

# Geographical Field Study: Methods and Techniques

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## Introduction

From time immemorial, Geography has been acknowledged as Chorological science. What is the central theme of Geography? After a long debate most of the geographers arrived at the conclusion that the central theme of geography is 'space'. It is also known as earth science and as well as natural science or regional science also. We can develop our theoretical knowledge from the books, journals, newspaper, internet and many more. Field work, on the other hand helps the students and researchers to developed the practical base knowledge.

Robert Burns describes field research ---- "it is a systematic investigation to find solution to a problem". The field research may be study oriented in two ways---

Area-specific study

Problem specific study

## Objectives

Major objectives of the field study are---

- Field requires investigation from different angles which is related to literature and practical experience.
- To study the natural or physical objects like topography, drainage, climate, soil and natural vegetation.
- To find out the economic, social and cultural realities of the region.
- All the studies are based on empirical evidence.
- To illustrate the relationship between natural and socio-cultural environment.
- Finally, field study is directed towards the solution of problem.

## Methods and techniques of field work

Generally, Field study is divided into three stages--- Pre-field work, Field work and Post field work

### Pre-field work

Before reaching the study area it is essential for a surveyor to collect the preliminary knowledge regarding the concerned area. So it is important to collect data about the area already published either in various books, journals, magazines even newspapers. Because subsequently in case of descriptive analysis the writings prove themselves as conducive to the data. In this stage necessary maps and other secondary data are collected. Such kind of maps are Topographical map, District Planning Series maps, city maps, soil map, geological map and other thematic maps. These maps are available in Survey of

India, National Atlas and Thematic Mapping organization (NATMO), Geological Survey of India (GSI) other government organizations. Another important part of this stage is to prepare necessary questionnaire and schedule for collecting primary data.

### *Framing of questionnaire-schedule*

The term ‘questionnaire’ was first coined by Sir Francis Galton. Questionnaire-schedule is a set of questions arranged in a systematic manner. Questionnaire survey is a popular method to investigate socio-economic condition of an area.

### *Difference between ‘questionnaire’ and ‘schedule’*

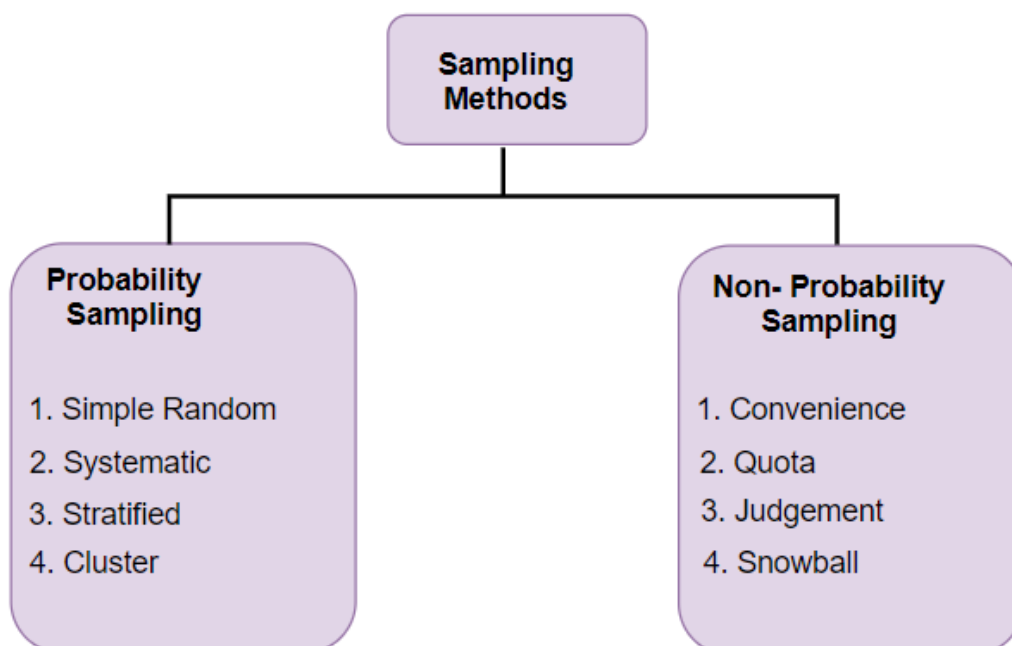
Research schedule are being filled by the enumerators who are specially appointed for these purpose. On the contrary, questionnaire in technical term is the set of questions which is mailed to the respondents, respondents will send the filled questionnaire.

### *Types of questions*

A good questionnaire or schedule consist of different types of questions like contingency question, matrix question, leading question, Likert question, dichotomous question, bipolar question, rating scale question, buying propensity question, open ended and double or multiple option type question.

### *Sample and sampling*

All the items under consideration in any field on inquiry constitute a ‘universe’ of ‘population’. A complete enumeration of all the items in the ‘population’ is known as a census inquiry. A surveyor selects only a few items from the universe for our study purpose. The items so selected constitute what is technically called a sample. On the other hand, sampling is a method of collecting sample. Sampling techniques may be broadly classified as non-probability and probability.



Probability sampling means that every member of the population has a chance of being selected. It is mainly used in quantitative research. If you want to produce results that are representative of the whole population, you need to use a probability sampling technique. Four types of probability sampling are Simple random sampling, Stratified sampling, Systematic sampling and Cluster sampling.

Non-probability sampling relies on the personal judgment of the researcher rather than chance to select sample elements, the researcher can arbitrarily or consciously decide what elements to include in the sample, Non-probability samples may yield good estimates of the population characteristics, However, they do not allow for objective evaluation of the precision of the sample results.

Because there is no way of determining the probability of selecting any particular element for inclusion in the sample, the estimates obtained are not statistically projectable to the population.

### **Field work**

Some common techniques for collecting primary data are observation, transect walk, interview, focused group, audio-visual media etc.

According to purpose it may be of two types—survey on physical objects and socio-economic aspects. A student or researcher of physical geography is mainly interested in topography, terrain and slope character, character of river or drainage, physical and chemical properties of soil and nature of vegetation etc. During the survey a researcher should carry the useful instruments like Prismatic Compass, Dumpy or Auto Level, Transit Theodolite, Abney Level, Clinometer, Laser Distance Meter, Geological hammer, shovel, ground pin, tape, measuring staff, soil sampler, sediment sampler and current meter, chain etc. Recently Global Positioning System (GPS) becomes popular for ground survey. Except these, board, clip, field book, paper, tracing paper, pen, pencil and eraser are also must give place in the checklist of vital equipment.

Ground survey or topographical survey involves determining the horizontal and vertical position of objects on earth surface. Ground survey may be done by either traversing method or triangulation method. In the method of traversing the whole area is enclosed by ‘closed traversing’. The magnetic bearing of each line is measured by prismatic compass. Sometimes open traversing may be useful for making alignment for a road or a narrow channel. Besides Dumpy or Auto level is used for levelling and contouring i.e. vertical position or altitude of different stations.

Apart from topography a researcher can be interested in studying river or drainage pattern. For knowing their changing course or problem of sedimentation depth and velocity should be measured. Collection of soil sample is important for knowing its physical and chemical properties like texture, soil PH.

To focus on socio-economic scenario of a study area a researcher has to collect some primary data by door to door survey. This types of survey include household survey, market survey, transport and communication, survey on guide, ‘panda’ and ‘Khadim’ of a religious place and survey on tourism etc. Apart from primary data some secondary data are collected during the field work which are not available in pre-field stage. Firstly, the surveyor must collect the ‘mouza’ (for rural area) or ward map (for municipality area) from Panchayat office or municipality of the respective area. This map is important to locate the study area. Except this, it is urgent for a surveyor to collect the land use map for

realizing the land use pattern. If the land use maps of different time are available, then we can make comparative study of temporal land use change. Besides, the surveyor has to collect secondary data on demography, educational institutions, health, local police station, transport and communication, religious institutions and tourism.

During the survey (both physical and socio-cultural) a surveyor should take some photographs upon his or her study. These snapshots are also considered as primary source of information.

### **Post Field Work**

The steps to be followed in this stage are---

#### *Tabulation*

Statistical table is a systematic arrangement of quantitative data under appropriate heads in rows and columns. Thus, tabulation may be defined as the logical and systematic organization of statistical data. Raw data should be tabulated so that the whole information can be viewed at a glance. The advantages of tabulation are---

- Tabulation enables the significance of data reading understood and leaves a lasting impression than textual presentation.
- It facilitates quick comparison to statistical data shown between row and columns.
- Errors and omissions can be readily detected when data are tabulated.
- Representation of explanatory terms and phrases can be avoided, and the concise tabular form clearly reveals the characteristics of data.

#### *Representation of data*

There are many methods and techniques of representation of data. Some of these are mapping, graphical representation, diagram and cartograms and descriptive analysis.

#### *Mapping*

A map is a symbolic representation of selected characteristics of a place, usually drawn on a flat surface. Maps present information about the world in a simple, visual way. They teach about the world by showing sizes and shapes of countries, locations of features, and distances between places (Source: National Geographic Society)

General reference maps show general geographic information about an area, including the locations of cities, boundaries, roads, mountains, rivers, and coastlines. Government agencies such as SOI, GSI make some general reference maps. Many are topographic maps, meaning that they show changes in elevation.

Many thematic maps are now made with the help of geographic information system (GIS) technology. GIS are computer systems that capture, store, and display data related to positions on Earth's surface. This technology combines information from maps with other data about people, the landscape, climate, soil, land use and land cover and much more, allowing multiple sets of data to be displayed on a single map.

#### *Graphs and cartograms*

Different types of socio-economic data can be represented graphically or with the help of cartograms. Some popular graphical techniques are Line graph, Climograph, Normal rainfall-temperature graph, Relative Temperature graph, Hythergraph, Stargraph, Hypsometric curve, Ergograph and many more. Apart from this there are many cartograms like different types Bar diagram, Pyramidal diagram, Pie diagram, Square diagram, Triangle diagram, Ternary graph, Flow diagram etc.

### *Descriptive analysis*

After preparing maps and diagrams on the basis primary and secondary data a surveyor starts to a field report. Obviously it should be based on objectives of field work and the nature and range of collected information. Before writing report a draft of chapter contents should be kept ready. A student of geography (not researcher) can prepare a field report under the following the following chapters.

The first chapter is always an introductory chapter which contains a) definition and purpose of field study b) methods of field work c) selection of the study area d) database and methodology adopted in present field work e) limitation of field study

The subject matter of the second chapter is the physical account of this locality and its adjacent area. The topics covered in this chapter are a) location of the study area b) historical background (if any) c) geology physiography d) climate e) soil and vegetation. The descriptions must be factual and informative but not so lengthy. It is better to incorporate necessary maps, diagrams and images properly within the theoretical description.

Third chapter is mostly related to the socio-economic and cultural realities. The subthemes of this section are a) a brief note on study area b) general land use and land cover c) Demography (i.e. sex ratio, age-group, family size, caste, religion, language etc.) d) Education e) Occupation, income and expenditure, standard of living f) Transport and communication g) Market and other establishment g) Tourism

The concluding chapter must be analytical. Here physical and socio-economic issues or problems are taken into account. Impact of human activities on environment as well as environmental impact on human society --- is a vital part of discussion. Students can include some own view in this regard.

Lastly annexure and bibliography must be added at the end of the report.

But when a researcher of the subject make a field trip his or her focus remains obviously on some specific problem. So the approach of writing a research article is significantly different in respect of a field report. When a researcher writes a paper or article first of all a brief but very concrete introduction is given. After that literature survey or literature review comes where the previous works on this topic have been critically analyzed. Next part of the research paper is to discuss on research question and problem. Objectives of the study must be very specific. On the basis of the objectives a researcher has to select the methods and techniques. He or she must know the difference between 'method' and 'methodology'. After that descriptive or narrative part begins where collected data or facts is analyzed with the own view of researcher. Result and analysis part is not mere report of results but it should be a link between result and policy gap. They must try to show the link with research question and gradually unfold the solution to research problem. Last part is conclusion and policy implications. The entire exercise was to arrive at this session. It is suggested not to reiterate the findings or results. A researcher

must rely on results and logic and should focus on generalization. It is better to avoid unnecessary reference and statistics in conclusion part.

## **Conclusion**

Finally, it can be stated that field work is one of the most interesting parts of Geography. But the surveyor must be sincere and enthusiastic. Now a days researchers mostly rely on modern tools and techniques like GIS and Remote Sensing. Undoubtedly these techniques have an important role in modern research. But in qualitative research there is no such techno-centric method that can become a substitute of field survey. An intensive field study is always essential for a good research.

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