a dispersion index of 3.18, while the other tehsils, Dhond, Indapur and Junnar had index values of 2.45, 2.21 and 2.89 respectively.

To determine quantitatively the significance of the different factors influencing the spatial pattern of hamlets, a step-wise multiple correlation regression technique was applied. The analysis was carried out with the help of ICL 19044S Computer unit at the Regional Computer Centre, Pune, us-

ing ICL 1900 Statistical Analysis XDS 3/26 Package. The number of hamlets per village was treated as a dependent variable and the following seven variables were chosen as independent variables:

- i) Area of the village (ha.)
- ii) Population of the village (1981)
- iii) Total area under cultivation
- iv) Total area under irrigation
- v) Employment in agriculture
- vi) Employment in non-agricultural occupations
- vii) Average size of the holding (ha.)

The correlation matrixes for the tehsils for which the correlations were computed, reveal that the number of hamlets is highly correlated with the single variable, the total area of the village, which appears as the first variable in the regression set. For the west hilly tehsil, at Step I, with the entry of only one variable, i.e. total area of the village, the R value was 0.473. This immediately increased ($R = 0.711$) with the entry of the area under cultivation, and reached a value of $R = 0.798$, with the inclusion of the third variable, population size of the village. Sixty four per cent of the total variation (R^2) was thus explained by these three variables alone. For the tehsil in the central and eastern parts of the district, once again, the variable, total area of the village, entered the set at Step I, as was the case with the western tehsils. The essential difference being that in this case the initial value of the multiple correlation was already as high as $R = 0.788$ (as compared to $R = 0.473$ in the former case). The variable next to enter the set was population size. This raised the multiple correlation value to $R = 0.800$. The third variable, the area under cultivation, increased the 'R' value only marginally by 0.009. The contribution of the second and third variables to the total explanation is insignificant. Total variation explained by the above mentioned variables is about sixty five per cent.

Holding the total area of the village as constant, one observes that in the inhospitable hilly terrain of the west, (with thin, stony and sterile soils), the area available for cultivation (which is less than 12-15 per cent), is strongly associated with, and assumes for greater importance in the evolution of hamlets. In contrast, for the tehsils on the plateau, one finds the population size (pressure on land) to be highly correlated with the number of hamlets. The association of area under irrigation, though evidently highly correlated with the number of hamlets, was obscured, as the village-wise data were computed on the basis of administrative units (tehsils), and not according to physical units (river valleys).

MICRO-LEVEL ANALYSIS BASED ON THE CASE STUDY VILLAGE

Wagholi, the village selected for a case study is a walled settlement, lying on the outskirts of Poona city, at a distance of 15 km on the Poona-Ahmednagar highway. In spite of having recorded a phenomenal rise in its population (120 per cent since 1951), there are no visible signs of

either congestion, nor even competition for space, within its walls. Surprisingly, the numerous ruins, and the derelict houses lying in disuse have another story to tell, and bear further testimony to the fact that there is hardly any pressure of population at Wagholi. Most of the houses that lie abandoned, it may be mentioned (paradoxically), belong to the landed gentry, who have moved 'en mass' to the houses on their fields, while those left behind (i.e. the stayers on), in the original compact settlement, are the traders, service castes, the scheduled castes and the landless labourers. Today, these classes together constitute the major component, accounting for over 75 per cent of the population in the main settlement area.

TEMPORAL SEQUENCE OF HAMLET EVOLUTION AT WAGHOLI

Had it not be for the rise of this new phenomenon of population dispersion, (in the economic and social life of the rural folks), the local crowding at Wagholi due to natural increase of population, over the decades would have been unbearable.

TABLE II : TEMPORAL DEVELOPMENT OF HAMLETS AT WAGHOLI - (1891-1981)

	Years									
	1891	1900	1910	1920	1930	1940	1950	1961	1971	1981
No. of Hamlets	0	1	2	2	3	5	9	13	13	13

Source : (Based on Field Survey)

From the above table it is clearly visible that within a span of ninety years, thirteen hamlets had developed, though the phase of rapid hamletization started only after 1940 (Fig. 3). Maximum number of hamlets were added only during the past forty years, when two-thirds of a total of

thirteen hamlets came into existence. From the spatial distribution pattern of hamlets and their cropping pattern, two distinct phases of hamlet development can be discerned. In the first phase (1900-1930), only three hamlets, Avhalwadi, Vadjai and Domkhel came up. Their origin, growth

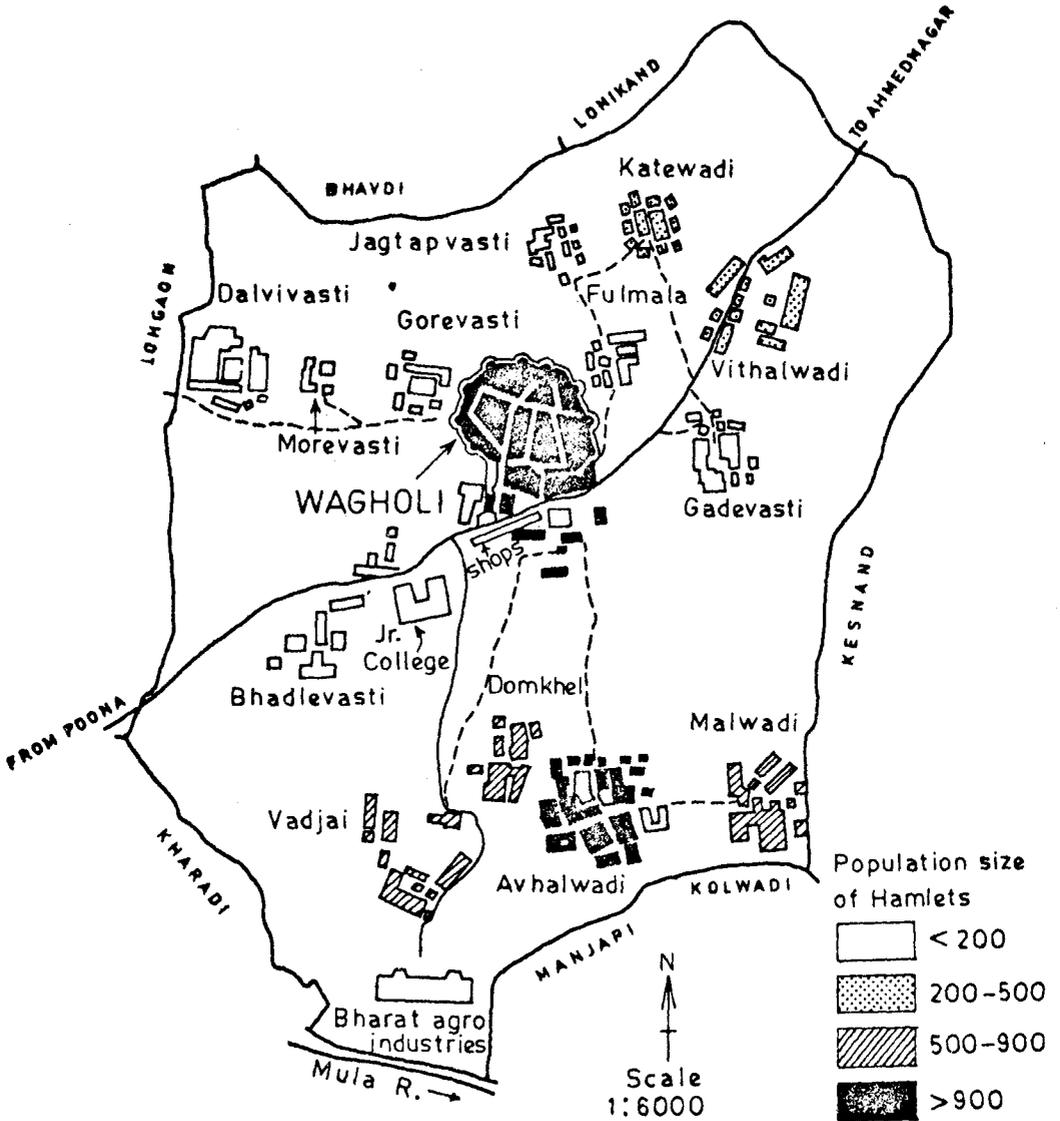


Fig.3: Location of Hamlets at Wagholi

and later development could be attributed to the introduction of irrigation in the area, which made it possible to switch over to a pattern of cash crops, like onion, vegetables and sugarcane. All the three hamlets together account nearly seventy per cent of the irrigated area of the village and have grown at places which had the greatest potential for intensification of agriculture.

During the second phase of hamlet growth (1930-1951), three-fourths of the total hamlets were added. From the geographical location of these hamlets, it was observed that unlike the earlier hamlets, which came up on choice agricultural lands, the second generation of hamlets occupied second rate less productive lands. And as one delves deeper into their land-use pattern

(mainly foodgrains) it is observed that the pressure exerted by the natural increase of population over the decades has brought about the need for large scale extensification in the area under cultivation. Lastly, in the latest phase (1961-1981), proximity to an ever expanding metropolitan market (Poona city) has further encouraged (besides traditional farming), other allied activities like dairying, and to a smaller extent poultry-keeping which is gaining in importance in the newly developed hamlets. The pre-eminence of agriculture at these hamlets is missing, unlike their earlier counterparts, where the real 'Carte de force' was cash crop and grain farming.

POPULATION DISTRIBUTION AND GROWTH CHARACTERISTICS OF HAMLETS AT WAGHOLI

Viewing the distribution of population in the various hamlets, it is seen that at the time of the 1981 census, the great bulk (over 77 per cent) of the total population of Wagholi was concentrated in its hamlets. In contrast to the above, only 55 per cent of the total population of the village was residing in the hamlets at 1971. The dynamism of the hamlets is clearly reflected in their tremendous potential for growth in relation to the main village, which appears to be loosing out heavily to the hamlets. This could be inferred by comparing the share of population of the main village, vis-a-vis its constituent hamlets for both the decades, 1971 and 1981. With greater amount of dispersion, the centre of gravity of the population is fast tilting in favour of the hamlets (Table 3). Thus, Avhalwadi, the premier Wadi of Wagholi (at 1981), had already surpassed the population of the main village. From a population of only 1,700 in 1971, it grew to 2,500 by 1981, displaying a growth rate of forty seven per cent. During the same period, the main Wagholi village declined by an equal amount (47 per cent), from 3,700 persons in 1971 to 1,947 persons

in 1981. The other hamlets displayed varying growth rates, ranging from fifteen per cent for Bhadale vasti to ninety-three per cent for Morevasti. All the hamlets are located within a radius of 2.5 km from the parent village. With the exception of the three oldest Wadis, namely Avhalwadi, Domkhel and Vadjai, the rest of the hamlets are small in size, with population ranging from 200 to 400 persons.

Despite the stagnation and decline of the village proper, there is observed an overall growth in the population of the hamlets. This, in the absence of any migration from outside can only be attributed to the development of hamlets, which have thus grown largely by process of dispersal of population from the main village, and by natural increase. This is further corroborated with the help of data on place of former residence of the hamlet inhabitants. Over ninety per cent of the hamlet dwellers indicated Wagholi village as their home before moving out the hamlets. Whereas, the remaining ten per cent can be accounted for by inter-village or inter-hamlet migration. The general pattern could best be described in the form of a two-step migration. Initially, from the main settlement to the evolving hamlets, and at a later stage from the older established hamlets to the newly developed ones, or among the hamlets themselves.

SOCIAL MORPHOLOGY OF THE HAMLETS AT WAGHOLI

As seen earlier, three quarters of the total population of Wagholi lives in its hamlets, which are named after the principal landowning families, who first settled there. Also, the hamlets have recorded much faster rate of growth as compared to the main village. Under the circumstances, it is of vital significance to determine the social structure of these recently evolved dynamic clusters of population.

TABLE III : POPULATION OF WAGHOLI AND ITS HAMLETS (WADIS)

Sr.No.	Village/Hamlet	Population		% Decadal Growth
		1971	1981	
	Wagholi Village	3700	1947	- 47.38
1.	Avhalwadi	1700	2500	47.06
2.	Malwadi	400	750	87.50
3.	Vadjai	350	555	58.57
4.	Kalkewadi	300	450	50.00
5.	Vithalwadi	275	356	29.45
6.	Fulmala	213	290	36.15
7.	Gorevasti	75	165	120.00
8.	Morevasti	75	145	93.33
9.	Dalvivasti	65	130	100.00
10.	Bhadlevasti	200	230	15.00
11.	Gadevasti	120	160	33.33
12.	Jagtapvasti	90	140	55.56
13.	Domkhel	400	580	45.00

The main village displays the tightly nucleated traditional multi-caste structure, wherein the highest castes occupy the central-most position, followed by other service castes, while the scheduled castes occupy the outer most fringes. In contrast to the sequential arrangement found in the main settlement, the hamlets appear like uni-clan, random, population clusters, with no semblance of any order in their spatial arrangement (Fig. 4). Viewing the social composition, one finds that in the smallest, and the lately evolved hamlets, ever 90 per cent of the people are 'Marathas', the dominant land-owning community, and nearly all of them belong to one agnate clan. In the older established hamlets, though the majority of the population still belongs to the dominant community, different agnates are represented, as also some service castes like the barber,

carpenter, blacksmith and water carrier are found, besides a few scheduled castes. From the sequence of peopling of the hamlets, it can easily be inferred that the first families to move in, are those of the dominant clan, with large land holdings. These are followed by the scheduled castes, who are engaged (in their time honoured occupation) as agricultural labourers, and lastly, as the hamlet grows in size, some traders and other service castes are eventually attracted. This once again implies that the hamlets grow in response to the need for intensive explicitation of cultivable land, and at the same time to economise on the time and energy spent on commuting daily to and fro from the house in the village to the farm. Lately, time has assumed a new significance, with a change over from a subsistence to a cash economy, as is evinced from the pattern of

land utilization in the hamlets.

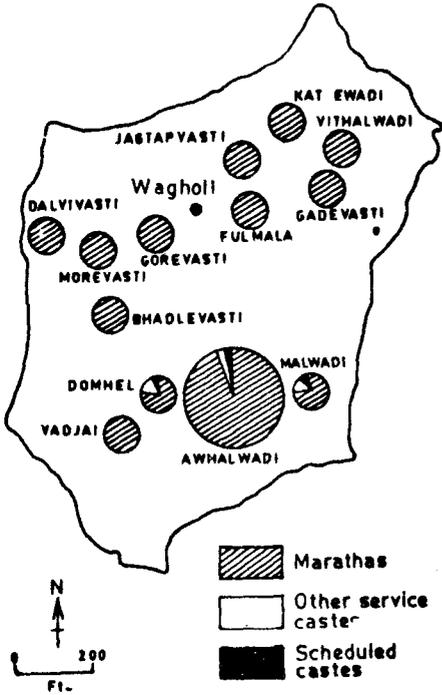


Fig 4: Social Morphology of Hamlets of Wagholi

OCCUPATIONAL STRUCTURE OF THE HAMLETS AT WAGHOLI

Unlike the main village, where at least twenty to thirty per cent of the people are engaged in services and trade, the hamlets are wholly agricultural, with over ninety per cent of the population being essentially cultivators (Fig. 5). Among the agriculturists at the hamlets, nearly three quarters are owner cultivators, while the rest are either daily wage earners or agricultural labourers. Only two hamlets in the area (Katewadi and Vithalwadi), specialize in dairying as the principal activity. This was developed after the introduction of a regular bus service, connecting Wagholi to Pune city. Dairying on commercial lines in the hamlets has been developed by farmers with small or medium

size holdings and worthy of note is its total absence in the irrigated hamlets. Here, the big farmer has his hands already full, coping with the numerous agricultural operations, which leaves him little time to spare for other allied activities.

TRENDS OF POPULATION DISPERSION IN THE HAMLETS AT WAGHOLI

At Wagholi, large scale hamlet development has taken place. The factors that have favoured such large scale diffusion of population from the original settlement area to the hamlets are linked intimately with the intensification and extensification of land use. Development of transportation, and diversification into allied activities, in response to the increasing demand for perishables from the nearby Poona Metropolitan area, have further intensified the process.

Avhalwadi, the largest hamlet, having thirty per cent of the total population of Wagholi is fast showing signs of developing into a full-fledged independent village. Avhalwadi is the only hamlet, where services like a primary school, grocery-store and flour mill are available. It has resident barber, carpenter, blacksmith and the village money-lender, who have migrated from the main village. The rest of the hamlets are essentially small affairs with population ranging from as low as 50 to 400 persons. The small size of their population inhibits the growth of any functions, as they do not rest the minimum threshold requirement of even the most elementary services.

SOME REPERCUSSIONS OF HAMLET GROWTH ON THE MAIN WAGHOLI VILLAGE

From the recent trends of population dispersion in rural areas, it was observed that hamlets could function as counter magnets to absorb the ever-increasing population

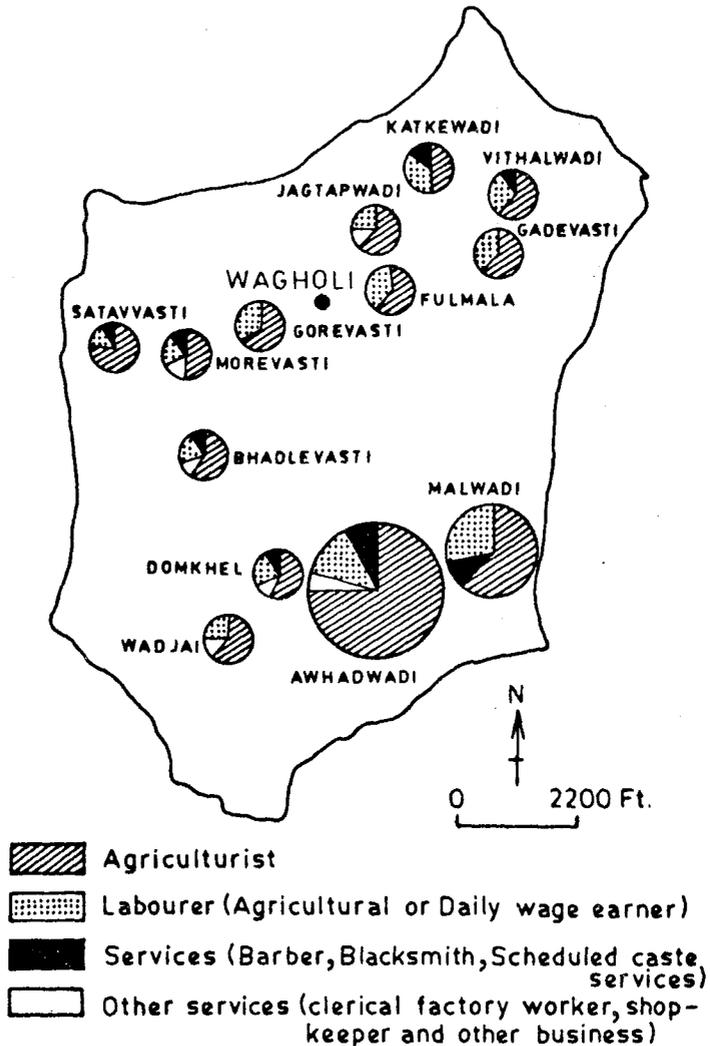


Fig. 5: Occupational structure of hamlets of Wagholi

in the central settlement area. Hamlet growth has brought about a complete metamorphosis in the socio-economic structure of the main village. It has upset and virtually stunted the growth of the parent village, which shows signs of decay and stagnation. The traditional balance in the socio-economic composition of the village is disturbed, as less than five per cent of the farmers now reside in the main settlement. Due to this dispersive trend, a great contrast between the occupational structure of the main village and its constituent hamlets is seen.

The traders, shopkeepers and the scheduled castes who traditionally follow non-agricultural occupations are left behind to reside at the village proper.

Another consequence that would have a far reaching influence in the future, would be the eroding away of the traditional tightly knit cohesive social structure of the main village. It is already becoming less advantageous (spatially), to reside at the village proper, as there is observed a strong tendency for the new commercial establish-

ments to be located along the main roads and highways, to cater to the increasing clientele from the hamlets. The pace at which the hamlets are growing, it is likely to tilt the centre of gravity of the population from the village proper towards its peripheries. The process, thus apart from relieving the pressure of population from a congested central core might (with advance of the dispersion process) some day render the main village superfluous. This extreme dispersion from a single compact core might be an adverse element, as far as rural accessibility is concerned, and would pose serious problems for the provision of public utilities and social services, (which in the absence of adequate threshold), the government is generally called upon to provide for the rural population.

Finally, the evolution of hamlets has given rise to the development of two distinct forms of settlement within the same village, with contrasting features. The earlier traditional pattern observed in the main village, developed within the framework of the need

for safety and defence, and on the notion of the religio-ritual model. This was based entirely on the purity-impurity concept. The hamlets, in contrast owe their origin to economic forces, generating a settlement pattern of greater social homogeneity rather than spatial propinquity, as is the case with the main village. Since most of the hamlet residents would be landed gentry, differentials in status in the hamlets would be based entirely on economic considerations rather than caste rankings.

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