OBJECTIVES

&

RESEARCH METHODOLOGY
OBJECTIVES OF THE STUDY

The present study was aimed to cogitate the following objectives:

1. To understand the mechanism of supply chain management as practiced by Food Corporation of India.

2. To critically analyze and evaluate the relevant components of supply chain management.

3. To determine and cogitate the synergy and integration in supply chain elements for successful relationships between Food Corporation of India and Targetted Public Distribution System (TPDS) outlets.

4. To evaluate the role of modern information exchange systems for an effective supply chain management of food grains.
RESEARCH METHODOLOGY

DESIGN AND PROCEDURE

Introduction

The present research is exploratory cum descriptive with an applied basis where the researcher had used the information and facts already available as base in order to analyze, explore and evaluate the problem at hand critically to deduce conclusions.

Descriptive research is also called Statistical Research. The main goal of this type of research is to describe the data and characteristics about what is being studied. The idea behind this type of research is to study frequencies, averages, and other statistical calculations. Although this research is highly accurate, it does not gather the causes behind a situation. Descriptive research is mainly done when a researcher wants to gain a better understanding of a topic.

Descriptive research is the exploration of the existing certain phenomena. It does not fit neatly into the definition of either quantitative or qualitative research methodologies but instead it can utilize elements of both, often within the same study. The term descriptive research refers to the type of research question, design, and data analysis that will be applied to a given topic. Descriptive statistics tell what is, while inferential statistics try to determine cause and effect.

The type of question asked by the researcher will ultimately determine the type of approach necessary to complete an accurate assessment of the topic in hand. Descriptive studies, primarily concerned with finding out "what is," might be applied to investigate the various questions: Descriptive research can be either quantitative or qualitative. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). It often uses visual aids such as graphs and charts to aid the reader in understanding the data distribution. Because the human mind cannot extract the full import of a large mass of raw data, descriptive statistics are very important in reducing the data to manageable form. When in-depth, narrative descriptions of small numbers of cases are involved, the research uses description as a tool to
organize data into patterns that emerge during analysis. Those patterns aid the mind in comprehending a qualitative study and its implications.

Most quantitative research falls into two areas: studies that describe events and studies aimed at discovering inferences or causal relationships. Descriptive studies are aimed at finding out "what is," so observational and survey methods are frequently used to collect descriptive data (Borg & Gall, 1999). Descriptive studies report summary data such as measures of central tendency including the mean, median, mode, deviance from the mean, variation, percentage, and correlation between variables. Survey research commonly includes that type of measurement, but often goes beyond the descriptive statistics in order to draw inferences. For example, Descriptive research is unique in the number of variables employed. Like other types of research, descriptive research can include multiple variables for analysis, yet unlike other methods, it requires only one variable (Hopkins, 2000). Three main purposes of research are to describe, explain, and validate findings. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations (Krathwohl, 1993). Many research studies call for the description of natural or man-made phenomena such as their form, structure, activity, change over time, relation to other phenomena, and so on. The description often illuminates knowledge that we might not otherwise notice or even encounter. Several important scientific discoveries as well as anthropological information about events outside of our common experiences have resulted from making such descriptions. Descriptive studies have an important role in educational research.

**Descriptive Research**

The descriptive function of research is heavily dependent on instrumentation for measurement and observation (Borg & Gall, 1999). The intent of some descriptive research is to produce statistical information about aspects of SCM in Food Corporation of India for the policy makers.

There has been an ongoing debate among researchers about the value of quantitative versus qualitative research, and certain remarks have targeted descriptive research as being less pure than traditional experimental, quantitative designs.
Descriptive studies can yield rich data that lead to important recommendations. Descriptive research can be misused by those who do not understand its purpose and limitations. For example, one cannot try to draw conclusions that show cause and effect, because that is beyond the bounds of the statistics employed.

**Borg and Gall (1999)** classify the outcomes of research into the four categories of description, prediction, improvement, and explanation. Descriptive research describes a natural or man-made educational phenomenon that is of interest to policy makers. The methods of collecting data for descriptive research can be employed singly or in various combinations, depending on the research questions at hand. Descriptive research often calls upon quasi-experimental research design (Koul, 2010). Some of the common data collection methods applied to questions within the realm of descriptive research includes surveys, interviews, observations, and portfolios.

### Effect of Research Design

“A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern or framework of the project that stipulates what information is to be collected from which source and by what procedure.”  **(Best & Kahn, 2010)**

The type of design chosen for the study has a major impact on the sample size. Descriptive studies need hundreds of subjects to give acceptable confidence intervals (or to ensure statistical significance) for small effects. Experiments generally need a lot less—often one-tenth as many—because it’s easier to see changes within subjects than differences between groups of subjects. In the present study as mentioned survey design has been used.

This chapter describes the design employed, procedure followed, sample selected, tools used and sequence of the events that occur, procedure adopted for data collection and statistical analysis conducted to realize the objectives of the study. Research design is the blueprint of the procedure that enables a researcher to test hypothesis by reaching valid conclusions about relationships between independent and dependent variables **(Best, 2010).**  **Kerlinger (1974)** described “Research design
is a plan, structure and model of investigation conceived so as to obtain answers to research questions and control variances". Thus, design provides a picture of what and how to do the work. In any research project, design provides the investigator a blue print of the research dictates the boundaries of the project and helps in controlling the experimental, extraneous and error variances of the problem under investigation.

It is a planning stage of research which is usually made logically visualizing its practicability. The selection of the research components is done keeping in view the objectives of the research. Research design includes the following components:

1. Research method or strategy
2. Sampling design
3. Choice of research tools
4. Choice of statistical techniques

**Population**

Population means the entire mass of observation which is the parent group from which a sample is to be taken. In the present study, the managers/officials of Food Corporation of India and the outlets fair price shops which were spread over Punjab, Haryana, Delhi & Bihar constituted the population. The Population for the present study comprised of all Food Corporation of India offices and godowns spread over in the states of Haryana, Punjab, Delhi & Bihar. Similarly all the Targetted Public Distribution System outlets / Fair Price Shops situated in the rural & urban areas of above 4 states.

**Sampling**

Sampling is the act, process or technique of selecting a suitable sample or a representative part of a population for the purpose of determining parameters or characteristics of the whole population. Sampling is fundamental to all the statistical techniques and statistical analysis. In fact, it is an indispensable technique of behavioral research. The sample observations provide an estimate of the population characteristics as the study of the total population is impossible and impractical. It
means selections of individuals from population in such a way that every individual has the equal chance to be included in the sample. Several methods have been designed to select a representative sample. When dealing with people, it can be defined as a set of respondents (people) selected from a larger population for the purpose of a survey.

To draw conclusions about populations from samples, the researcher must use inferential statistics which enables one to determine a population’s characteristics by directly observing only a portion (or sample) of the population. The researcher obtained a sample rather than a complete enumeration (a census) of the population for many reasons. Obviously, it is cheaper to observe a part rather than the whole, but the researcher should be prepared to cope with the dangers of using samples. There would be no need for statistical theory if a census rather than a sample was always used to obtain information about populations. But a census may not be practical and is almost never economical. There are six main reasons for sampling instead of doing a census. These are: economy, timeliness, the large size of many populations, inaccessibility of some of the population, destructiveness of the observation and accessibility.

**Sample Size for the present study**

On the basis of Non probability: Judgmental sampling technique was used to obtain the responses from the respondents. 60 respondents were selected from the different levels of management i.e. Operative management (32), Middle management (19) and Top management (9) in such a manner that they represent the different geographical locations of godown / storage points and offices of the Food Corporation of India involving various components of SCM (supply chain management).

Similarly 80 outlets of Targetted Public Distribution System (Targetted Public Distribution System) / Fair Price Shop (FPS) were selected representing the different geographical locations i.e. Haryana, Punjab, Delhi & Bihar and also the rural (40) &
urban (40) areas of Targetted Public Distribution System /FPS outlets as well to have representative sample.

**Distribution of the sample (Depots /Offices of Food Corporation of India) and Targetted Public Distribution System / FPS Outlets**

A Distribution of sample in Food Corporation of India Depots and Offices.

**Total sample size: 61**

1. Operative Management :32
2. Middle Management :13.
3. Top Management :16

**Geographical location.**

1. Haryana Region
2. Punjab Region
3. Delhi Region
4. Bihar Region

**Location of Targetted Public Distribution System / FPS outlets**

1. Haryana Rural - 40
2. Punjab Urban-40
3. Delhi
4. Bihar
Tools Used

The term scaling is applied to the attempts to measure the response objectively. Response is a resultant of number of external and internal factors. Depending upon the response to be measured, appropriate instruments are designed. Scaling is a technique used for measuring qualitative responses of respondents such as those related to their perception, likes, dislikes and preferences. Likert Scale was developed by Rensis Likert. Here the respondents are asked to indicate a degree of agreement and disagreement with each of a series of statement. The scale items has either 3 or 5 response categories ranging from

1 Not at all good to Very good.
2 Not at all satisfied to Very satisfied.
3 Not successful at all to very successful
4 Not at all effective at all to Very effective
5 And not problem at all to significant problem.

Each statement is assigned a numerical score ranging from 1 to 5 or 1 to 3. Each degree of agreement is given a numerical score and the respondents total score is computed by summing these scores. This total score of respondent reveals the particular opinion of a person. Likert Scale are of ordinal type, they enable one to rank attitudes. They take about the same amount of efforts to create as Thurston scale and are considered more discriminating and reliable because of the larger range of responses typically given in Likert scale. A typical Likert scale has 20 - 30
statements. While designing a good Likert Scale, first a large pool of statements relevant to the measurement of response has to be generated and then from the pool statements, the statements which are vague and non-discriminating have to be eliminated. Thus, likert scale is a five point scale ranging from 'strongly agreement' to "strongly disagreement". This type of scale is widely used in the social and behavioral sciences, including interdisciplinary subject centered fields of interest, such as organizational research, marketing and public opinion research.

**Tool Construction**

For the study of responses from the managers/officials of Food Corporation of India and Targetted Public Distribution System outlets which were spread over Punjab, Haryana, Delhi & Bihar a structured questionnaire was developed. The questionnaire used for the present study consists of 2 set of questions. First, demographic profile of respondents; Second, to measure the response from the managers/officials of Food Corporation of India and Targetted Public Distribution System outlets. Experts were consulted for determining the various dimensions pertinent to the supply chain elements in Food Corporation of India (Food Corporation of India) and Targetted Public Distribution System/FPS system. Each statement was thoroughly screened and edited. The over-lapping of the items was critically examined. The various standard criteria suggested by Edward & Kilpatric (1948), Anastasi (1961) and Gupta (1999) have been used in the selection and edition of the statements. After the arrangement of statements, these were subjected to rigorous editing and scrutiny of experts. In view of the comments and suggestions offered by the experts, language of four statements was modified and reframed, three statements were rejected. The statements were written in English and responses were on five & three point scale depending on their suitability. Finally, the preliminary draft was finalized and subjected to pre-tryout.

After the construction of the preliminary draft, it was frequently tried out on a sample of five Food Corporation of India managers / officials were randomly selected from Haryana and Delhi state to ensure the comprehensibility of the statements covering various issues. The scale was distributed to each of the respondents and they were encouraged to answer every item. The main objective of this pre-tryout was to study the test items for their suitability and practicability. The
investigator personally approached the Food Corporation of India managers &
officials of Targetted Public Distribution System outlet and all were encouraged to
respond all the items. It was also made clear to them that their responses will be kept
confidential. No time limit was fixed for the tryout with a view to answer all the
items. After the tryout, the scale was evaluated.

Method of Data Collection

Personal Interview method was used in the present study. The researcher
visited the selected depots, offices and officials of all the 4 states namely Haryana,
Punjab, Delhi & Bihar to collect the data. The researcher explained the sample, the
method of responding to the statements of the scale. The Investigator discussed all
the variables involved with respondents. The investigator promised the respondents
about confidentiality of the responses.

Analysis of the Data

The data collected from various sources were tabulated and analyzed
systematically with the help of appropriate tools such as Frequency, Arithmetic
Mean and Standard Deviation to get the results. Use of SPSS (Statistical Package for
Social Sciences) package is made extensively.