CHAPTER-1

RESEARCH DESIGN & METHODOLOGY
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This chapter highlights the importance of ancillary in the overall industrial development and focuses on related problems in buyer-supplier relationship, which have a bearing on the whole scenario. Against this backdrop, the research problem is defined and review of selected literature on ancillarisation is given. Purpose of the research, objectives of the research, formulation of the hypotheses, methodology, scope of the study, limitations of the study, concepts used in the study, scope and limitations of the study and plan of the study also have been dealt with.
1.1. Introduction:

Ancillarisation is a part of small industries development programme. The objective of ancillary development is also therefore synonymous with the overall objective for the growth of small industries, i.e. capital formation, growth of employment opportunities, development of entrepreneurship, dispersal of industrial activities particularly in the backward areas of the country etc. In addition, growth of ancillaries results in certain special advantages relating to complementarity of output to bring about reduction in cost, development of specialisation in specific fields, creation of cadres of single discipline experts and reduction in gestation period of setting up small scale units. Establishment of industrial activity by the ancillaries also generates tertiary activities in the backward areas. The ancillary development programme therefore deserves increased emphasis.

Ancillarisation is an important feature of modern organisation of manufacturing industry. The structure of modern large / medium scale manufacturing units is such that they require a wide range of components, parts and subassemblies in huge quantities, which they need not necessarily manufacture in their own works. They might be more conveniently and economically procured from small-scale supplier units at comparatively cheaper cost. Thus a type of inter-firm relationship, where large number of small firms help a given large business, which has also been given the name of ancillarisation is universal in character.
With the advent of new economic policy and striving for competitive excellence, necessitated by the opening up of the economy, firms have to look for new cost efficient ways faster than it has been before. With the kind of revolution in the areas of technology and management practices that are taking place across the world, it has become both a possibility and a necessity to manage industrial units at desegregated levels starting from sourcing of inputs to the final sale and after sale service. An important benefit of this development is the scope to specialise not only product-wise but also process-wise to reduce unit cost of production at all levels. In this quest for creating and sustaining competitive advantage large producers increasingly concentrate on their “Core Activities”, which usually include design, assembly, marketing and the production of some key components and outsource an increasing range of inputs, components and services. Ancillarisation enables a symbiotic co-existence of large and small industries in their respective areas of specialisation.

“Ancillarisation”

Ancillarisation is a sub-set of sub-contracting. Ancillarisation refers to a type of interfirmer relationship where large/medium firms procure manufactured components sub-assemblies and products from a number of small-scale industries. In some cases ancillaries are associated with 'Job-Work' where a ‘parent’ firm provides the necessary raw materials to small firms which return these materials after turning them as per the required technical specification, at a pre-determined rate. These transactions between firms of different sizes are not random or occasional business deal but are much more permanent and often collaborative relationships.
Ancillarisation is feasible in industries where the production process is divisible and/or the final product, as described earlier, is constituted by a number of parts and sub-assemblies.

**Ancillary unit:**

The dictionary meaning of the word “ancillary” is subserving, subsidiary and helpful. In general it refers to industries which work as a link with a large manufacturing unit.

An ancillary unit as defined by the Government of India, is an “undertaking having investment in fixed asset in plant and machinery not exceeding Rs 100 lakhs and engaged in a) manufacturing of parts, components, sub-assemblies, tooling or intermediaries, or b) rendering of service and supplying or rendering or proposing to supply or render 50 percent of their production or the total service, as the case may be to one or more other industrial undertakings for production of other articles, provided that no such undertaking shall be a subsidiary of or owned or controlled by, any other undertaking” (Notification No. 857 dated 10.12.97).

Ancillaries usually undertake manufacturing only on receiving orders from their parent firms. Normally the items manufactured by ancillaries are not patented; nor do they produce for the ‘market’, which can be purchased ‘off the shelf’. In this sense ancillaries are not ‘independent producers but appendages to their parent firms. They are a logical extension of firm’s capabilities so as to enable the firm to concentrate on their core competence. To a large extent the growth process of ancillaries circumscribes the survival and growth of their parent
firms. Any effort to promote calls for studying the factors, which have promoted or inhibited its growth.

**Benefits of Ancillarisation:**

Ancillary units occupy a pivotal place in the overall industrial development. Their importance lies in the provision of employment, promotion of entrepreneurship, low capital requirement, generation of foreign exchange resources, dispersal of industries and value addition. These are also the benefits derived from the development of small-scale industry. But the benefits of ancillarisation goes one step ahead leading to sustainable development of small-scale sector.

The benefits from ancillarisation can be classified at three levels.

a) Large/Parent firm level

b) Small firm level

c) Economy level

**a)** Large firm level/Parent firm level: Large firms have a number of reasons for Outsourcing.

➢ **Gains from Technological Specialisation:** Firms may prefer to buy certain parts and components from specialised suppliers, if they do not have the know-how to produce these
items in-house. Theoretically, they might just as well try to acquire the necessary know-how, but if this implies high costs, it may be good policy to collaborate with specialised partners.

- **Gains from economies of scale:** Mutual specialisation leads to economies of scale and lower unit costs. A specialised parts manufacturer may supply various large firms and thus produce larger quantities.

- **Reduction of wage costs:** Small supplier firms often pay lower wages than large companies, partly because their workforce tends not to be unionized. In some cases, breaking the power of trade union is the main reason to shift from own production to outsourcing.

- **Production smoothening:** Sometimes large firms only use ancillaries temporarily if their own production capacity reaches a bottleneck. In this case, the ancillary produces goods, which are usually manufactured by the parent firm. In cases of irregular demand, the parent firm can accept almost every order and guarantee an optimal utilisation of his own production capacity, outsourcing all eventual excess demand. Supplier firms may also be hired in case of unexpected losses of production, caused by machinery defects, strikes and so on.
b) **Small firm level:**

- **Assured Market:** By tying up with parent units, small-scale units can have assured long-term market. This type of relationship is of great help to the new units who usually suffer from brand acceptability by the consumers.

- **Reduction in transaction cost:** These include:
  - Less expenditure in marketing and advertising
  - Sometimes easy access / availability for raw material procurement with the help of the parent unit
  - May get easy access to parent unit’s technology
  - May get financial, technical and other assistance

- **Allows Specialisation:** By concentrating on a few activities small-scale unit develops specialisation. Specialisation being governed by division of labour, experience and learning by doing.

- **Technological and Managerial benefits:** The supplier may commit to technological investments for getting business from buyers that would otherwise not have been made in the usual course. In addition, the existence of the relationship sometimes allows opportunity to access or exposure of the small-scale units to certain information resources within the buyer unit’s environment.
b) Economy level:

The benefit at the economy level is derived from the above two. It occurs in the form of increase in employment, proper division of labour, economies of scale, entrepreneurship development, favorable regional income distribution, higher competitiveness etc.

These benefits can be only derived by smooth and stable transactions between parent firms and their ancillaries. This can be explained by the buyer action attributes and supplier action attributes. The buyer action attributes and supplier action attributes are the actions to be taken by the parent firms and their ancillaries for those transactions, which can promote ancillarisation. The parent firm in which, buyer action attributes are significantly present and their ancillaries in which, supplier action attributes are significantly present will lead to stable and smoother transactions. This type of inter-firm relationship will lead to frequent deliveries, reliable deliveries, small and exact quantity, reduced delivery time, elimination of receiving by inspection, reduced paper work, timely payment, and long term relationships which promotes ancillarisation.

1.2. Research Problem.

“Ancillarisation: A Case Study of North Karnataka Industrial Area”.

World Class companies know that the quality of their products and services is directly related to the quality of their ancillaries and the products and services they provide; however, the question remains whether any organization has truly reaped the full benefits of
the competitive advantage available by creating interdependent relationship. The answer to this is probably no, but a number of Japanese companies particularly in the automotive and electronics industries have come close. One such example is Toyota and its suppliers. In 1988, there were 713 thousand smaller firms in the Japanese manufacturing sector employing 13 million persons in comparison to a total of 371 thousand firms employing 24 million persons in the United States of America (U S A) during the same year. In Japan, 58% of the entire workforce was engaged in industries which employ less than 100 workers, whereas in U S A, the percentage was only 20. Such a high degree of small industry development in Japan has become possible because of heavy reliance on outsourcing and maturity of ancillaries to offer what is required. Korea, for instance, has successfully emulated the Japanese practice to promote ancillarisation. The success of the ancillarisation in developing small and medium industries along with large industries in Japan has become a lesson for others. Moreover, the foregoing portrayal of the ancillarisation in Japan are certainly different from the version idealised and popularised in less developed countries.

Inspired by the Japanese and Korean successes, ancillarisation has been recommended, for developing countries like India as a mechanism for widespread industrialization and employment generation. For example, Maruti Udyog owes, to a large extent, its fast growth in the passenger car manufacturing field to successfully phasing out its manufacturing operations to the ancillaries.

Ancillarisation although observed to be beneficial to the participants in Japan, Korea and India, in Indian context its commercial application is limited. The concept of ancillarisation
has not been able to make much headway in implementation inspite of the spirit with which it was advocated and discussed often. There is widespread belief that with the establishment of a strategic relationship between the two sectors of the economy, sustainable competitive advantages can be achieved. A moot question in this connection is why ancillary networks comparable to the Japanese one in breadth and depth have not developed in India?

The buyer and their supplier units continue to malign each other for the lapses in their business transactions. Hence, in India with the exception of few industries, ancillarisation continues to be at a disorganized and underdeveloped stage. In reality, it appears as though the relationship has been more exploitative in nature.

It is also found that neither the parent-firms nor small firms, functioning, as ancillary units prefer the ancillary status, while registration, particularly in private sector. Also there is no monitoring system for obtaining data on the efforts of ancillarisation made by the private sector industries. And eventhough the institutions such as Sub Contract Exchanges (SCEs) have been set up with a primary objective of forging linkages between large/medium sector and small scale sector, their contribution in promoting the process of ancillarisation is negligible. Also there is no separate industrial policy on ancillarisation. The physical and mental construct or relationship between the parent unit and ancillary has to be taken note of and there is a need, a careful policy has to be evolved to forge a long-term mutually beneficial alliance.
Ancillaries face a variety of constraints that adversely affects their growth prospects. Some of these constraints are internal to the firm while others are induced by practices followed by parent firms and the policy and institutional environment. Inadequate capabilities, lack of awareness of market requirements and weak managerial practices are some of the limitations to growth that are internal to the firm. Demand shocks due to market fluctuations are passed on to suppliers, delay in payments is very common. Typically, parent firms having linkages with ancillaries have a tendency to squeeze the later. There are cases where ancillaries have not been paid for years let alone months. The example that can be cited here is that of Mysore Kirloskar and its ancillaries, which is located in the study area. The ancillaries of Mysore Kirloskar have been literally squeezed due to undue delay in payment by the parent units and parent firms are also reluctant to provide technological support to their ancillaries. Such short-term perspective arising out of lack of long-term thinking results in a situation where stable relationships between ancillaries and parent firms, which are mutually rewarding, do not develop. It must be pointed out that wherever parent firms have taken a longer-term perspective and have helped the ancillaries, benefits have accrued to both the entities. Policy related constraint range from general inadequacy of infrastructural support like power, water transport and communication to imperfections created by policy related to credit, tariff and product reservation. Absence of co-operation amongst ancillaries has also prevented them from alleviating some of their common problems like training, availability of manpower, etc.

The importance of ancillary industries has been growing tremendously in the Indian economy and in view of the high technology inputs now going into the industrial sector, removal of
the trade barriers, there is a need for having a fresh look into the health of the ancillary sector of our country.

The Government has liberalised its policy towards small industries to bring about better co-ordination between small sector and medium/large sectors. The small-scale sector has to rise to the challenge of ancillarisation process now evolving in the country. They should think big and grow bigger. It has been seen that the vested interest in small-scale sector want to remain small because of the protective shelter. But protection cannot be forever. It creates a permanent interest in remaining an inefficient and incompetent unit in order to enjoy the benefits that go to the weak.

There is a need for forging linkages between the small-sector and large sector so that the transition of small into big becomes easy and even automatic. Well conceived programmes of ancillarisation are standard practices all over the world. Even in India this has been tried with a fair amount of success. What needs to be done is to make it the key mechanism for creating a symbolic and synergic relationship between big and small?

The above trends indicate new issues for the ancillary units. The issues that this sector faces can be summarised as below:

1. **Policy Issues** - The development of ancillarisation in general and ancillary units in particular needs to be organised and structured by evolving a careful industrial policy,
2. **Demand fluctuations of parent firms** - Ancillary units have to devise strategies to tide over fluctuations in parent-firm's demand cycles;

3. **Quality, Safety and Environment** - Meeting the increasingly stringent requirements on quality, safety and environment, delivery and cost; in addition, firms will have to clean the cob-webs from their accounting systems as more and more parent-firms are demanding from their ancillaries data on plant performance, ccst structures, process capabilities, defect related details etc;

4. **Finance** - There will be a need to raise adequate finances for investment to meet the growing demand; and

5. **Alliances** - In export markets, ancillaries will have to either invest or enter into alliances with distribution partners in other countries if they have to meet the just-in-time delivery requirements of customers.

**1.3. Review of Selected Literature on ancillarisation:**

Several studies were conducted on ancillarisation particularly after the 1970's. Many of these studies have been published as monographs articles, dissertations, reports and books.

A study conducted by Annavajhula JCB (1) traced the development of ancillaries in Japan termed as ‘Keiretsu’. This study provides information about nurturing of ancillary units by the
parent companies as the ancillaries are getting technically face lifted and the parent units are becoming just 'marketers', shifting manufacturing to their ancillary units.

A moot question in this connection is why ancillarisation comparable to the Japanese one in breadth and depth has not developed in India.

However, the question remains whether any organisation has truly reaped the full benefits of the competitive advantage available by creating this type of interdependent relationship. The answer to this is probably no, but a number of Japanese companies particularly in the automotive and electronics industries have come close. The basic philosophy lies in developing long-term stable relationships.

A study conducted by Tilma Altenburg (2), on “Promoting ancillary industries in developing countries”, provided international policy experiences in the field of ancillarisation. Based on the survey conducted in various developing countries, the author has highlighted the following issues with reference to ancillarisation;

- Linkages between ancillary units and their parent units were extremely weak.
- Further the author commented on the working of Sub-Contract Exchanges and in his findings highlighted the inefficiency of Sub-Contract Exchanges in promoting ancillarisation. This study was conducted at macro-level and this study failed to probe into micro-level issues relating to specific regions and industries.
Most of the early studies on industrial development in India did not touch upon the question of ancillarisation. Probably Rosen’s (3) study in the year 1959, was the first attempt to look into the issue. Based on his visits to a number of factories in Bombay during 1955-56 he observed that large firms tend to produce most of the requirement within their plants. Hence the level of ancillarisation was low.

On the basis of his study (1958) of small firms in Delhi, Dhar (4) concluded, “Indian manufacturers preferred integrated plants as they were easily available on import with or without foreign aid”. James Berna arrived at a similar inference from his study of entrepreneurship in South India. He found that even the smallest metal working units had their own foundries although these were utilised only for about three months in a year (5). The Japanese delegation to recommend policy for small industries (1959) had a similar remark to make.

In 1959, the Engineering Association of India, the then leading association of major engineering firms, conducted a survey of all engineering units employing 20 or more workers with power to obtain a detailed statistical account of the industry. Its report noted that “the level of ancillarisation is very low and the progress made so far in this direction, barring some notable exceptions, has been negligible”. Later in the late sixties, surveying the literature on small industries in India, Fisher (6) also found that very little was achieved in developing ancillarisation in manufacturing industries.
R Nagaraj (7) in his Preliminary study on ancillarisation in Indian Manufacturing industries (1984) explained the meaning of ancillarisation, its distinguishing features, the different form it takes in different industries. His study contains evidence on the development of ancillary units in Indian industry, documented from a number of secondary sources. His study provided directions for further research in this area by posing number of questions, which need to be answered to arrive at a better understanding of this dimension of industrial change. Based on this study the issues that need to be addressed are: The factors that promoted or inhibited growth of ancillary units, and the extent of growth of ancillary units in different regions and in different industries.

His study revealed evidence on the development of ancillarisation in Indian Industry, documented from a number of secondary sources. Although there is an evidence of an increasing trend towards ancillarisation in Indian manufacturing industries, it does not seem to be sufficient to make a generalisation. This study was carried out at macro level and it failed to probe into various issues of ancillarisation. There is a need to conduct micro level studies of specific firms, industries and regions, to find out if they provide further insights into the issue.

Another study was conducted by Nagaraj R, on subcontracting practices in Indian Manufacturing Industries, the Bangalore Experience', in the year 1989. This study was conducted before the liberalisation policy of Government of India and this study also
suggested a need for conducting periodic micro level studies, of specific industries and regions to provide further insights in this area (8).

A special report on ‘Subcontracting Practices by Indian Industries – A Survey’ (9) undertaken by National Productivity Council (NPC), research division explained Japanese and Korean success stories on ancillarisation and based on the survey of 500 parent units selected on a random basis from the various parts of the country, highlighted the following issues:

1. Ancillarisation is prevalent mostly in the engineering sector of the Indian industries.

2. Government sponsored Sub-Contract Exchanges have had only a limited role in promoting ancillarisation in the country.

3. Further the study identified lack of maturity of ancillary units and revealed that the subcontracting in India continues to be at a disorganized and underdeveloped stage.

This study was conducted at macro level and survey was conducted for parent units only and failed to probe into the issues of ancillary units.

Rinan McIvor and others (10) in their study on western Companies found that “Supplier Buyer relationships of ancillary and the parent units, develop overtime, rather than overnight”. ------ “Companies need considerably longer term to have more experience of its
application.” This study also emphasised the need for supplier evaluation and supplier development programmes to be developed by the buyer on continuous basis to have a close and collaborative relationship.

N V N S Dev (11), in his article on, “Ancillary development – Some issues and suggestions provided the information on development of ancillary units in India, from the data collected from secondary sources. This study highlighted the problems of parent and ancillary relationship and gave suggestions to promote the development of ancillary units.

This article discussed the issues relating to ancillary units of public sector undertakings only, and failed to probe into the ancillary units of private sector undertakings.

Richards and others in their study on New United Motors Manufacturing Inc. (NUMMI) and its suppliers demonstrated a system, where ancillaries were integral part of the system and control over the supplier were accomplished by interfacing and not interfering (12).

The logic on ancillarisation at Escorts an Indian experience was very well summarised in a popular article, “Ancillarisation has been the perfect strategy for generating funds for investment: all sales are against cash but the company gets 30 days credit from suppliers”. Result: most years the company does not need to go to a bank for working capital and in fact has a credit balance. This saves crores in interest charges, money that can be invested for growth. Increase in tractor capacity from 20,000 to 34,000 will be financed entirely through
company’s own funds” (13). The question that can be raised at this junction is, when parent firms are deriving the benefits from their ancillaries, why ancillaries should not also be benefited?

S Majumdar (14) in his article on, “Japanese model can be an ideal survivor”, suggested that, “Small-scale sector should work more as a supporting industry rather than a producer of finished goods, otherwise it will face a tough time in the free import regime, starting April 2001 and will also lose its significance. In this article he highlights Japanese government’s effort in formulating a basic law for small enterprises in 1963. This law embodied a three pronged approach to developing small enterprises to face the competition from imports, and foster them as a support to the large-scale industries. The aim of this approach was to modernise and structurally strengthen these enterprises, strengthening their finances and increasing the government and public sector procurement from them.

A study conducted by NPC Research Division on “Sub-contracting: Emerging Issues in the Indian Context (15), provided following vital information on ancillarisation. “Ancillarisation, a sub-set of sub-contracting, has a longer term relationship between the buyer and the supplier with guaranteed steady off-takes” and explained the inefficiency of existing Sub-Contract Exchanges in promoting ancillarisation and suggested a need to develop separate industrial policy for ancillary units. This study criticised a lack of structured and systematic application of ancillarisation in India but failed to provide any concrete suggestions required for promoting ancillarisation.
Various studies (16, 17, 18) suggested that, compared to arm’s length relationships between ancillary units and their parent units, partnership style relationship results in better performance because the partnership firms—

- Share information and are better at co-ordination of the interdependent tasks.

- Invest in relation specific assets which lower cost, improve quality and speed up the production development process.

- Rely on trust and mutual confidence in each other, to govern the relationships resulting in minimisation of transaction costs.

Based on the work of Stamm and Golhar (19), buyer-supplier relationships between ancillary units and the parent units can be characterised by the sets of attributes. Buyer action attributes of the parent unit and supplier action attributes of ancillary unit. The units in which these attributes are significantly present would promote ancillarisation.

A study conducted by Subhash C Mehta and others (20) has identified 65 attributes for evaluating the suppliers and grouped under six major headings. Out of the 65 attributes presented, this study identified the most important supplier attributes, which were taken in this research study. The present research study is based on this work. The limitation of this study was, as the attributes were more in number it was practically difficult to measure them to find out the credibility of the suppliers. Moreover, this study had only identified the
supplier attributes and it failed to probe into the details of these attributes and also it had only identified the supplier attributes. Where as a study conducted by Dixit Garg and others (21), on 'vendor relations in managing faster supply chain', had identified, a buyer-supplier relationship can be characterised by sets of attributes which are called as supplier action attributes and buyer action attributes. This study highlighted that, "vendor is an important link in the entire supply chain part and accordingly has to be given due weightage in managing the supply chain effectively". In this supply chain, the vendor assumes a prime position, as organisations are critically dependent on him. It is necessary to review the vendor relations from the supply chain perspective. Based on the survey of Indian Industry, the author had highlighted sets of attributes relating to buyer and supplier of parent unit and its ancillary. But this study failed to probe into the details of these attributes. The present study is conducted to bridge this gap. The details of Buyer action attributes and supplier action attributes are depicted below.

1.3.1. Buyer action attributes:

The Buyer action attributes are measured for the parent unit. Based on the previous studies, ten attributes, which are important for promoting ancillarisation, were taken in this study. These attributes are the appropriate actions to be taken by the parent-firm/buyer for developing sustainable relationship with the ancillary/supplier for successful implementation of ancillarisation from its side. Each attribute is classified into three classes: a, b and c. Here a denotes that, the particular attribute is significantly present, b denotes that the particular attribute is moderately present and c denotes that the particular attribute is insignificantly
present in the parent unit. These ten attributes are measured for the parent unit/buyer as perceived by the ancillary/supplier and are given below.

1. Economic Related attribute (Price revision practices)
2. Supplier Evaluation attribute (Supplier Evaluation)
3. Supplier audit attribute (Supplier Plant audit)
4. Convenience Related attribute (Frequency of schedule given)
5. Finance related attribute (Payment pattern)
6. Reliability Related attribute (Meeting credit period)
7. Assistance Related attribute (Assistance provided to suppliers)
8. Training related attribute (Supplier Training)
9. Stability related attribute (Variation in Quantum of orders)
10. Dependability related attribute (Component supplier ratio)

1.3.2. Supplier action attributes:

The supplier action attributes are measured for the ancillary unit. Based on the previous studies, ten attributes, which are important for promoting ancillarisation, are taken in this study. These attributes are the appropriate actions to be taken by the ancillary/supplier for
developing sustainable relationship with the parent unit/buyer for successful implementation of ancillarisation from its side. Each attribute is classified into three classes: A, B and C. Here A denotes that, the particular attribute is significantly present, B denotes that the particular attribute is moderately present and C denotes that the particular attribute is insignificantly present in the ancillary unit. These ten attributes are measured for the ancillary unit/supplier and are given below.

1. Technology related attribute (Extent of Technology)

2. Reliability related attribute (Rejection rate)

3. Commitment related attribute (Meeting delivery schedule)

4. Service related attribute (Communication mode)

5. Capability related attribute (Period of investment in plant & Machinery)

6. Human Resource related attribute (Incentives to labours)

7. Dependability related attribute (Lead-time required for the supply)

8. Quality related attribute (Type of Quality Assurance Programme)
9. Value related attribute (Frequency of Productivity Improvement Programmes)

10. Caliber-related attribute (Type of maintenance)

From the literature survey we can conclude that, some of the evidence presented here consists of macro level data. While the rest of it is based on case studies of firms, regions and sectors of industries collated from very diverse sources. Since the role of ancillarisation is inadequately appreciated very little comprehensive and reliable information is available on this aspect. The official data is seriously unreliable and incomplete. Even the few individual researchers studying the ancillary units in India have not focussed sufficient attention on this problem.

Some of the studies conducted in this area are in the public sector undertakings and no serious attempt was made to study the ancillary units of private sector undertakings. The reason may be since a sizable proportion of the small-scale industries, undertaking ancillary work do not register under this category, also they may consciously avoid acquiring this status and cultivate a large number of customers to reduce the risk of market fluctuations. It is also possible that parent units especially in the private sector may not welcome the small-scale units to register as their ancillaries, since they do not want the ancillaries to get liquidated during periods of recession.

Although the evidence adduced so far does seem to suggest an increasing trend towards ancillarisation in Indian manufacturing sector, it doesn’t seem to be sufficient to hazard a
generalisation. One way to overcome the problem of lack of aggregated data is to supplement it with micro level studies of specific firms, industries and regions, to find out if they provide any further insights into the issue. This study is undertaken to bridge this gap.

Available literature shows that ancillaries have played and are playing major role in the excellence achieved by the company. As it is well said that there is a woman behind every successful man so also there is an ancillary behind every successful business.

1.4. Purpose of the study:

**Impact of WTO:** The entire small-scale sector will face a tough time in the free import regime, starting April 2001 due to new EXIM Policy 2000-01 towing World Trade Organisation (WTO) lines. It is time India remodeled its approach towards small-scale sector which so far, has remained protected to meet the twin objectives of enhancement of employment and dispersion of industries. It is now imperative to develop the small-scale sector to strengthen a vertical integration between large and small-scale sectors, rather than infusing competition between the two. The small-scale sector should work more as a supporting industry rather than a producer of finished goods. Consequently, the large-scale sector will protect them for their own interest, towing WTO lines. This will lead to sustainable industrial development.

Therefore with the advent of economic policies and the surge in industrial growth there arise a strong case and also enormous scope to promote ancillarisation. Ancillarisation has to be
understood as an integral element of the growth strategy of the firm in the larger context of the organisation of production and industrial change. Therefore we need to have a sounder empirical basis to probe into various issues of ancillarisation in different industries, in different regions at micro Level.

In India too, there are successful instances of ancillarisation. Yet, its commercial application is not widespread in the country. That, if rapid progress is not made by ancillary units in this important strategic area due to lack of maturity, they are likely to fall further behind in the race for sustainable competitive advantage.

Therefore this study is undertaken for the following reasons:

1. Considering its significance for the rate and the pattern of industrialisation, the attention it has received in Indian studies is quite inadequate.

2. Since the role of ancillary unit is inadequately appreciated very little comprehensive and reliable information is available on this aspect. This micro level study will provide further insights into various issues.

3. The research work in this area is quite inadequate due to lack of funding and even few individual researchers studying this sector of industry in India have not focussed much attention on this problem.
1.5. Objectives of the Study:

1. To assess the extent of growth of ancillaries in engineering and allied industries.

2. To find the various factors that have promoted or inhibited the growth of ancillaries.

3. To study the type and extent of Supplier action attributes of ancillaries and Buyer action attributes of the parent-firms.

4. To assess the type and extent of transactions between the ancillaries and their parent units.

5. To assess the effectiveness of institutions such as Sub-Contract Exchange, in promoting ancillarisation.

1.6. Formulation of Hypotheses.

For the sustainable development of ancillarisation and to promote parent-ancillary relationship the parent-unit (buyer) has to invest and take appropriate actions for the development of ancillary units (supplier). These actions are termed as buyer action attributes. The buyer action attributes will lead to supplier action attributes and the ancillary (supplier) taking appropriate action will get more business from the parent unit (buyer) and it will lead
to growth in the value of sales of the ancillary unit. From the above proposition following two hypotheses were formulated.

1. \( H_0 = \) Supplier action attributes of ancillaries and Buyer action attributes of Their parent units are independent.

\[ H_1 = \text{Supplier action attributes of ancillaries depends on Buyer action Attributes of parent units.} \]

2. \( H_0 = \) Compounded growth rate in the value of sales and Supplier Action attributes of the ancillaries are independent

\[ H_1 = \text{Compounded growth rate in the value of sales depends on Supplier action attributes of the ancillaries.} \]

**1.7. Methodology**

**1.7.1. Sampling Plan:**

This study is based mainly on primary data. The population consists of all the ancillary units from the engineering and allied industries, engaged in manufacturing or production of parts, components, sub-assemblies, tooling or intermediates to other industrial undertakings in Belgaum division, which is the heart of North Karnataka. The study doesn’t cover the entire
population of ancillaries in North Karnataka on account of limitations of resources and time. The study was based on limited sample coverage of units. Sample frame was prepared taking the help of personnel from District Industries Center. Quota sampling technique was used for drawing the sample. Sampling unit taken for the study was an ancillary unit. The population size was 833 and the sample size taken was 15%.

1.7.2. Questionnaire Formulation & Data Collection:

The data was collected by administering the structured questionnaire on a sample of ancillaries (engineering and allied manufacturing industries) from the population of 833 units, registered prior to 1995 in the Belgaum division. The reasons for taking the ancillaries registered prior to 1995 was, at least five years time period was needed for the relationship to develop between the parent firm and an ancillary unit. The relationships can be studied over a time frame to make the studies conclusive hence a period of five years (1995-1999) was choosen, so that meaningful analysis could be made out of it. It was also found during exploration survey that, it was possible to get the data of recent five years, from the ancillary units.

The process of Questionnaire formulation involved several phases. First a preliminary draft of the research instrument was generated by review of existing literature on ancillarisation. Secondly, the list of questionnaire items was finalised with the help of two professional managers, and two academicians familiar with research on ancillarisation. Thirdly, the pilot
survey was conducted with five ancillary units to ensure that the questions were relevant & phrased in a meaningful manner. As a result the questionnaire was refined on the basis of all problems & issues raised.

Personally administered interviews were employed to achieve higher respondent participation and to generate quality of data. During the process of data collection, emphasis was placed on the identification and selection of the most appropriate individual in each respondent firm to provide the information needed. The researcher conducted all interviews, and special attention was given to minimising the chance of interviewer bias. The Questionnaire, which is given in the annexure-1, is divided into three parts. The details are given.


**Part II** - Details of Parent units and their Buyer action attributes as perceived by the ancillaries. In cases, where ancillary was supplying to more than one industrial undertakings, the key personnel of the ancillary unit was explained clearly the role of the parent unit. After discussion he was asked to name the principal customer who was regularly transacting with him for a longer term with whom he had more commitment and that unit was written first in the questionnaire and was also taken as a parent unit. Other customers were written in the order of preference.
In order to enable measurement the points were assigned as \(a=3, \ b=2, \ c=1\) for the each three classes of the ten buyer action attributes. The buyer action attributes for all the ten attributes were aggregated based on the data collected during the survey. The units getting points in the range of 10-15 were considered as the units, in which the buyer action attributes were insignificantly present and were rated as low. The units getting points in the range of 16-25 were considered as the units, in which buyer action attributes were moderately present and were rated as medium. The units getting points, 25 and above were considered as the units, in which buyer action attributes were significantly present and were rated as high. Buyer action attributes were calculated for each parent unit.

**Part III** – Details of Supplier action attributes of the ancillaries.

In order to enable measurement the points were assigned as \(A=3, \ B=2, \ C=1\) for the each three classes of the ten supplier action attributes. The supplier action attributes for all the ten attributes are aggregated based on the data collected during the survey. The units getting points in the range of 10-15 were considered as the units, in which the supplier action attributes were insignificantly present and were rated as low. The units getting points in the range of 16-25 were considered as the units, in which supplier action attributes were moderately present and were rated as medium. The units getting points, 25 and above were considered as the units, in which supplier action attributes were significantly present and were rated as high. Supplier action attributes were calculated for each parent unit. Few in depth case studies were also developed to get vital information about the ancillaries.
The collected data was edited and then tabulated. Considering individual questions with hard statistical facts and the probable inferences makes the data analysis. Correlation and Chi-square tests were used to draw the inferences.

1.7.3. **Data Analysis**: The data processing was done on the computer (Pentium 3), having latest configuration. Software packages like Fox Pro, Micro-soft Excel were used for data processing and Statistical and Analytical calculations. The micro-soft word was used for text writing.

1.7.4. **Compounded Growth Rate (CGR)**

To calculate the growth in the value of supplies made by the ancillary units for five years, the Compounded Growth Rate (CGR) in the value of supplies is calculated by using the formula.

\[
\text{CGR} = \left[ \frac{U}{X} \right]^{1/T} - 1 \times 100
\]

Where \( X \) = First value, \( U \) = last value and \( T \) = Number of years.

1.7.5. **Coefficient of Correlation**

The Coefficient of Correlation is the measure to describe how well one variable is explained by another. When we are dealing with samples, the sample coefficient of Correlation is denoted by \( r \) and is the square root of the sample Coefficient of determination denoted by \( r^2 \).

\[
r^2 = a \Sigma Y + b \Sigma XY - n \bar{Y}^2 / \Sigma Y^2 - n \bar{Y}^2
\]
$r^2 = \text{Sample Coefficient of determination, } a = \text{Y-intercept, } b = \text{slope of the best-fitting estimating line, } n = \text{Number of data points, } X = \text{Values of the independent variable, } X = \text{values of the dependent variable.}$

$\bar{Y} = \text{Mean of the observed values of the dependent variable.}$

Sample Coefficient of Correlation $= r = \sqrt{r^2}$

$r^2$ measures the strength of a linear relationship between two variables. In this study the two variables considered were investment in plant and machinery, value of the independent variable and Compounded Growth Rate in the value of sales, value of the dependent variable.

1.7.6. Degree of association and chi-square test ($\chi^2$)

The degree of association between two attributes was obtained by using the Co-efficient of mean square contingency as given by Karl Pearson, Which is denoted by symbol C. For obtaining the value of C we have to calculate the value of $\chi^2$ (pronounced as chi-square).

The formula used for obtaining C:

$$C = \sqrt{\chi^2 / N + \chi^2}$$

Where C= degree of association, $\chi^2 = \text{chi-square and } N = \text{Number of units in the sample.}$
\[ \chi^2 = \frac{\sum(O-E)^2}{E} \]

\(O\) = Actual Frequency; \(E\) = Expected frequency

In this study the degree of association between two sets of attributes, buyer action attributes and supplier action attributes was obtained by using the co-efficient of mean square contingency as given by Pearson and is denoted by a symbol \(C\). For obtaining the value of \(C\) the value \(\chi^2\) (chi-square) was calculated. In order to obtain the degree of association between Supplier action attributes and average Compounded growth rate in the value of sales made by the ancillary units the same procedure was used. The level of significance for testing the hypothesis taken was 5 per cent.

1.8. Study Area:

To begin with, the reconnaissance survey of North Karnataka Industrial area was undertaken. During the study, it was found that North Karnataka industrial area had a reasonably strong base of ancillary units from engineering and allied sector. And it was also found during the survey that, the Belgaum Division in North Karnataka had a concentration of ancillary units because of its proximity to industrially developed areas such as Pune, Bangalore, Bombay, Kolahpur and Goa. Because of its strategic location the study area offers wide scope for ancillarisation.

**Belgaum Division:** Belgaum is the Divisional Headquarters for the Revenue Division consisting the districts of Belgaum, Dharwad, Haveri Gadag, Uttar Kannada, Bijapur and
Bagalkot districts. Haveri and Gadag districts are industrially underdeveloped and offer no scope for ancillarization. Therefore the study area consists of Belgaum, Dharwad, Uttarkannada, Bijapur & Bagalkot districts.

1.9. Scope of the study:

The universe of the study consists of ancillary units from engineering and allied industries. The reasons for selecting this sector was that, during the pilot survey it was found that, Belgaum division offers wide scope for ancillarisation for engineering and allied industries. This study was undertaken with an intention to probe into the various issues of ancillaries belonging to specific sector, so that, there will be more focus and also the results of the study will benefit this sector. The study collected data on ancillary units, which were the direct source of supply.

1.10 Limitations of the study:

1. The study doesn’t cover the entire population of ancillary units in North Karnataka industrial area on account of limitations of resources and time. The study was based on limited sample coverage of ancillary units in Belgaum division. But the care is taken to ensure that the sample chosen is representative of the population.
2. The data was collected from the ancillary units established before the year 1995. The data was collected for a period of five years (1995-1999).

3. The study was conducted for ancillary units.

4. The ancillary units taken for the study were both from Public sector and Private sector undertakings.

1.11. Concepts used in the study.

The concepts used in the study include ancillarisation, ancillary unit for the ancillary of private sector enterprises, exclusive ancillary for the ancillary of public sector enterprises, parent unit, buyer-supplier relationship (parent ancillary relationship), buyer action attributes, supplier action attributes. The terms used are Compounded Growth Rate, Sub-contract Exchange and so on. These are elaborated in the second chapter.

1.12. Study Design

CHAPTER 1.

This chapter highlights the importance of ancillary in the overall industrial development and focuses on related problems in buyer-supplier relationship which have a bearing on the whole
scenario. Against this backdrop, the research problem was defined and analysis of selected literature on ancillarisation was given. Purpose of the research, objectives of the research, formulation of the hypotheses, methodology, scope of the study, limitations of the study, concepts used in the study, scope and limitations of the study and plan of the study also have been dealt with.

CHAPTER 2.

This chapter is devoted to clarify the concepts and terms; ancillarisation, ancillary unit, exclusive ancillary unit, parent unit, buyer-supplier relationship, buyer action attributes and supplier action attributes. This chapter also deals with the analysis of macro environment on ancillarisation.

The ancillarisation in Japan, Korea is discussed. Ancillarisation in developing countries in general and ancillarisation in India in particular has been analysed. Role of Governmental agencies in general and effectiveness of institutions such as Sub-contract Exchanges in particular also have been dealt with.

CHAPTER 3.

This chapter deals with the Study area of the Belgaum Division and its industrial scenario. This chapter also gives the detailed profiles of various districts in Belgaum division. It gives
an account of natural resources, availability of power, transport and communication, human resources and various developmental and promotional agencies for developing industries in this region.

CHAPTER 4.

In this chapter, an evaluation case study of the effectiveness of North Karnataka Sub-Contract Exchange, is carried out. This Sub-Contract Exchange has been set up with the primary objective of providing linkages between arge and small sectors of the industries and to promote ancillaryisation.

In this chapter the data collected by administering the structured questionnaire on a sample of ancillaries have been tabulated and analyzed. This chapter also deals with the testing of the two hypotheses, which were formulated based on the objectives of the study mentioned in the Chapter 1.

CHAPTER 5.

In this chapter thirteen case studies of ancillary units are presented. A case study of Superb industries which is an ancillary of Sundaram Clayton Ltd. is presented. This case study is an example of how significant efforts made in practicing buyer action attributes (by parent unit) and supplier action attributes (by ancillary) can promote inter-firm linkages and help
ancillaries to develop distinct competencies. Based on the extent to which supplier action attributes practiced by the ancillary units three models of ancillary units were developed. These three models are **Primitive model**, **Protective model** and **Progressive model**. The case studies of ancillary units belonging to three models are given. All these case studies were developed on the basis of visits to the plants of these firms, interviews with entrepreneurs, questionnaire-based data collected and documents that were provided by the firm.

**CHAPTER 6**

A report of the action research conducted on a selected number of ancillaries is presented in this chapter.

**CHAPTER 7**

This chapter aims to give several findings emerging, after probing into several issues on ancillarisation at macro level and micro level. The ten buyer action attributes and supplier action attributes identified for promoting ancillarisation are summarised. This chapter also gives the phases in the development of ancillary units.
CHAPTER 8

This chapter gives valuable suggestions for the development of ancillarisation and ancillary units. Based on the study conducted, specific strategies are developed and given for ancillary units, parent units and for policy making organisations. This chapter also gives directions for development and scope for further research in this area.

BIBLIOGRAPHY AND ANNEXURE

1.13. References:


