4.1 Research Strategy

In the face of rapid transformation undergoing in the society, conventional methods used in research for the study of any given problems may not be adequate. To address issues related to persistent pockets of poverty, inequity and wastage of food due to poor SCM consistent objectivity, clarity, and accuracy is required. There is a need for fresh perspective, taking into account domestic changes as well as the regional impact of some countries and trade blocks' rapid growth. In the light of the above problems the methodology for the present research work has been adopted to suit the scenario.

The role of systematic research in several fields of applied agriculture whether related to Management or to Law as a whole, has greatly increased in modern times. The increasingly complex nature of business and government has focused attention on the use of research in solving strategic, operational and policy problems. Research, as an aid to agricultural policy, has gained added importance, both for government and business strategists.

The present research work in the area of Food SCM provides the basis for nearly all the government policies in agricultural system. For instance, government budget allocation rests in part on an analysis of the needs and expectations of the people and to further enhance the welfare of the people; and this requires availability of surplus revenue to meet these needs. This mammoth task of optimisation of scarce resources presses the need for systematic research.

In addition to the extensive literature review on the subject matter of Food SCM and backward integration and its implication on the policies and legal frameworks, a multi-functional approach involving both legal and managerial case studies has been used to gain insight into SCM strategies. This triangulation approach - literature review, survey at secondary level, and case studies provided an opportunity to develop a broad-based understanding of the variables and their relationships associated with Food SCM. It also helps for better implementation Food SCM with special references to backward integration and evolving strategies and exploring innovative, leading-edge SCM practices.
4.2 Design and Approach of Research Work

The present research works' design has taken into consideration the following exhaustive diagram of research process. The approach of current research work is also depicted to a large extent in the following Figure 4.1. The present research is predominantly based on secondary information and occasionally drawing information from the primary research also.

![Diagram of Research Process](image)

**Figure 4.1: Overview of Research Design (Source: Research Methods for business studies. Saunders, Lewis & Thornhill, (2003))**

As there are two basic standard approaches to research, viz., Quantitative Approach and Qualitative Approach. The former involves the generation of data in quantitative form which can be subjected to rigorous statistical analysis in a pre-defined fashion. While Qualitative approach to research is concerned with a judgemental assessment of policies, impacts of welfare schemes, attitude, opinions, and behaviour and so on. Qualitative research method is found to be more appropriate and therefore applied in the present research when variables producing an outcome are contextual or variables in the study are not uniform in their relationships and hence not facilitating numerical analysis.

Research work which involves ‘Case Studies’ there are no hard and fast rule to follow any particular method in it (Merriam, 1994 in Brask, C., Jonsson, T., 2002); but choosing a method depends on the nature of problem, and the way data and
findings are analyzed and generalized (Behumi, V., Holten, C, 2004). The information pertinent to the subject matter is studied to analyze and interpret to test the findings of investigation rationally in contrast with the understanding we developed in the frame of reference. The present study has tried to outline a substantial part of the problem and its implications through logical generalization and for doing this, Qualitative Method is chosen. The reason for choosing Qualitative Method is to see more consistency in the study. The study has utilized the common sense and logic in analyzing the findings to draw conclusions and has tried always to be free from emotional predetermined conclusions.

In other words, rational analysis and suggestions made in the present work are guided by intellect or formal judgment and are “distinguished from experience or emotion” of individuals for the sake of rationality and objectivity.

Generally, in a qualitative case study, data are gathered through interviews (Merriam, 1994 in Brask, C., Jonsson, T. 2002), the present study is however based on secondary sources like published reliable material which is reflected in research work. The data collection and data analysis methods have not used any complex statistical procedure; since the present study is qualitative.

4.3 Scope of the Present Study

The issues which come under scrutiny and form the subject matter and scope of the present research methodology are as follows:
1. Developing better understanding of the Agro produce and the market.
2. Formulation of conditions for development of agricultural markets and marketing infrastructure including e-marketing and assessment of trading performance.
3. Application of international codes and standards (CODEX, HACC, and EU standards).
4. Standardizations for food safety and quality assurance.
5. Developing strong relationships among the farmers, agri-businesses, corporate houses, researchers and government agencies for smooth functioning of the Food Supply Chain in India.
6. Encouraging private investment in processing, market infrastructure, market developments and value addition.
The scope of the present research work is to suggest mechanism for resolving all or some of the above constraints by means of encouraging farmer-industry cooperation and by way of adopting appropriate contract farming systems, establishment of agro-industrial cooperation, improvement of cold storage and infrastructural amenities, involvement of information technology and facilitating the farmers’ empowerment.

The study specifically discovers the potential of Food SCM for backward linkages with special reference to Contract Farming and the policy framework under which the involved parties are operating. The legal implications for the concerned states and non state stakeholders come under scrutiny. Further it is intended to develop understanding of area as it is now and its growing importance due to the diversification of Indian economy. In the light of above aspects the study is expected to go a long way to develop further research roadmap and influence the policies and decision making at strategic and operational level.

### 4.4 The Problems Associated With the Areas of Study and Present Research Work

Following are some of the problems associated with food production and distribution which indicate that agriculture sector deserves an urgent attention in the form of policy intervention and statutory protection for further improvement and development of welfare mechanism for agricultural society:

- Lack of appropriate and advanced techniques, capital and knowledge deployment and lack of information about the flow of products to markets.
- Lack of transparency, tracking and traceability in the Supply Chain.
- Lesser control of product safety and quality across the Supply Chain.
- Investment, benefits and risks not shared by all the partners in the chain.
- Poor shelf life of products and lack of farmer’s awareness and knowledge.
- Lack of storage and other post harvest facilities, absence of innovative technology including cool chain, poor and uneconomic handling, transportation, storage etc. causing post harvest losses in food products.

Further to have an objective and rational set of ideas and conclusions in the research work a Convergence of Sciences Approach is adopted. Convergence of
Research Methodology

sciences is an agricultural research approach based on the understanding that agricultural innovations (i.e. technology, procedures, new forms of organization and new ways of interacting) are generated through strong multi-stakeholder participation in agricultural development. (Roling et al., 2004)

For a comprehensive approach to resolve the issues and problems related to farmers, a sociological approach is also adopted to find that the farmers and local communities are also active partners in the problem solving process. Besides some local Self Help Groups also play their role in reforming and solving the problems of farming communities in cooperation with local financial institutions and government sponsored schemes.

Although some past approaches have recognized the importance of socio-organizational systems such as input supply, credit systems, marketing and land tenure, these systems tend to be considered as “external”. The unique aspect of Convergence of sciences is that it includes and treats institutions and social relations as integral components of innovations, thereby altering the boundaries and conditions that affect the space for change. (Van Huis et al., 2007)

The aim of the current research is to look at the prospects for convergence of sciences under market-driven conditions peculiar to Indian setting with special reference to resources from Management and Law disciplines. An attempt has been made to draw some guidelines for making sound legal policies which will help enhancing food Supply Chain mechanism in India.

The above analysis provides some assistance on key issues to address in improving conditions for growers in a contract farming scheme. At the end of the study, it has to come forward with some suggestions and policy recommendations for making contract farming fairer and more viable and efficient for backward linkages of Food Supply Chain.

From the selected resourceful articles that span a little more than two decades, from 1991 to 2011, more than 100 articles and around a dozen books were analysed on the subject of Food Supply Chain Management and after screening them, only about 80 references on food supply chain were found pertinent in terms of their scope, data and conclusions.
4.5 Data Collection Method

The methodology of the paper is predominantly based on secondary data available by different sources. Literature review of major works is done by collecting information from the libraries and research centres covering the above subject matter. The research is carried out with detailed scrutiny of all the international norms relating to food safety, health, and justice and its impact on the environment and sustainable development. A combination of secondary data and case studies research method is followed for this research work. The data collected through these sources are subject to rational analyses, followed by suitable interpretation of results and preparation of conclusions.

The pertinent quantitative and qualitative information has been obtained from the secondary sources at national level. The main Sources are:

1) Ministry of Commerce, Govt. of India, New Delhi.
2) Ministry of Agriculture, Govt. of India, New Delhi
3) Indian Council of Social Science Research, New Delhi
4) National Council of Applied Economic Research, New Delhi
5) Association Of Indian Universities, New Delhi
6) Agricultural & Processed Food Export Development Authority (APEDA), New Delhi
7) Financial daily, The Hindu Group of Publications,
8) Directorate of Marketing & Inspection, Faridabad, Haryana
9) National Institute of Agricultural Marketing, Jaipur, Rajasthan
10) NAFED ,New Delhi
11) Indian Agricultural Research Institute, New Delhi.

4.6 Secondary Data Sources

According to Rabianski (2003) Secondary Data is the facts and information based on research of primary data which include published work. For example secondary data composed of written materials such as research based articles, periodicals, books and journals are such that anyone can access to this data and it can be used for further research works and publications.
Immense research work has already been done on the food supply chain and other related issues such as organized and unorganized markets, contract farming, legal policies and framework in India. The present research has referred to these sources wherever found suitable.

Further, researches have been carried out with detailed scrutiny of all the international norms relating to food, safety, health, and justice. The major organizations such as WTO, FAO, UNDP, Indian government and semi-government agencies, NGOs, SHGs, Poverty Alleviation and Rural Development Programs and other such initiatives (in private or public sector) have been evaluated. All issues related to food security, sustainability and growth of entrepreneurship through SCM are considered thoroughly for the above study. The major sources of secondary data referred during the study have already been mentioned at the previous section.

The study has also heavily relied on published and unpublished material available at national level. The information related to Food supply industries which are routinely compiled by the agencies of Govt. of India viz. Ministry of Agriculture, Ministry of Statistics and Program Implementation, Planning Commission and Ministry of Commerce are noteworthy in this research. Some of these agencies also maintain and supply a computerized database. The data have been drawn from research reports, market research surveys, feasibility studies, dissertation abstracts, seminar papers, bulletins and specialized studies made by private as well as semi government and governmental bodies. The books, annual reports, directories and statistical yearbooks, in physical as well as soft form from internet, were searched and government and university researchers were consulted to supplement the available information.

4.7 Data Analysis

The present thesis work has tried to analyse the different tenets of legal studies and has scanned doctoral or post doctoral studies of law to use legal research tools such as interpretive methods to examine cases, statutes and other sources of law in an attempt to seek out, discover, construct or reconstruct rules and principles. The present work has synthesised business and legal methods to conduct descriptive
analysis and normative evaluation of the process of decision-making. This reliance on legal rules and principles turns much of law, legal reasoning and legal studies into a profound research activity.

The research is also influenced by many theories of law, particularly, those rooted in legal positivism and rule-based approach. These theories often hold that 'legal rules' are constitutive of law and that the force of rules is derived in general from their having been enacted by institutions authorised to make rules'.

The idea of law as a body of rules discoverable in books points to a further feature of our legal system, and that is the separation of law from everyday life or social situations. The rules, or the laws, exist separately from the social situations and they are called upon to resolve the issues which are confronting the growth and development of society based on modern maxims of business and commerce. Legal institutions cannot grow and develop in isolation.

Further to resolve the problems associated with food supply, Legal and Sociological approaches are also used which are based on the assumption that law exists in, and is developed through different aspects of society. Law is regarded as a social practice, to some extent it both reflects and seeks to shape society, i.e. it is almost impossible to understand law without understanding the other institution of society with which it operates. Law and sociological approaches are used in discovering 'law in action' as opposed to just 'law in the books'.

4.8 Interdisciplinary Legal Study

Some legal researches draw on the literature and methods of other related disciplines, in particular other social sciences such as political science, sociology or economics, or history. Interdisciplinary legal research may take many different forms, and the 'legal' elements of the research may become so incidental that we might argue that the work has ceased to be a research project of the discipline of 'Law' at all.

An interdisciplinary approach may bring significant insights that are not available in the context of a purely doctrinal or 'black letter law' approach of legal studies. However, there may also be significant drawbacks in pursuing an interdisciplinary project, not least the need to be sufficiently expert in two distinct
disciplinary fields such as Law and Management, both disciplines with their own discourse and their own body of literature. Care has been taken with regards to how effectively concepts from one discipline can be transferred to another. For example, the concept of 'efficiency' ‘accountability’ ‘performance’ etc. may have very different connotations in Law and Management disciplines.

4.9. Hermeneutics Approach

Hermeneutics is defined as "a term that is drawn from theology and that when imported into the social sciences is concerned with the theory and methods of interpretation of human actions. It emphasizes the need to understand from perspective of social actors." (Bryman and Bell, 2007)

Hermeneutics is concerned to qualitative analysis of situations and events through the interpretation of texts, questionnaire or interview responses etc. to develop a better understanding of certain phenomenon of interest (Behumi, V., Holten, C., 2004). It emphasizes constructivist approach, which means that there is no clear-cut objectivity or reality (Cassell & Symon, 1994). The research is based on case studies. It has also used a few theories and concepts to offer clarity to the knowledge, on which our findings will be interpreted. The current study involves a qualitative research. In the light of above procedure, hermeneutic approach of knowledge development best fits to the current study.

4.10. Methodology for Drivers of Green Food SCM

In this particular area, the methodology of Interpretive Structural Modelling (ISM) is used. ISM was developed for complex situations as a communication tool. The mathematical foundations of the ISM methodology can be found in various reference works (Harary et al, 1965), while the philosophical basis for the development of this approach has been presented by Warfield (1973). ISM is used for policy analysis (Hart and Malone, 1974; Hawthorne and Sage, 1975). The main benefit of the ISM methodology is that it transforms unclear and poorly articulated models of system into visible and well-defined models. (Sage, 1977)
4.11 Limitations

The information related to the Food SCM and its legal policies with reference to backward integration has earlier not been gathered in a truly scientific specification very exhaustively. Therefore the present study should not be considered as an accurate measure of the problem studied or an ultimate source. The results and conclusions might be tested through further conclusive investigations. The main difficulty has been to collect all the necessary information from government agencies and relate it with current food problems related to industry and farming communities. Although the researcher has tried level best but the latest information especially the food stock and its proper supply which is meant to mitigate any shortfall in food supply is not utilized in an earmarked way. Successfully implemented Contract Farming is considered by many agricultural scientists as a crucial means for industrializing agriculture. It can be a viable venture for the producers (farmers) as well as for the manufacturers (industrialists), as believed. It is regarded as a strategy for agricultural transformation in developing countries because it has the potential to solve agricultural marketing problems also. But the above argument has repeatedly been defied and the reverse is not uncommon in agribusiness. Therefore, the present study on ‘food SCM for backward linkages — policy implications and legal framework in India’ guides to further intensive and conclusive studies.

References

2) Bryman, A. Bell (2001), Social Research Methods, Oxford University Press. New Delhi


