Geo Factsheet

Spatial Distribution of Rural Settlements

What is a rural area?

Countries such as France, Ireland, Italy and Spain define rural areas as those administrative units which fall below a population threshold which is defined as "urban". However, each of these countries uses a different threshold value!

In **Italy** and **Spain**, an urban area is one which has a population of 10, 000 inhabitants and settlements with less than this number are, by definition, rural settlements. In **Denmark** and **Sweden** however, the definition of an urban area is one where there are at least 200 people living in homes which are less than 200 metres apart. A settlement with fewer people then this or one where all the homes are more than 200 metres apart would be a rural settlement. In the **Mediterranean**, areas defined as rural may have higher population thresholds - a consequence of the frequency with which rural populations are found concentrated around urban hinterlands. Thus, the term 'rural' has different meanings in different countries.

The term **distribution** refers to the way in which settlements are spread over the countryside. The pattern may be one of isolated homes, each separated by great distances, or the pattern may be random, regular or clustered. The initial development of a settlement would have been influenced by **locational** factors such as the ease of defence of the site, the availability of water and wood and the shelter, aspect and topography of the site. Once formed, settlements may persist for centuries, long after the original advantages of the site have become irrelevant. However, it is extremely unlikely that the pattern of distribution of settlements will remain the same - villages shrink and grow, some disappear completely whilst entirely new ones are created.

Settlement patterns may roughly be classified as dispersed or nucleated but, in practice, there are more examples of intermediate settlement patterns than there are of these two extremes.

1. **Dispersed settlement patterns**
   These have often developed as a direct result of the topography and other physical conditions of the region. In the Scottish highlands, for example, the harsh environment - wet, cold climates, a short growing season, thin soils and often exposed conditions have prevented the development of high population densities (Fig 1). In those areas which have limited or erratically-distributed essential resources such as water, for example in the limestone dominated areas of the Pennines, a very limited number of scattered settlements may have developed.

   In the 18th Century the enclosure of open fields to form parcels of land owned by particular individuals encouraged dispersal. The new owners often built their farm houses in the middle of the new enclosures and because these new houses were built at some distance from the old village, a dispersed pattern resulted. The Agricultural Revolution enabled farming to expand into upland areas, previously regarded as useless; much moorland in the Pennines, for example, was enclosed, and farmers moved up into the hills. The draining of fenlands had a similar effect.

   Dispersed settlement patterns may also develop as a result of the exploitation by pioneers of areas along, for example, the **TransAmazonian Highway**, where settlement was planned and subsidised through government aid. The **polders** are another example of how a dispersed settlement pattern may emerge as a direct result of government planning. Dispersed settlement patterns in parts of North Yorkshire and Northumberland can originally be traced back to the dissolution of monastic lands or, in France as a result of the break up of the land holdings of the aristocracy during the French Revolution

2. **Nucleated Settlement Patterns**
   A nucleated settlement pattern may develop as a result of :

   (a) People's natural gregariousness or through tribal /clannish affiliations. There are obvious economic and social advantages of living closely together.
   (b) The defensive advantage of clustered villages, for example along hilltops (eg. in **Greece**).
   (c) The advantage of a reliable supply of clean water, as in the case of springline villages, villages centered upon oases or on mounds in the marsh fenlands of **East Anglia**.
   (d) The occurrence of a mineral or energy resource eg. **Durham coalfield villages.** Similarly, bridging points and transport nodes may attract a concentration of villages.
   (e) The actions of governments who want to establish self-sufficient villages based upon collective agriculture eg. The Israeli kibbutz.
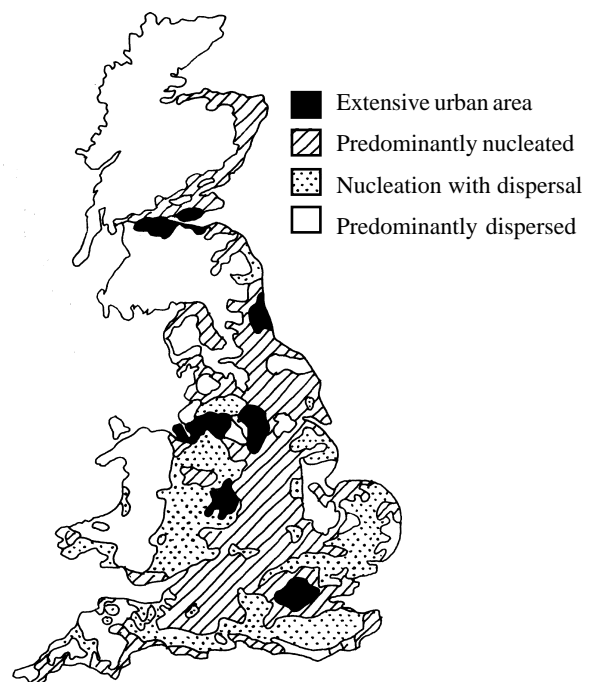
3. **Linear Settlement Patterns**
   These may develop along a key communication route eg. along a road which stretches through mountain passes. Linear patterns also extend along the narrow **Welsh ex-coal mining valleys** (as a result of relief) and along other linear features such as canals (eg. in **the Netherlands**) and along rivers (eg. along **the Nile**).

4. **Isolated Rural Settlement Patterns**
   These may reflect the remote and widely scattered individual homesteads that are often found in inhospitable environments. Examples would include the former pioneer homes in the **Canadian Prairies** and tribal settlements in, for example, the **Amazonian forest**.

Fig 1. The distribution of rural settlement types in Britain

■ Extensive urban area
▨ Predominantly nucleated
⬚ Nucleation with dispersal
□ Predominantly dispersed

Nearest Neighbour Analysis - Examination questions frequently test candidate's knowledge of Nearest Neighbour Analysis which can be used to identify whether a settlement distribution has a tendency towards nucleation or dispersion. The distance between the centre of each village and its nearest neighbour is measured. An index (Rn) is calculated using the following formula:

$$Rn = 2\bar{d}\sqrt{\frac{n}{A}}$$

Rn =   the nearest neighbour index
A   =   the size of area concerned (km^2)
$\bar{d}$ =   the mean distance between settlements (km)
n   =   the number of settlements

If Rn = 0, this indicates perfect nucleation. If Rn = 1 the settlement pattern is random. If Rn is the maximum value of 2.15 this indicates maximum dispersal and the settlements form a perfect regular pattern. All of the settlements would be equi-distant. The distribution of East Anglian market towns is sometimes used as an example.

0	1.0	2.15
Rn=0	Rn=1	Rn=2.15
clustered	random	regular
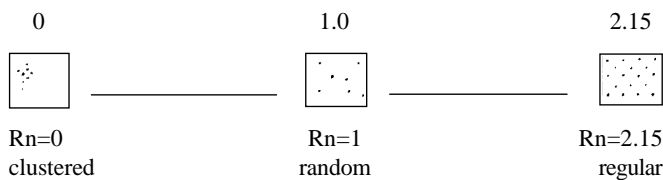
The limitations of Nearest Neighbour Analysis are:

1. Each of the study areas must be of the same size. This may be difficult to achieve in practice.

2. Large study areas tend to lower Rn, small areas tend to raise it.

3. The choice of the settlements which are used in the study may be biased.

4. Identifying the centre of any particular settlement may be difficult.

5. Nearest Neighbour Analysis does not attempt to explain settlement patterns.

Recent Changes in Rural Settlement Patterns - In the latter half of this century, the spatial distribution of rural settlements has been dramatically affected by the establishment of the Green Belt and processes such as counterurbanisation, the development of second homes, the development of new "country villages", commuter villages and rural de-population.

The Greenbelt was established by the 1947 Town and Country Planning Act to limit the outer expansion of urban areas and to prevent adjacent urban areas merging. Greenbelts have encouraged "leapfrogging" which has resulted in suburbanised villages. Many feel that the Greenbelt has failed to protect the character of rural areas.

The Government has recently announced that at least 60% of new homes will have to be built on recycled or 'brownfield' sites and that Greenbelt legislation is likely to be toughened up in order to protect it.

Counterurbanisation - the decentralisation of people and economic activities from urban centres to towns and villages in rural areas - has resulted in revitalisation of some rural areas but has been blamed for causing stagnation in others. The huge decrease in agricultural employment has, in some cases, been compensated by a huge increase in service sector jobs.

Between 1961 and 1990, for example, the South Oxfordshire market town of Wallingford increased by 45%, due in part to the creation of 1000 service jobs in the town centre and 800 manufacturing and warehousing jobs on Hithercroft Industrial Estate on the town fringe. Over the same period, the number of households in Wallingford has increased by 72%. Settlements which have attracted commuting populations may now have a younger age structure whilst those attracting retired people may now have an ageing population structure.

In some rural areas, with high landscape value (eg. in the National Parks), the demand for cheap, affordable housing for local people is encouraging the outward spread of villages. Similarly, rural areas in the Peak District, North Yorkshire Moors, the Lake District and the Scottish Highlands have become favourite holiday destinations for people who buy second homes. In the Scilly Isles, 31% of houses are now used as second homes or holiday lets. (Table 1)

Table 1. Percentage of housing in the form of second homes and holiday lets by District (1991)

District	%
Scilly Isles	31.6
Badenoch and Strathspey	22.6
Dwyfor	18.9
City of London	17.2
Meirionnydd	16.3
Skye and Lochalsh	15.9
Sutherland	12.8
Lochaber	11.3
Argyll	11.1
North Norfolk	10.6

Between 1981 and 1991 the population of East Anglia rose by 9%, faster than any other area of the country. The population of predominantly rural counties such as Cornwall also grew rapidly in population.

Each year, between 1981 and 1991, just under 7000 hectares of rural land was converted into urban land. This increased the total percentage of urban land from 10.0% to 10.5%. Between 1991 and 2016 it is expected that this will increase to 12%. Demand for housing in rural areas is increasing and this mainly reflects changes in lifestyle rather than an increasing population. Over the last century U.K. population has doubled but the number of houses has quadrupled.

Exam Hint - Weaker candidates frequently show great confusion over the terms: site, situation, settlement pattern.

The site of a settlement describes the characteristics of the actual point at which the settlement is located.

The situation of a settlement describes the location of a place in relation to its surroundings eg. to neighbouring settlements, rivers, hills.

Settlement pattern describes the way in which settlements are distributed.