CHAPTER II

DISTRIBUTION AND DENSITY OF POPULATION

Among the various attributes of population, distribution and density are of prime importance because not only do they have a bearing upon other characteristics of population but also are significantly related to the total character of an area. The study of patterns of distribution and density of population, therefore, is fundamental to an understanding of the geography of an area. It brings to light as to how man has spread himself in the context of the physical environment, the type of economy, the cultural set up, and the history of the area at a particular point in time.

According to the 1966 census of Iran, the country had a total population of 25,788,722 spread over an area of 1,648 thousand sq. kms. The population is predominantly rural as only about 38 per cent of the people live in urban places which are 259 in number. The rural population lives in about 65,100 villages, giving an average population of approximately 246 persons (50 families) per village, and

---

an average spacing of 5.6 kms. It may, however, be pointed out that though in all areas of Iran today the rural scene shows evidence of powerful collective organization, yet not all rural settlements in Iran are agglomerated villages. In the open plains and plateaus, the villages are not only agglomerated but also strongly fortified with high walls, corner towers and a single large gateway. While Rosenfeld considers it not as much a product of difficult circumstances as an expression of Iranian culture, for this is a society that originated essentially from 'clan communities', Fisher does not rule out the considerations of defence in their evolution. He attributes it to the pastoral civilization fraught with insecurity and the fortified villages, according to him, reflect the defence needs of the settled people against repeated incursions of the nomads. However, with the emergence of a more peaceful way of life, the fortifications in many villages are in varying stages of dilapidation though agglomeration is getting more intensified. In mountains and to some extent in valleys also the villages are agglomerated though the degree of agglomeration may be

---

Distribution of Population: 1966
Data by Bakhshes
somewhat less. On the other hand, the lowlands facing the Caspian Sea, the irrigated oasis districts and to some extent some mountain valleys exhibit dispersed nature of settlements where the villages are more open and loosely knit. Broadly speaking, the rural settlements are agglomerated in all those areas where there is scarcity of water and dispersed where it is available in adequate quantity. Apart from the factor of availability of water, such factors as security from external invasions, requirements of collective undertakings like irrigation, clearing of snow, and clan feelings, have also led to agglomeration of settlements. The relatively recently settled Caspian lowlands in the north with abundant water supply from numerous streams and a relatively peaceful history, form the only large area where rural settlements are dispersed over a vast expanse of cultivated land.\(^4\)

The most striking feature of the distributional pattern of population in Iran is the contrast between the sparsely populated east and southeast and the relatively thickly settled west and the northwest. In fact, the distribution of population in the country has a fair resemblance with the Roman amphitheatre with Dasht-e-Kavir and Dasht-e-Lut deserts as its open space in the middle (Map 7).

\(^4\) ibid., p.478.
The two deserts constitute an empty bowl with respect to population concentration, and as one moves outwards the degree of concentration goes on increasing. However, it may be noted that the degree of concentration increases far more rapidly in the north, west, and south, than in the east and southeast. The various factors which have contributed in giving this type of distributional pattern include physiography, amount of precipitation, productivity of soil, availability of ground water, and availability of culturable land. In fact, it would not be an exaggeration to say that the two factors of relief and precipitation together have contributed the maximum in influencing the distributional pattern of population in the country. The demographic relief of Iran is inversely proportionate to the physical relief of the country except in areas where precipitation is low. The distributional pattern of population, thus, is the product of exigencies of natural environment. The relationship between relief and climate on the one hand, and population distribution on the other, should be understood in the context of the country's agrarian subsistence economy. It is remarked appropriately that relief is one of the important factors in determining the distribution of population in all those areas where the society is agrarian and agriculture is dominated by primitive technology.  

Thickly Populated Areas

The northern coastal plains lying to the north of Alborz mountains and encircling the Caspian Sea; the two ostan of Azerbaijan in the extreme northwest; and the upper half of Zagros constitute the three most thickly populated parts of the country. The northern coastal plains covering less than 4 per cent of the country's total area contain more than 12 per cent of the country's total population. The population here is overwhelmingly rural as more than three-fourths of it lives in the countryside. The rural settlements, here, are only loosely knit dispersed villages like a nebula. A nebula village is made up of a number of hamlets, disconnected yet close to one another. They are the result of a long process of land having been brought under cultivation piece by piece. Such villages of extremely scattered nature are very common almost all over the Caspian plains but more so in areas close to the shore. Only in the mountain forests and in the narrow plains among the slopes of Alborz facing the Caspian do the villages tend to be more closely knit.

The ostan of Azerbaijan in the northwest constituting second heavily populated area, account for less than 7 per cent of the total area of the country and claim about 15 per cent of the country's total population. Although this region is also as predominantly rural as the northern plains, the rural settlements here strike a contrast with those of
the northern plains in the sense that these are agglomerated villages. The most important factor responsible for giving rise to the compact concentrated settlements here has been the factor of defence in the past. This apart, the location of a village settlement here is guided by the availability of cultivable land, however small, and the source of water e.g. a spring which serves as the focal point for the community.

The third major thickly populated area of Iran lies in the upper half of Zagros region between Sanandaj and Esfahan which covers 4.81 per cent area of the country and accounts for 7.49 per cent of the population of the country. Here again the population is overwhelmingly rural and is distributed in agglomerated villages. A mountain village as a rule is situated on the first rocky slopes rising above a valley floor and these slopes are terraced and roughly divided into meadows by means of low dry stone walls.

Thus, the dense concentration of population in these three regions is mainly attributable to the availability of cultivable land, fertile soils, abundant and well distributed precipitation, adequate ground water supply, mild climate and well developed means of transportation. The additional factors of levelled expanses of cultivable land and a well developed network of irrigation are responsible for making the northern plains the most populous part of the country.
Sparsely Populated Areas

By contrast, the two deserts of Kavir and Lut are the most sparsely populated parts of the country. Covering about 17 per cent of the total area of the country the two deserts together support less than one per cent of the total population. The scarcity of water, and saline soils infested with shifting sand dunes are the main factors that have kept this region devoid of population. The population is mostly rural, concentrated at water points in the form of nucleated settlements which are not only few but also far between. Normally oasis villages are large, closely packed settlements flanking water courses or clustered about the outlets of qanāts.

The entire eastern border which is a mountainous belt running in the north-south direction and adjoining the two deserts is also characterised by sparsity of population except in the extreme north and around Zabol township, where the population concentration is relatively moderate. At one time the southern half of this belt was a rich corn producing area of Iran and was supporting large population prior to the construction of a dam on the Hirmand river by Afghanistan which almost stopped the supply of water to Sistan, Iran's storehouse of corn in earlier times. This

6 qanāt is a Persian term to connote a series of wells connected with each other under the surface but having only one common outlet.
development almost impelled the people to move to other areas particularly to Dasht-e-Gorgan in the north. The entire belt is an area where the terrain is mountainous, precipitation meagre, ground water brackish and population sparse.

The coastal areas of the southeast, facing the Oman Sea, and the lower part of Persian Gulf form still another area characterised by sparse population. Unlike the coastal areas of the north this coastal region is most thinly populated. Although level land is available, inadequate precipitation and brackish ground water do not permit successful farming. The region receives an average annual rainfall of 15 to 20 cms. only. Here again the population is almost entirely rural and distributed in agglomerated settlements which are distantly spaced.

**Moderately Populated Areas**

The Khuzestan plain and adjacent Fars ostan, the northeastern section of Khorasan ostan and the area sandwiched between the Alborz and Zagros are moderately populated parts of the country. Khuzestan plain which is not so fortunately located with respect to the pattern of rainfall distribution, is able to support moderate population mainly because it has rich petroleum reserves which are being exploited at present. Most of the oil and natural gas supply both for home consumption and exports comes from...
this region. The adjacent Fars ostan on the other hand is capable of supporting moderate density due mainly to fertile soils, extensive level areas and adequate rainfall. North east of Khorasan ostan and the area between Alborz and Zagros also have moderate densities due to similar factors of soil, precipitation, etc.

As it emerges from the preceding discussion the factors of precipitation, terrain, soil fertility and availability of ground water, through their impact upon the agricultural productivity of the area, have played the most vital role in determining the pattern of population distribution in Iran. The northern coastal plains which are the wettest part of the country and which are fortunate in having vast expenses of good quality level land have the heaviest concentration of population. Similarly the ostan of Azerbaijan in the northwest and upper part of Zagros which rank next only to the northern coastal regions with respect to the average annual rainfall and soil fertility, also have dense concentration of population. By contrast, almost the entire eastern half of the country, characterized by scarcity of water, harsh climate and infertile and saline soil, constitutes the sparsely populated parts of the country. The deserts of Kavir and Lut are, understandably devoid of any population.
Density of Population

The study of distribution of population remains incomplete without a reference to its density. In fact, the concept of density of population provides a quantitative measure of the degree of population concentration in any area.

With an average density of only 16 persons per sq. km., Iran is one of the thinly populated parts of the world. The average density in the country is low because about two-thirds of its total area is either mountainous or desert. Only about 10 per cent of the total area of the country is cultivated, and even of this about 57 per cent remains fallow. Oil, which is the backbone of modern Iran economy, was discovered as late as 1908 and its exploitation started only in 1911. The exploitation of the other mineral resources was started only after the second world war. Seen in this context the low density becomes somewhat understandable.

For a country like Iran where a large proportion of its total area is unproductive and where agriculture still holds a prominent place in the occupational structure of the country, the figures for nutritional density are more meaningful than those for simple arithmetic density. Taking into account the fact that only one-tenth of the country's total area is cultivated out of which only 43 per cent is actually sown in a year, the figure for nutritional density comes to 370 persons
per sq. km. It means that there is only 0.3 hectare of agricultural land for each individual. Such a low per capita cultivated land allows mere subsistence under the existing technology and economy. No wonder, the rural indebtedness in Iran was not very uncommon prior to the introduction of land reforms in 1961-62. It also explains the recent diversification of economy of the country in favour of non-agricultural activities. By the census of 1966, about 54 per cent of the country's working force was outside agriculture.

Out of the total population of about 25.7 million, only 16.9 million were residing in rural areas of Iran. It gives an average density of rural population of only about 10 persons per sq. km. The following discussion is based upon general arithmetic density (Map 8). A reference, however, will be made to the pattern of rural density (Map 9) as well throughout the discussion.

Though on an average Iran has a density of only 16 persons per sq. km. yet there are remarkable regional variations ranging from less than one person per sq. km. in Anarak bakhsh to 9,610 persons per sq. km. in Tehran. It may be pointed out that out of 462 bakhshes only 233 bakhshes have some urban population while in the remaining bakhshes the population is entirely rural. The density in bakhshes
having towns / cities are high. However, the rural densities within these *bakshes* vary a lot, ranging from less than one to 460 persons per sq. km. (Map 9). This regional contrast in the densities is associated with a variety of factors particularly those related to climate and availability of water. Four types of areas can be recognized on map 8.

A. Areas of relatively high density of population with more than 30 persons per sq. km.

B. Areas of density with 20-30 persons per sq. km.

C. Areas of relatively low density with 10-20 persons per sq. km.

D. Areas of very low density with less than 10 persons per sq. km.

A. Areas of Relatively High Density

Of the 462 *bakshes*, about one-third (151) have a density of population ranging between 30 and 9,610 persons per sq. km. The *bakshes* which have a density of more than 30 persons occur in three main areas namely the northern coastal plains, the Azarbaijan ostan and the upper half of Zagros mountainous regions. Sandwiched between the Caspian Sea on the north and Alborz mountains in the south, the northern coastal strip is the most densely populated tract in the country. On an average coastal plains have a general density of more than 30, though at places it reaches as high
as 360. The mainstay of economy of this region is agriculture. The region constitutes the richest agricultural belt of the country. Rice, tea and citrus fruits are the chief products of the area. Thus, the factors which influence the agricultural productivity of land contribute to high densities in this region. With an average annual precipitation of 80 to 120 cms. the northern plains are the wettest area of the country. The fertile alluvial soils of these level plains are most suitable for the cultivation of rice which is capable of supporting large population. Tea, the other major crop of the region, mainly occupies the northern slopes of the Alborz mountains which provide favourable conditions for tea gardening under abundant precipitation of about 120 cms. Further, the climate of the region permits the development of fruit gardens. Above all, the northern plains are one of the very few areas in the country where double cropping is possible due to the fact that both canal and tunnel irrigation is very well developed. All these factors together account for such high densities in the region. The rural densities range between 30 and 250 persons per sq. km.

A large part of Azerbaijan ostans forms another compact area of high density of population. Although the densities in this part of the country are more than 30 persons per sq. km. yet they are not as high as those in the northern coastal plains discussed above. While in the
case of the northern coastal plains the highest density was in the neighbourhood of 360, in the case of Azarbaijan region the highest density does not cross 110. The economy here again is predominantly agricultural but with a difference that wheat is the most important crop of the region. The other crops of the region are barley, onions and a large variety of fruits including grapes, apricots, peach, pears, almonds etc. This region produces onions for almost the entire country. Similarly fruit cultivation in the belt has given rise to a large number of fruit processing factories. The region also has a name in carpet industry. The factors which have contributed to the high density of population in this belt are those which promote good agriculture. The chief among them being the fertile volcanic soils, adequate rainfall, well developed irrigation by way of diverting streams locally known as joos. About three-fourths of the total population in this belt is rural and the rural densities here range between 30 and 66 persons per sq. km.

An elongated belt running in northwest-southeast direction in the upper Zagros mountainous region is another compact area having high densities of more than 30 persons per sq. km. The densities here compare fairly well with those prevalent in Azarbaijan region except in the extreme southeast of the belt where the density is as high as 429. The region on the whole is primarily agricultural though
there are some pockets of industrial development. Like the Azarbaijan region, this region is primarily of wheat culture coupled with horticulture. The chief fruits of the area being apples, pears, quince etc. Apart from agriculture, limited mining activity here and there, particularly of coal, chrome, salt, tungsten has further added to the supporting capacity of the area. The Esfahan region has the highest densities of the belt which are associated with a high degree of industrial development. The region is important for textiles, carpets and handicrafts. Although the textiles owe their development to the present century the handicrafts and carpet weaving are centuries old. Apart from these, there is a large variety of industries concentrated in this part of the belt, especially fruit processing and canning, hardwares, heavy machinery etc. Obviously, the usually high density figures in this part of the belt are due to large urban population. The rural densities in the entire upper Zagros region are only relatively high (Map 9).

General densities are also relatively high in the areas around Tehran, parts of Khuzestan plain and parts of Khorasan ostan. The areas around Tehran covering eight bakhshes including the bakhsh of Tehran has perhaps the highest density in the country. The high densities, here, are largely due to the capital city of Tehran and a number of urban places which have emerged in this region. This small area has a
dense concentration of a large variety of minerals and has a very high degree of industrial development. The high density in the Khuzestan plain which ranges between 30 and 460 is attributable to the rich oil and natural gas resources of the area which has given rise to a large number of oil wells and perhaps one of the biggest oil refineries in the world and a number of gas refineries. Consequently, petrochemical industries and manufacturing of pipes for the transportation of oil and natural gas have also emerged in this area. The proportion of urban population to total population in both these cases is very high, ranging between 60 and 96 per cent. Unlike the former two areas the high densities in parts of Khorasan area are not the product of a very high degree of urban development except in Mashhad as the percentage of urban population is less than 20. The population here is largely rural based upon wheat culture and to some extent horticulture. In addition, the region is well known for carpet weaving which is centuries old. Above all, Mashhad which has the highest density in this part is an important shrine which is visited by millions of people not only from Iran but also from other Islamic countries. This has given rise to a large scale commercial activity in the region.

In brief, the areas of relatively high population densities in Iran are either those which have favourable conditions for agriculture or those which promote urban-industrial activity.
B. Areas with 20-30 Persons per Sq. Km. Density

Keeping in view the national average of 16 persons per sq. km, all such areas which have a density ranging between 20 and 30 persons per sq. km. become relatively densely populated. Map 8 shows that the area of such densities generally do not form large belts. By and large such areas are located close to the areas of high density of population. The two compact areas having such densities lie to the north and south of the high density belt of Azarbaijan ostan. The third such area is covering the northwestern part of Tehran region. Besides, such areas are also sporadically distributed in Zagros region and in the mouth of Persian Gulf area. The two compact areas of such densities mentioned above cover mainly the plains of north Moghan, Marand, south Zanjan and Meyandoab. The availability of extensive level tracts in these plains coupled with high and well distributed rainfall has resulted in relatively high densities in these areas. Nonetheless, the densities here are not as high as in the middle part of Azarbaijan discussed earlier. The density in these areas has been arrested due to the prevalence of such negative factors as intense dissection done by the streams and relatively infertile soils. The third area of relatively high density lying to the northwest of Tehran owes its high density to urban development due to its proximity to the capital city of Tehran.
It follows from the preceding discussion that the areas with 20-30 persons per sq. km. are generally those of agricultural potentialities.

C. Areas of Relatively Low Density

Areas having a density of 10 to 20 persons per sq. km. are, relatively speaking, more extensive than the areas of relatively high densities discussed above. The area sandwiched between Alborz to the north and Zagros to the south forms a large compact zone where densities range between 10 and 20 persons per sq. km. The region is highly dissected, suffers from deficiency of ground water, and has calcareous soils which under low precipitation have only limited supporting capacity. The population is mostly rural. The second compact area having relatively low density of 10 to 20 persons occurs in the southwestern part of the country facing the northern half of Persian Gulf, covering parts of Fars, Kohkiluyeh, Bushehr, Khuzestan and Chaharmahal. This region again is characterised by mountainous terrain, limited cultivable land, moderate precipitation, marshy soils and little urban development. The population here is partly nomadic and pastoralism forms an important part of the economy. Relatively low densities also occur in the area lying to the south of high density belt in upper Zagros region. This zone is almost similar
to the preceding region and is an extension of nomadism. Subsistence agriculture coupled with pastoralism is the mainstay of economy. The extreme northwestern part of the country covering northern part of Azerbaijan ostan and bordering with U.S.S.R. and Turkey constitutes the fourth such area of relatively low density. This too is a mountainous region with little land available for cultivation. Nomadism although prevalent here is not that important as in previous two cases. These apart, there are a few bakhshehs scattered in different parts of the country, particularly in the northeast, which too have relatively low densities associated with sandy soils, dry climate, and hence limited agricultural prospects.

Thus, the areas of relatively low density are those which are either mountainous or highly dissected and which are characterised by low agricultural productivity due to limited extent of cultivable land, inferior soils and paucity of water. Pastoralism forms an important part of the economy here.

D. Areas of Very Low Density of Population

Areas having a density of less than 10 persons per sq. km. are most extensive. Almost the entire eastern half of the country covering the ostan of Sistan and Baluchestan, Kerman, Semnan and most of the Khurasan, Fars ostan and Saheli farmandarikol forms a very large compact tract of very
low density of population. Apart from this, very low density of population occurs in Ilam farmandarikol bordering with Iraq. Small patches of low density also occur in mountainous regions where altitudes are great and the slopes are steep, particularly in Kabir Kuh region. The eastern half of the country, constituting the largest area of low density of population, suffers from desert conditions. The landscape is also sand-dune infested where the sand-dunes continue shifting. The climate is unbearably hot and dry. All these factors together make the agricultural base of the region extremely poor. The population densities in large parts of this region are in the neighbourhood of one or two persons per sq. km. These densities rise, although slowly, in those parts of the region where either it is possible to cultivate the land or where some mining activity has been started. The mineral reserves of the region, which until recently remained unexploited on a commercial scale, hold a promising future as it is said that the copper reserves of the region are perhaps one of the richest in the world. Other minerals of the region include zinc, sulphur, chrome, turquoise etc. It may, however, be noted that after 1966, the year to which the study pertains, there has been significant improvement in the mining activity in this part of the country. It is hoped that in the near future this development will support more population. The low density
In Ilam farmandarikol bordering with Iraq is also associated with low precipitation, warm winds etc. The population here is partly nomadic and partly agricultural. Wheat is the most important crop of the area. Apart from these two areas, the high mountainous peaks in the Kabir Kuh region are also characterised by low density of population. Thus, the population densities are low in those parts of Iran which are either deserts or mountains and have little to offer from the point of view of agriculture. The rich mineral reserves of these areas, however, still remain unexploited on a commercial scale. The development of mining activity holds the key to the future demographic configuration in these areas.

Conclusions

1. The pattern of population distribution in Iran resembles fairly well with the Roman amphitheatre with the deserts of Kavir and Lut in its midst as open space. As one moves outwards the degree of population concentration increases. The increase in the population concentration is, however, more to the north, west and southwest than to the southeast and east. Such a pattern of population is rooted in factors of physiography, precipitation and soil fertility. Broadly speaking, level lands of the northern coastal plains characterised by fertile soils and having adequate water supply have the heaviest concentration in contrast to the dry deserts of Kavir and Lut as also the snow
covered high mountains. Thus, the factors of precipitation, physiography, soil fertility and availability of ground water have played the most vital role in determining the pattern of population distribution.

2. A sizable majority of Iran's population is still distributed in villages which are generally agglomerated. The factors of defence, availability of water and clan feelings are largely responsible for giving rise to agglomerated settlements in Iran. The northern coastal plains which have abundant precipitation, adequate ground water supply and are protected by Alborz mountains on the south and by Caspian Sea on the north are the only areas where the settlements are dispersed.

3. Iran, with its 25.7 million population and 1.6 million sq. kms. of land, is one of the least densely populated parts of the world. Despite the fact that Iran is the warehouse of many basic minerals such as oil, natural gas, copper, zinc, coal, iron, chrome, etc. the country has remained only sparsely populated. This is attributable to the fact that for centuries Iran remained an overwhelmingly agricultural country and the discovery and exploitation of its rich mineral wealth dates back only to the beginning of the present century.
4. Spatially speaking, the eastern half of the country, with its infertile soils, inhospitable dry and hot climate, too deep ground water, presents a contrast to its western counterpart which is fortunate in having adequate rainfall, liveable climate, and fertile soils. While the east is, at places, characterised by as low densities as less than one person per sq. km., the densities are as high as over 500 persons per sq. km., at places, in the west.