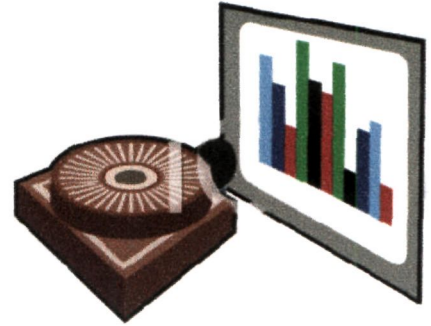


CHAPTER - III

RESEARCH METHODOLOGY



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CHAPTER III

RESEARCH METHODOLOGY

3.1 INTRODUCTION:

It is said that research is a search for knowledge through objective. Keeping in view specific and general objectives a researcher sets on a journey from the known to the unknown and tries to make some definite contribution to the existing stock of knowledge. In simple words, the research is an inquiry or search for fact or truth. Investigation of every kind which is based on original sources of knowledge may be said as research.¹ The research process consists of some important steps such as selection of problem, formulation of hypothesis, preparation of research design, collection of primary and secondary data, classification, presentation, analysis and interpretation of the data for drawing conclusions in the form of solutions towards the concerned problem. The procedure followed by a researcher for describing, explaining and predicting phenomena during the research work is called research methodology. Broadly speaking, the research methodology is the philosophy and practice of the whole research process. The methods and procedures adopted by the researcher for the present research work are discussed in this chapter.

3.2 TYPES OF RESEARCH:

There are different types of researches according to their objectives and nature. We can differentiate among these research types on the basis of one or more points. "However, we should note here that one type of research does not stand apposite to the other. Moreover, one type of research is not entirely different from the other. Rather, features of different types of researches are intermixed"²

¹ Dr. Myneni S. R.: Legal Research Methodology; Delhi: Poineer Books (1997) P-1

² Goode and Hatt: Methods in Social Research Megnow Hill: Kogaksno Ltd. 1952 P- 7

The present research work has combined characteristics of the following types of research.

I] Applied Research: This type of research is conducted to find out a solution for an immediate problem faced by society or an industrial or business unit. Under this research, the researcher is more interested to understand all the aspects of social phenomena than to acquire knowledge only.

II] Conclusion Oriented Research: This type of research is aimed at drawing conclusions and the researcher is free to design the enquiry to suit the requirements of the research work undertaken by her.

III] Inferential Research: This type of research studies a sample of population and determines the characteristics or relationships of population on the basis of data collected from the sample respondents.

3.3 SELECTION OF RESEARCH PROBLEM:

Modern life poses several problems, which demand solution. We cannot attempt to solve them without sufficient knowledge and this knowledge can be acquired through research. Research is a systematic way of finding solution to a problem. Therefore, research work is going on in different sectors of the economy with the ultimate objective to provide guidelines to solve the problems, which exist in the economy.

As far as, the present research work is concerned, the selection and formulation of the research problem is done by the researcher with due concern to practical conditions, adorable values and available resources after going through the relevant literature and having guidance from the experts in the field of agriculture and an experienced guide. The researcher herself belongs to a farmer's family and this agricultural background urged her to take keen interest to observe the overall critical conditions of the farmers in the district where she has been residing for twelve years. She closely observed the fact that agriculture plays a vital role in economic

growth of Yavatmal district but most of the farmers of the area are still poor as they cultivate non irrigated lands. With an aim to search into the matter to provide guidelines to overcome the adverse situation, the researcher has undertaken and conducted a study of the impact of water resource development schemes on the financial condition of the farmers in Yavatmal district.

3.4 FORMULATION OF RESEARCH HYPOTHESES:

The present research work has begun with a set of well-formulated hypotheses, which are already mentioned in the first chapter. These hypotheses are the researcher's assumptions or propositions about the tentative solutions for the problem and sub-problems undertaken by her for the research study. Goode and Hatt have defined hypothesis as "a proposition, which can be put to test to determine validity. Every worthwhile theory permits the formulation of additional hypotheses. These, when tested are either proved or disproved and in turn constitute further tests of the original theory."³ There are different kinds of hypotheses and their degree of significance depends on the level of abstraction. According to Goode and Hatt there are three levels of abstractions underlying the hypotheses.

- 1] At the lowest level of abstraction hypotheses state the existence of certain empirical uniformities.
- 2] At a relatively higher level of abstraction, hypotheses are complex "ideal types" and they are really purposeful distortions of empirical exactness.
- 3] At the highest level of abstraction, hypotheses are concerned with the relation of analytic variables. Such hypotheses are statements about how changes in one property will affect another property. This type of

3 Dr. Girdhari D. G.: Research Methodology in Social Sciences, Aurangabad : Uday Publications (2002) Page - 29

hypotheses is formulated for the present research study. They are the explanatory hypotheses or relational propositions stating that the existence of, or a change in, one variable causes an effect on another variable, e. g. "Agricultural production depends on availability of sufficient water for crops."

The sources of these hypotheses are the researcher's personal experience observations, reactions of farmers in the researcher's residential area and the findings of the related studies in the state of Maharashtra and other states of India. These hypotheses are tested and accepted on the basis of the outcome of the samples drawn.

3.5 RESEARCH DESIGN:

The preparation of research design of the research work undertaken by a researcher is one of the important steps in research procedure. After selection and formulation of the research problem, the researcher prepares a research design to have an advance idea of the entire research work because the research design provides him/her with a clear picture of the whole research work before starting of the actual work. Research design is the plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance.⁴ Though as a plan, a research design specifies the sources and types of data as well as methods and techniques for collection, presentation and interpretation of the data. It is not a rigid, highly specific plan to be followed without deviation. In the real sense a research design is a guide-lamp that enables the researcher to proceed forward on the right path and in the right direction.

Generally a research design contains sampling design about the methods of selecting items to be observed for the given study, observational design related to the conditions under which the observations are to be made.

⁴ Ibid PP 34-35

statistical design about the methods of analysis and interpretation of the information and data collected for the study and operational design covering the techniques of carrying out different procedures in the sampling, statistical and observational designs. There are four main types of research designs depending on the objectives of the research study undertaken by a researcher.

I] A Descriptive Research Design helps the researcher to describe a phenomenon under investigation presenting descriptive information. This category of research design is used for those studies, which are concerned with describing the characteristics of a particular individual or a group or situation. This is a rigid design with pre-planned statistical and operational design.

II] A Diagnostic Research Design is useful for a diagnostic study undertaken to find solution to a specific problem by the discovery of the relevant variables that are associated with it in varying degrees. A diagnostic research design resembles to the fact-finding aspect of clinical practice, which makes scientific differentiations among various conditions for the purpose of accurate classification of them. This research design is not flexible due to its structured nature.

III] An Experimental Research Design is suitable for an experimental study, which compares two or more groups in terms of the assured effect of the experimental variable. The main purpose of such studies is to test a hypothesis of casual relationship between variable and group. An experimental research design provides a firm basis for experiment in natural sciences and for testing hypothesis in social sciences.

IV] An Exploratory Research Design is applied for the present research work, which enabled the researcher to formulate a problem for more precise investigation and for developing hypothesis. The purpose of exploratory studies is to achieve new insights into a phenomenon. Such studies are more appropriate in case of problems about which more

knowledge is to be obtained as other objectives of the study are increasing the investigator's familiarity with the phenomena and collecting information about practical possibilities for carrying out research.

The main criteria of this type of exploratory research design are flexibility in operation. The sample design, statistical design observational design and operational design of an exploratory research study are all flexible.⁵

3.6 SOURCES AND TYPES OF DATA:

Inquiry means a search for truth, knowledge or information. The researcher or investigator, who conducts such enquiry, needs the help of certain persons to collect information and they are called as enumerators. Respondents are those persons from whom the statistical information is collected. As there are different sources of collection of data, the researcher has to decide the sources of data keeping in view the purpose of inquiry.

I] INTERNAL: Many business organizations and government department generate data by preparing regular reports for their own purpose. Such data are always available in the books of the organization itself, which are sent to management for decision-making and future planning. These are the internal sources of data.

II] EXTERNAL: The researcher has tapped the external sources of data for the present research work. Information collected from outside individuals or agencies are called external data. This external data is obtained from primary sources and secondary sources. The information and data required for the research study is collected from farmers, agricultural officers, irrigation project authorities, office bearers of non-government organization and various government departments. This primary data is original and first hand information. The secondary data are the information compiled through documents concerning individuals and institutions.

5 Basotia G. R. and K. K. Sharma: Research Methodology Jaipur, Mangaldeep Publications (1999) P – 75

3.7 METHODS AND TECHNIQUES OF DATA COLLECTION:

The researcher has made use of primary data as well as secondary data for the present research work. She has applied the following methods for collection of original and second-hand information.

I] PRIMARY DATA: Primary data or first hand information is collected from the selected farmers and office bearers of the concerned government and non-government offices. The same is got verified from experienced persons and village leaders of the sample villages. Every possible care is taken to ensure the accuracy and reliability of the information. The data furnished by respondents are properly edited through personal checks and cross checks. The help of related authorities is also sought for obtaining correct and viable data. The following methods and techniques are used for collection of primary data required for this research work.

1] Observation Method: The researcher visited selected farms, farmers dwelling places and irrigation projects and personally assessed the situation after personal observation. This observation method is used to obtain data as well as to verify the data collected through other methods.

2] Interview Methods: This is the most common method of collection of primary data. The researcher conducted direct personal interviews with selected farmers and concerned officials to collect information about unknown facts and qualitative facts. The interview method is used by the researcher to acquire in depth knowledge of the matters relating to the research work, which is not available in printed or published form.

3] Questionnaire Method: Mail questionnaire method is widely used method of collecting primary data. But "Mailed questionnaire method poses a number of difficulties in collection of data. Generally, these filled questionnaires received are incomplete, inadequate and unrepresentative."⁶

6 Dr. Girdhari D. G.: Resarch Methodology in Social Sciences, Aurangabad : Uday Publications (2002) Page - 82

Therefore, the researcher has adopted the method of questionnaire to be filled by enumerators. For collecting primary data a detailed questionnaire covering all aspects of the problem is prepared and answers are obtained from the samples belonging to each category of farmers.

The researcher has tried her best to avoid the drawbacks of mail questionnaire method by visiting most of the sample farmers personally and by getting the questionnaires filled by enumerators in case of illiterate farmers.

4| Schedule: The researcher has used three different schedules to obtain information from the agricultural officers, the irrigation project authorities and the office-bearers of the non-government organizations. These schedules contain sets of questions to be replied by the respondents of the study area of Yavatmal district. The selected respondents are contacted by the researcher to collect necessary information and data required for testing of hypothesis.

II| SECONDARY DATA: The study is based mainly on primary data but secondary data were also used. The researcher has visited the libraries of Sant Gadge Baba Amravati University, Rashtrasant Tukdoji Maharaj Nagpur University and Swami Ramanad Teerth University, Nanded. The secondary data is the data already collected by other agencies used for further studies. The following type of secondary data is used for present research work.

1| Govt. publications - Various Govt. organizations collect and publish statistical data on a number of topics like population, agriculture, irrigation etc. Such Govt. publications as India 2005: A Reference Annual, Agricultural statistics of India, publications of agriculture and irrigation dept. of Maharashtra, Economic Survey of Maharashtra, reports of related commissions and committees and related district statistical data are used for this research study.

2| Semi official publications - The statistical material published by municipal and district boards, corporation block and panchyat samitees is analyzed for the study.

3| Private publications - For the present research study the researcher has studied and analyzed the related data published in newspaper, journals, and magazines. The articles and reports of researchers and research institutions and reference books are also used for the study.

3.8 METHODS OF SURVEY:

The survey conducted for data collection can be done in two different ways using either of the two methods. The first is census method and the second is sample method.

I| Census Method: The type of collecting information or data from all the units of a population under study is called census method. Under this method data are collected from each and every unit of the population or universe, which is the complete set of items, which are of interest in any particular situation. Though the data collected by using census method is generally accurate and results obtained, on the basis of it, are concrete and reliable, this method can be used only if the size of the units is small.

II| Sample Method: The method of data collection used for the present research work is sample method. The sample method implies learning about the population on the basis of a sample drawn from it. In this method, a part of the universe or population is studied and the conclusions are drawn on the basis of it for the entire universe. "But before the results of the sample can be applied to the universe, two conditions must be complied with viz. firstly the sample should be random. Secondly, it should be sufficiently representative of the population"⁷

7 P. Saravanavel : "Research Methodology" Allahabad, Kitab Mahal (1987) P-93

The sample survey method is used by the researcher for the present research study as most research studies are based on sample as the law of statistical regularity states that a moderately large number of items chosen at random from a large group are almost sure on the average to possess the characteristics of the large group. The second reason behind using sample method is that an exhaustive and intensive study of the large number of farmers in Yavatmal district i.e. more than three lakhs (308335 as per census 2001) by census method is impossible for the researcher because the efforts, money and time required for carrying out complete enumeration would have been very large and the availability of limited resources with the researcher constitute a big constraint.

3.9 SAMPLING METHODS/TECHNIQUES:

The researcher has used different sampling methods for selection of samples representing the whole field. The mixed sampling technique used for the survey includes purposive, random and stratified techniques.

I] Deliberate or purposive sampling: There are 16 talukas in Yavatmal district. However Pusad and Digras are two such talukas where major irrigations projects are implemented. Similarly there are such talukas where is no major or medium project. Some talukas have medium as well as minor projects. If we go by random sample method for selection of talukas from Yavatmal district it is possible that the talukas from the above categories may not be included. Therefore, for selection of talukas purposive method of sampling is adopted. In all, five talukas are selected for this research survey. They are 1] Pusad 2] Kelapur 3] Ner 4] Ghatanji and 5] Zari-Jamni.

II] Random sampling: This method is used for selecting villages from the above-mentioned talukas and then for selecting the respondents from these villages. The total number of respondents selected for the research study is 250. These 250 respondents are taken from 25 villages of the above

mentioned five talukas. The data about the number of selected villages and sample farmers is given in the following table.

Table No.3.1
Size of Sample

Sr. No.	Taluka	Type of Irrigation Project	No. of selected Villages	No. of selected Farmers
1	Pusad	Major and Minor	5	50
2	Kelapur	Medium and Minor	5	50
3	Ner	Minor	5	50
4	Ghatanji	Medium and Minor	5	50
5	Zari Jamni	Minor	5	50
		Total	25	250

III] Stratified sampling: By using this method the respondents are categorized into different strata's on the basis of holding size and availability and non-availability of irrigation facilities. This stratification can be clearly understood from the data presented in the table given below.

Table No.3.2
Pattern of Sample

Holding type	Number of farmers			
	Non-irrigated	Irrigated	Both	Total
Holding size				
Less than 2 ha.	36	22	1	59
2 - 5 ha.	64	37	21	122
5 - 10 ha.	20	17	20	57
More than 10 ha	5	1	6	12
Total	125	77	48	250

3.10 CLASSIFICATION, PRESENTATION ANSD ANALYSIS OF DATA:

Information collected is classified and tabulated in various tables for the purpose of analysis. Graphs are used for representation of data. As per the need of different chapters, the data is presented in linear graphs, block

graphs and at some places in circular graphs or pie charts.

After tabulating the data in prescribed format, proper analysis of primary and secondary data is carried out by using different statistical methods. The statistical figures, which were arrived during the research process through the steps of verification, classification and analysis, are further interpreted to know the impact of water resource schemes on the financial condition of farmers in Yavatmal district.

Non-statistical data was analyzed along with statistical data by making use of quantitative and qualitative methods.

3.11 CONCLUSIONS AND SUGGESTIONS:

Various water resource development schemes implemented in Yavatmal district and their contribution towards increasing agricultural production and improving the financial condition of farmers is studied. The relevant literature is reviewed in the light of the earlier stated research hypotheses. The conclusions about the level of existing strategies of WRD are drawn on the basis of this research. The hypothesis testing is carried out and the theory is built around the hypothesis to make generalizations.

The level of improvement required in implementing WRD schemes is judged. The suggestion received from the respondents are recorded and analyzed.

The resultant suggestions and recommendations of the present research work are recorded in this final report or thesis. The new facts uncovered during the research are interpreted in the context of present situation and existing environment.