1.1 Importance of Agriculture and Agricultural Marketing:

Agriculture acts as a catalytic agent for economic development in any agricultural economy. ‘The experience of many developed countries like United States of America, Australia, Israel, is that it is the agricultural development in the initial stages till the take off stage that formed the foundation for further growth.’¹¹.¹ 'Agriculture is capable of making several contributions to economic growth, such as increasing food supply, transfer of labour resources to secondary sectors, leads to additional capital formation for other sectors and create additional purchasing power.'¹²

In India, agriculture is the backbone of the economy. It contributes nearly 21 % to the Gross Domestic Production with over 70 million people depending on it for their livelihood. It has contributed for industrialisation through the establishment of agro-based industries and food processing industries. Agriculture contributes nearly 18 per cent of the total foreign exchange earnings in India by exporting more than Rs. 35,000 crores worth of various agricultural and agriculture based products.

Indian agriculture has transformed itself from traditional subsistence farming to that of market oriented commercial farming. Under the circumstances it is the marketing of output, which plays a key role in the development of agriculture. Any commodity produced will be useless unless it is consumed or used. As such, an efficient agricultural marketing system is a pre-requisite for the development of agricultural sector.

¹¹ Nicholls, 1964.
An efficient agricultural marketing system may be defined as a situation where all the agricultural commodities produced are consumed with minimum wastage and least marketing cost, a farmer gets maximum share in consumers' rupee and the consumer gets the best quality product of his choice at a reasonable price. Hundred percent efficiency in terms of operations and pricing can be achieved in a perfect market conditions. But practically most of the times it becomes necessary for the Governments to interfere in the agricultural marketing system in one way or the other to bring in at least near perfect market conditions. It is here that policies and programmes of the Governments play a major role.

'An efficient marketing system can be an effective agent of change and an important means for raising the income levels of the farmers and satisfaction levels of the consumers. It can be harnessed to improve the quality of life of the masses. Hence, policies to increase marketing efficiency need serious consideration.' 1.3

The Indian agricultural marketing scenario is witnessing vast changes due to changes in economical and social environment. Economic changes are due to liberalisation and globalisation policies persuaded by the successive Governments in the country during 1990s, in keeping with the changes in the rest of the world. Social changes are the effects of changes in food habits and life styles due to better living conditions, rise in per capita incomes, improvements in health and education, etc.

The economic changes have had an impact on production and marketing of agricultural commodities. The changes in cropping and farming pattern, introduction of new production technology, attitudinal changes towards agricultural production as business enterprise, etc., have changed the pattern, method, techniques and style of marketing of output. The social changes have

increased the demand for quality and value added products. Direct marketing at the consumer doors such as, food world's etc., have changed the pattern of marketing of agricultural commodities. 'Market reforms ought to be an integral part of any policy for agricultural development. Normal economic incentives for farmers to increase their productivity can operate only to the extent that the marketing system enlarges the market for their produce and brings them a reasonable price for it.'

Under these circumstances the whole activities of agricultural marketing such as, selling, buying, packing, transportation, storage, processing, market infrastructure, market development, market information, etc., are to be viewed and performed so as to improve the efficiency of the agricultural marketing system. 'The supportive role played by the Governments in bringing reforms and improvements in agricultural marketing through various policies and programmes are recognised all over the world. Especially during the transition period when we are moving towards complete liberalisation from restrictive economy, the farmers, that too, the small and marginal farmers need all the support from the Government for survival and growth. The required structural adjustments catering to the needs of the consumers and buyers are to be effected. Policies do need to be scrutinised and revised from time to time in the light of past performance and change in the domestic and international situations. Such a revision as may be needed should not, however, be carried out under the pressure generated by a feeling of crises.'

Though economic policy gives an increased role to the private sector and free play of market forces, the role of Government will continue to be large as far as, agriculture is concerned. Government intervention through infrastructure investment and supportive policy measures will be crucial for maintaining the tempo of production. Among the measures recommended

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include suitable agricultural marketing and pricing policy with adequate infrastructure for storage and processing.' 1.6

In the vast changing agricultural marketing scenario there is a need to integrate the local market with that of national and international markets in order to derive the benefits of liberalised world trade. But unless and until the fundamentals are strong sudden opening up of the economy may prove detrimental to the interests of agricultural production growth in general and the interests of the farmers in particular. The marketing of agricultural commodities at the farmers level, therefore, shall form the foremost priority in building a strong and vibrant agricultural marketing system in the country.

1.2 Review of Literature:

Various studies have been conducted on changes in agricultural marketing, impact of agricultural marketing policies and programme and the working of regulated markets. The studies relating to the subject of present research work are reviewed in the following paragraphs. The literature review is done based on the themes i.e., related to policies and programmes, market infrastructure and institutional support, regulation and its effects on trade and changed cropping and marketing pattern as well as market structure.

The Studies Related to Policies and Programmes: Several studies related to agricultural marketing policies and programmes are reviewed hereunder.

F.A.O. (2005) publication of United Nations on Agricultural Marketing Policy points out that 'getting the policy right is critical to the success of agricultural marketing reforms. Too often the ability of the private sector to develop and to take over activities previously carried out by Government bodies is constrained by poor and often conflicting policy, or by good policy which is ineffectively implemented.' Therefore, the Governments play an important role in

formulating and implementing appropriate policies for improving the system of marketing of agricultural commodities.

**Nagaraja Setty**, (2000) says that a new pattern of marketing is emerging in Karnataka state. The chief characteristic of this pattern is a process of decentralisation resulting in the diffusion of trade all over the state. The author suggests that the need of the hour is to have an Integrated Agricultural Production and Marketing Policy by the Central and State Governments so as to ensure that both agricultural producers and consumers benefit to the fullest extent.

**Ramaswamy, C and Elangovan** (1996) feel that W.T.O. has further opened up new opportunities for export of agricultural products, both raw and processed. This will help in value addition in agriculture and also create a suitable environment for investment. However, this requires modification in the policies so that capital formation in agriculture can be promoted. In this regard, they suggest that decentralized production of agricultural commodities, tied with large processing, marketing and export firms need to be encouraged. The authors here advocate the role of private sector in various marketing activities.

**Shrijay Devaraj Urs D** (1996) says that the cultivation of gherkins around Bangalore, which started after GATT agreement, has benefited the companies, farming community and also the state. The small farmers are the biggest beneficiaries of contract farming because by doing so the production and price risk of these farmers have considerably reduced as the companies provide not only the input material, the capital and the technology of production but also an assured price. This implies that the state should encourage the contract farming among the small and marginal farmers as a marketing policy.

**Rao, V.M.** (1994) says, "Liberalisation is expected to provide a powerful thrust to growth and modernisation of the economy including agriculture.... The farmer's access to irrigation, modern inputs, credit and extension has improved. He has achieved some progress in reducing his dependence on village traders
and moneylenders by shifting over to organised markets and institutions. The point is that the farmer has now opportunities open to him to increase his output as also to widen his contacts with the markets and the world outside his village. However, it would not be easy for him to make the transition from the survival oriented traditional attitudes and modes of behaviour which still prevails among a large number of farmers to the ruthlessly competitive environment of the modern markets dominated by powerful organised groups. Obviously, the farmer would remain vulnerable in the new environment until he acquires the capacity to withstand its pressures.

Rao further states that the gains of farmers from liberalisation would depend on,

(a) The increase in production achieved by him which would be determined by his access to resources and his efficiency and skills as a producer and
(b) The returns obtained by him in the market dominated by his ability to comprehend and respond to market signals and to get a fair price.

The author is stressing the need for an appropriate policy by the Government during the transitional period from the protected era to a liberalized era until the Indian farmer develops the strength to withstand the competition.

Dantwala, M.L. (1993) says that the policies do need to be scrutinised and revised from time to time in the light of past performance and changes in the domestic and international situations. He says that the policy revisions shall be carried out in the usual course and need not be thought only during the crisis situation.

Schiff, M and Valdis, A. (1992) based on their analysis for 18 countries in Asia, Sub-Saharan Africa, North Africa, the Middle East and Latin America opine that the linkages between agricultural trade and price reform and the deregulation of internal markets are critical in the reform process. Implementing the former without internal market deregulation is unlikely to have much effect on investment and productivity. Internal regulations often prevent entry and
competition in the domestic input and output markets and impose serious barriers to the success of policy reform efforts in Sub-Saharan Africa. So any policy aimed at bringing changes in international trade of agricultural commodities shall commence the reform process from the primary marketing level.

_Sidhu, D.S._ (1990) says, "an efficient marketing system can be an effective agent of change and an important means for raising the income levels of the farmers and satisfaction levels of the consumers. It can be harnessed to improve the quality of life of the masses. Hence policies to increase marketing efficiency need serious consideration."

_Gowtham Surapaneni_ (1989) in his study related to production and marketing of fruits and vegetables in Bangalore district says that there is a scope for increasing the area under vegetables as revealed by the regression coefficient of land, which is also confirmed by the opinion of farmers. The study shows the direction in which the cropping pattern is emerging demanding new policy directions in the marketing of commodities.

_Prasad, Jagadish_ (1989) says, "An efficient marketing system encourages increased production by reducing the marketing costs to the producers and by lowering prices to the consumers. This expands the market and subsequently brings higher returns to producers." He further says, "Marketing being a complicated phenomenon, development of one or two aspects of marketing alone will not bring the desired results unless a comprehensive plan such as 'Integrated Market Development Policy' embracing all the principal and ancillary marketing services mentioned in the study are put into operation." The author in his study is suggesting the need for a comprehensive agricultural marketing policy to deal with the emerging problems.
Bhuyan, Sanjib and Weber, Karl.E. (1988) while analysing the role of regulated markets say, "It is time for a nationwide evaluation of the purpose and functioning of the Regulated Markets so that their problems and prospects can be judged and some better policy be formulated for the effective functioning of these markets so as to ensure that they play a major role in the development of their rural hinterland." The authors here are suggesting new role for regulated markets in the country.

The authors further say, ' A simple but workable strategy to develop regulated markets and major periodic markets as foci of development activities for their rural hinterland can be conceptualised as two pronged approach. Firstly, several market centers can be grouped at district level and secondly; several such districts can form a region for the implementation of development plans in a spatial context. This approach is consistent with the existing hierarchical structure and will be commensurate with organisational and administrative requirements.' The authors are pointing out the need for a vertical integration in the organisation and development of the agricultural markets in the country.

Nikos Alexandrates (1988) says that one of the reasons for the deterioration in international trade is the national agricultural policies, which, in many surplus producing countries have, by and large, failed to adjust sufficiently so as to provide appropriate signals to producers in the face of substantial changes in market requirements. In many developing countries, structural adjustments have been made aiming to stimulate production and reduce imports. In order to get the benefit of liberalised international trade it is necessary that policy reforms shall begin from the primary marketing level.

Mittendorf, H.J., (1987) says that many functions involved in the marketing process have to be seen in the form of a system, fully integrated with agricultural production and the supply of production inputs. The systems approach to marketing sees the individual activities in their relationship to the
performance of the system as a whole. The author suggests some of the policies for strengthening agricultural marketing services such as stronger vertical and horizontal co-ordination of marketing system, timely provision of marketing services required for small farmer development at convenient places and at the lowest cost consistent with their requirements.

_Lele Uma J_ (1973) says, "Private trade in rice, wheat and jowar operates efficiently within the technological and policy confines" and hence instead of taking over the private trade" the scarce governmental resources should be allocated to areas where private resources are not likely to flow abundantly."

The author further argues, "The available evidence overwhelmingly shows that trade operates efficiently within the technological and policy confines. There is thus no reason to suspect that the traditional market structure will not be able to handle increases in agricultural production, provided that governmental policies facilitate rather than discourage investment in the new storage and transport facilities that are necessary to handle increases in marketing, and provided that the policies encourage technological improvement in the traditional market structure. Much native entrepreneurial talent is available in the trading sector, which could be exploited for overhauling the marketing system. This study shows the need for, and the effectiveness of, facilitative regulations in improving the existing market structure. The scarce governmental resources should be allocated to areas where private resources are not likely to flow abundantly."

_Kamala, G.V. and Khot, S.M._ (1972) pointing out the policy vacuum in Agro-Processing Industries say, "Processing of agricultural produce at the primary level and with modern methods offers immense benefits both to agriculture and industry. Yet these primary processing activities have not received due recognition in the programme and policies of our Five Year Plans." The authors further say that modernisation of industries at the primary processing level will be instrumental in modernising agriculture and in developing the region. Such a type of development effect is possible since most of the primary processing industries cannot be separated from their source of raw
material without harming the cause of both the processors and the growers of raw materials because of their perishable nature requiring immediate processing in nearby area.

The authors further say that intertwining of interests of both the growers and the processors and the rural orientation of these industries have benefited both the parties. This has enabled the industry

(a) to grow in size and efficiency
(b) in being instrumental in modernising agriculture
(c) in assuming the nature of an industrial complex.

Quoting the examples of Sugar factory in Mandya, Coffee Processing Units in Chickmagalur, Tomato Processing Plant by co-operatives, Hindustan Lever's Peas Processing Plant in West Uttar Pradesh and Amul Diary Co-operative Anand, the authors conclude that "Agro-Industrial activities in primary processing have the capacity to transform and modernise the agricultural sector and become the nuclei for more widespread development."

Ponduval, R.N. (1959) studied the impact brought about by the reforms in the marketing of agricultural commodities in India. He says among the reforms, the establishment of regulated markets, grading and standardisation, promotion of integrated co-operative marketing, provision of warehousing facilities, dissemination of market intelligence, regulation of forward markets and state trading in food grains were considered to be of prime importance. These measures brought a considerable relief to the cultivators and the consumers alike and led to a reduction in the gap between the prices received by the cultivators and the prices paid by the consumers.
Market Infrastructure and Institutional Support will bring in changes:

There are several studies which show that provision of market infrastructure and institutional support system will bring in changes in the agricultural marketing system. These studies are given below:

**Yerram Raju, B.** (2005) says "assured markets and good road network could stimulate commodities diversification of agriculture in favour of high value crops as they help maximise profits and minimise uncertainty in the output prices... Encouraging appropriate institutional arrangements for better markets through co-operative companies or contract farming would go a long way in strengthening farm-firm linkages." The shift in cropping pattern therefore shall be followed by proper changes in marketing pattern so as to derive the benefits of diversification.

**Landes, Maurice R,** (2004) says that India’s traditional and inefficient agricultural marketing system is yielding to change. Sources of inefficiency include poor transport and handling infrastructure, domestic taxes, and fragmented, non-integrated marketing chains dominated by small-scale enterprises. Policies are now beginning to promote domestic and foreign private investment in a more efficient agricultural processing and marketing system.

Using a partial equilibrium model of World agriculture, **Jay Fabiosa, et.al.** (2003) investigate the multi-lateral removal of all border taxes and farm programmes and their distortion of world agricultural markets. The authors, say, 'following the removal of all distortions affecting agriculture, terms of trade effects are substantial, but heterogeneous. Most world prices increase, except for oilseed meals. Dairy prices exhibit the highest increases followed by meat, cotton and other crops prices. Trade flows are significantly affected by distortions. Substantial changes in trade occur in highly protected markets such as oilseed and oil markets in India and meat markets in the Philippines, resulting in big gains for consumers. Net trade of all dairy products increases. Argentina, Australia and New Zealand expand exports. E U exports of all dairy products decrease drastically. Canada becomes a net importer of all dairy products because of the increased consumption and decreased milk production. Dairy
producers in the E U, Canada and to some extent the U S lose. Significant production expansion occurs in countries that are natural exporters, such as, Brazil, Argentina, Australia and other countries competing with the U S on world markets. There is a shift from feed-grain trade to feed-intensive, value added product trade and to increase feed use among traditional meat exporters. Argentina, Brazil, Canada, Thailand and the U.S. expand their meat and/or poultry production and exports significantly."

_Rameshchand, (1998) reports that special marketing yards for fruits, vegetables and flowers should be created so that proper auctioning and infrastructure facilities can be created in the market yards. He further reports that agricultural marketing is a dynamic process, which grows in importance and complexity with the increase in the level of economic development. Expectations from agricultural markets and their role and problems keep on changing with the growth in urbanization, changes in lifestyles, tastes, technology, infrastructure, trade environment and production scenario. This advocates the need for reviewing the policies often to address to the changing requirements._

_Subrahmanyam, K. V. and Sudha, M. (1997) based on the information obtained by interviewing the sample farmers in Chikkaballapur and Malur taluks of Kolar District during the year 1992-93 concluded, among other things, that the small size cultivators are aware of the potential of enhancing of horticultural crops in enhancing their income. The authors further say that to take advantage of the new technologies developed in horticultural crops it is essential to protect the small farmers against the price risk and this can be done by linking processing with production and marketing and undertaking price support programmes._

_Govinda Reddy, D.M. (1996) says that the infrastructure facilities required for developing Srinivasapur region as a mango export zone are: improved mango grafts, irrigation, extension activities, improved harvesting, setting up of grading and packing centers, setting up of pre-cooling and cold storages, refrigerated trucks for transport, setting up of marketing infrastructure like_
regulated markets and godowns. The study even though relates to a particular crop the findings of the study points to the policies needed in the study area in creating infrastructure facilities since these facilities are lacking for almost all the crops grown in the study areas.

**Sukhpal Singh** (1996) says that the availability of good marketing infrastructure by way of regulated markets and co-operative marketing has helped the agro-processing industry in Gujarat along with location advantage it has in terms of its proximity to terminal markets like Mumbai.

**Coulter, J. and Shepherd, A.,** (1995) say that after liberalisation of agricultural marketing systems, private traders have taken over the marketing functions of government and parastatal bodies but frequently do not have ready access to finance for purchasing and storing the produce. Inventory credit offers one way of overcoming this problem.

**Jayashree Anand,** (1995) based on a study of production and arrivals in Andhra Pradesh state from 1970-71 to 1987-88 concludes that the rate of growth of market arrivals is higher compared to the rate of growth of production. Since the elasticity of market arrivals to output continues to be more than unity and appears to rise, there is need for improving market infrastructure.

**Shyama Sunder, M.S.** (1993) based on the interview of farmers concludes, among other things, like this: "In marketing onion major problems were violent price fluctuations, high cost of transportation, higher wastages, lack of market information regarding prices, lack of improved and cheap storage facilities and absence of price support programme." This observation is true in case of most of the agricultural commodities, which, therefore, need corrective steps.

**Sujatha, M.,** (1988) revealed that there exist a long chain of intermediaries, especially in case of commercial crops. The marketing of fruits
was dominated by pre-harvest contracts who handled more than fifty percent of the produce. The sale of commercial crops either through village merchants or through commission agents was common with the co-operatives playing a minor role... Intermediaries claim major portion of consumer prices for the services rendered especially in case of perishable commodities like fruits and vegetables. Commercial crops were found to provide better returns to producer. Therefore, there is a need to encourage co-operative marketing and a system of marketing where the number of intermediaries is minimum and where both farmers and consumers are benefited.

**Subba Rao K** (1987) based on his study of regulated markets in Bihar concludes that findings taken together seem to lend support to the contention that small scale buyers operating in villages who buy grains at the farmers' door step seem to serve the small farmers better than the wholesale dealers in the market whether regulated or not. This gives credence to the idea that there is a need to have a market or facility centre in between the existing regulated markets and the farm to serve the interests of a particular class of farmers and traders.

**Subrahmanyam, K.V.** (1986) writes that estimates of losses of different stages of marketing have shown that it was around 15 percent in Bangalore market consisting of 3 per cent while loading and unloading, 3 per cent during transport, 2 per cent due to poor packing, 4 per cent due to poor quality and 3 per cent due to other reasons.

The author suggests that for reducing the post-harvest losses efforts should be made to develop more efficient methods for handling the horticultural crops, such as, new post-harvest treatments, improved packaging practices, change in design of containers, etc. The study points out the defects in the present marketing system in the sense that the market charges are more than the services rendered and that the post harvest handling of commodities are not done in a professional way.
Gopal Rao, H.S. and Asha Maheshwari (1983) in their paper analysed the state level trends in agricultural production and market arrivals in Karnataka and found that arrivals of major commodities in regulated markets have lagged behind the production in both cereals and commercial crops—let alone their attracting an increasing proportion of marketed output. This in spite of the fact that infrastructure had improved between 1971-72 and 1981-82. Further, they compared the district level production and market arrivals of selected markets in order to know the effect of infrastructure in the yard on arrivals and stated that markets with well developed yards were not able to attract an increased arrivals. It did not also prove that the markets with no yards received higher arrivals over time. So it is interesting to study the relations between the production and the market arrivals vis a vis the working of regulated markets.

Harbans Singh (1983) in his study conducted in Punjab says that the increased volume of post harvest market arrivals created serious bottlenecks in respect of handling, storage, transportation and above all market yard facilities due to lack of market technology and basic market infrastructure. Therefore, a long-term policy with adoption of modern methods of handling and provisions of modern infrastructure facilities right from the primary markets level up to the terminal market level is needed.

Mohandoss et al. (1979) in their study of fruits and vegetables cold store units of different agencies analysed the relative performance of Government (1%), Co-operative (5%) and Private Agencies (94%) in running the cold store in terms of capacity utilization, profitability, commitment to serving primary producers and planning and administration, based on data collected from six fruit and vegetable cold stores in Bangalore city relating to the years, 1975-76 to 1977-78. In terms of capacity utilization, profitability and management the private sector performed better than the other two sectors... In terms of meeting the cold storage needs of primary producers and to some extent of the agriculturists, Co-operative unit performed well.... The management of Co-operative and Government sector cold stores should be improved to make them function
efficiently. So the policy initiatives in providing the cold chain infrastructure shall take into consideration the role of private, public and co-operative sectors.

Gopal, K.N. and Prasad, B.G.R. (1978) in their study conducted on problems and marketing of vegetables in Bangalore have shown that at retailers level the loss varied from 6 to 9 per cent depending upon the vegetable. Obviously the efforts should be made to reduce the post harvest losses of vegetables to the minimum through proper and scientific handling methods.

Jasdanwalla, Z.Y. (1977) in her study of some markets of agricultural commodities, opined that the existing market structures were in need of radical overhauling. She emphasised the regulation of an increasing number of markets, adoption of improved transportation and communication facilities, dissemination of increased market information, expansion of storage and warehousing facilities and extensive adoption of standardised grading along with the improved technology at the packing and processing stages to improve the performance of the existing markets.

Satya, M.R. and Gill, K.S. (1977) in their study conducted at Nepal found that the establishment of rice mills in each assembling market and provision of adequate infrastructure facilities would enhance better competition among buyers and in turn lead to better prices for the paddy producers. This study emphasises the need for processing units at the farm or primary market centres.

Hanumantha Rao, C.H. and Subba Rao, K. (1976) in their study conclude that the analysis of rice marketing suggests in the first place, that the losses suffered by the small farmers on account of various imperfections in the marketing system are not as large as is generally believed, especially when the losses are related to their total income. Secondly, infrastructure underdevelopment, which is common to all classes of farmers, is probably the most important sources of such losses. Thirdly, which also follows from the second, the disabilities that are common to both the small and the large farms
are more significant than those specific to the small farms. Fourthly, factors like economies of scale and credit-ties are those, which impinge on the small farmers not only as sellers of produce but also as producers. To this extent, institutional reforms for raising investment and output on the small farms are intertwined with the measures to improve the returns in the process of marketing the produce. The institutional reforms shall, therefore, shall form part of the agricultural marketing improvement policy.

*Ramasivan* et al (1968) in their study on preservation of food grains in rural storage found that farmers sold only 14.3 percent of the total produce and retained the rest 76.6 percent in storage structures. The structures used to store were mud, pot, jute bags, tins, drums, thekkas and kuthlas..... The quantitative loss in food value was 2.03 to 9.58 percent. An efficient food policy shall reduce the storage losses through the development of scientific storage system. This will also help avail pledge loan facility from the banks through issue of warehouse receipts.

*Sarid, J.N., Lallan Rai, Krishnamurthy, K. and Pingale, S.V.* (1965) in their study on the large-scale storage of food grains in India indicated that the geographical location of the warehouses influences the storability of a commodity. The establishment of warehouses shall be properly planned so as to benefit the farming community at large.

**Regulation affects agricultural trade:** The following studies have focused on the subject that regulation affects agricultural trade.

*Upender, K* (1995) in his study on ‘Regulated Market Yards and the Marketing of Produce of Farmers in Karim Nagar district of Andhra Pradesh’, concludes that sales made by large cultivators in Huzurabad market yard were substantially higher than those made by them within the village. The reason for selling the paddy produce in the regulated market is due to expectations of higher prices, fewer chances for any mal-practices and the availability of transport facilities.
Shringi, K. C., (1991) after a study of two market yards of Kota district of Rajasthan state i.e. Kota Market (between 1964-65 (when there was no market) and 1979-80) and Baran market (between 1964-65 and 1982-83) concludes that there was a major shift in favour of commercial crops (ratio increased from 33.06 to 43.28) compared to food grains which showed decline in ratio from 60.43 to 52.14. This the author says has resulted in increase in the net income of all crops and the small and marginal farmers have been benefited more than the large farmers and even the employment has increased by 83.87 per cent in Kota and 47.05 per cent in Baran market during the pre and post project periods. So regulated markets are helpful to the farmers, especially small and marginal farmers, if proper infrastructure according to changes in cropping pattern are provided in the market yards.

Harriss, Barbara (1984) says," In India the State is assigned a decisive role in progressive and planned economic change, in the mobilisation and redistribution of social resources and in changing relations of production and exchange. All the while it is both state owned means of production and the market itself which regulate the economy."

The author further says, "Regulated Marketing which began life as a means of controlling colonial trade in export crops, has developed into a plank of the new populism and is seen by national and international rural development planners as a way of encouraging trading entrepreneurs to serve small farmers. We have seen that regulated market places are planning strategies for the raising of producer prices, for the commercial education of farmers, simultaneously for the expansion in the number of dealers competing to buy produce (to preserve or to create competitive markets) also to control the activities of monopolists and monopsonists, further, where appropriate to act as facilitating assembly points for monopolistic State Trading Institutions, and to act as locations for consumer goods and agricultural inputs retailing. These ideas besides being contradictory are far divorced from experience." While appreciating the importance of regulated markets in protecting the interests of the farmers and
creating a competitive market, the author in this study highlights their failures as well.

Response of Markets to Changes in Demand:

Priya Deshingkar, et al., (2003) reveal that transformations in the global food system are causing changes in food production and marketing in India at a slower rate than elsewhere in the developing world but there is a growing domestic market for horticultural produce, in both traditional and exotic vegetables. Production and marketing arrangements are responding to changing demand driven by urbanization and diet change.

Gulati, Ashok and Kelley, Tim (1999) analyse cropping pattern changes at the All India Semi-Arid Tropics (SAT) level and also at the level of crop zones by constructing a crop typology based on district level data over the period 1970 to 1994 and conclude that even in SAT region farmers are largely driven by profit motivated behaviour in the allocation of area to various alternative crops. The study also shows that the impact of trade liberalisation in agriculture on the cost of living of the poor is not likely to be very adverse, providing hope for a smoother than anticipated transition to an open economy. According to the authors while agro-climatic factors determine the conditions under which the crops are grown, farmers are increasingly inclined to change cropping patterns in response to changes in economic factors (input and output prices), technological factors (improved seeds and irrigation), institutional factors (market, road density, access to credit, etc.) and policy induced factors (fertiliser and irrigation subsidy, procurement prices, etc.).

Narasimha Murthy, G. and Raji Reddy, K. (1996) examine the micro and macro environmental factors affecting the agricultural marketing system in India. According to them the micro environmental factors include various constituents which take up different functions of marketing such as, buyer and his characteristics, market intermediaries, facilitating agencies, government agencies and ultimate consumers. Macro environmental factors include economic factors,
socio-cultural factors, politico-legal factors, technological factors and climatic factors.

**Changed Cropping Pattern, Marketing Pattern and Market Structure:**

*Kaul, G. L.* (1997), says, 'Trends in favour of diversification of crops are sweeping across the country. This is evident from the steady increase in the share of horticultural crops in the total net and gross cultivable area. In 1984-85, these crops covered over 7 per cent of the net cropped area and 5.9 per cent of the gross cropped area. While in 1991-92 the coverage rose to 8.6 and 6.7 percent and in 1994-95 to 9.7 and 7.2 per cent respectively... In Karnataka where coarse grains and pulses have yielded area to horticultural crops like fruits, vegetables and garden crops in the order of 15 to 42 per cent.' This change in the cropping pattern may have impacts on the marketing pattern as well which, therefore, makes an interesting study.

*Praduman Kumar and Mathur, V.C.* (1996) say that apart from income and food prices which strongly influence the pattern of food consumption rapid structural transformation also have an important influence on food demand. While such changes in food demand patterns may first be noticed in the urban areas but with time structural transformation takes place in the rural areas as well. The authors argue that shift in demand will provide incentives to the producers to diversify their production. The authors further say that the extent of diversification due to structural changes in consumption will be compounded by increased demand for the export market, especially for fruits, vegetables and marine products as a result of new economic policies and globalization.

*Asha Maheshwari* (1993) in her study concludes that concentration among buyers and sellers leads to market fragmentation and also market sharing among the commission agents. The personal links between producers and commission agents make for imperfections in the market structure. All these factors are present in Mysore, Hubli and Davanagere markets in varying
degrees. Therefore, there is a need to review the working of the regulated markets and bring in necessary reforms by appropriate policy measures.

**Ranganatha Shastry** (1983) after factor analysis concludes, among other things, that commercialisation of agriculture, in addition to providing higher income was able to generate additional employment for agricultural labourers and also higher marketing activities.

**Nadakarni, M.V.** (1982) after analysing the agricultural price behaviour in Karnataka concludes "Farmers, the working class, political leaders and social scientists will have to deliberate on the alternatives to present marketing systems (prone to manipulation and instability)....In doing so, they may...find that a change in the agricultural market system cannot be isolated from the problem of changing the nature of market and production relations (not only in agriculture but) in manufactured goods too." The author here emphasises the need for evolving an agricultural production and marketing policy in consonance with broader national policy taking into consideration other sectors like manufacturing and services.

**George, P.S.** (1980) in his study on the changing pattern of consumer demand for food grains in India concludes as follows.

(a) During 1961-62 to 1973-74 the per capita consumption of cereals declined by 13.9% in the rural area and by 9.2% in the urban area.

(b) The consumer price of cereals during 1961-62 to 1973-74 increased at a faster rate than the increase in general prices. However, the rate of increase of prices in the urban areas remained below the rate in the rural areas.

(c) Although the consumer expenditure at current prices had gone up in both the urban and rural areas, when allowances were made for price increases there was a fall of 13.3% in per capita expenditures.
in the rural areas and of 9.7 % per capita expenditure in urban areas.

(d) Between 1961-62 and 1973-74 in the rural areas there had been a decline in both expenditure elasticity and quantity elasticity but an increase in quality elasticity of cereals. In the urban areas all the types of elasticities mentioned above, increased.

(e) The changes in income and price levels during 1961-62 to 1973-74 can explain about half the fall in per capita consumption of cereals in the urban areas and about three-fourths of the fall in the rural areas.

The findings of this study shows that even before economic reforms were initiated in India the demand for cereals was decreasing with increase in the income of the people. However, this trend continued even after the reforms period.

George, M.V. (1968) examined the responses of acreage to changes in prices in Kerala during the period 1952-53 to 1961-62 and finds that there is close correspondence between changes in the relative prices and acreage of competing crops. The policy conclusion, according to author, is 'it is necessary to stabilise the relative prices of food crops in terms of other agricultural commodities produced in the state.'

Iyengar, N.S. (1960) has developed a method to determine quality types of elasticities mentioned above. With the increase in income up to certain level the demand for food grains not only increases but also consumers demand for better quality food. Taking price paid for the same food grains by different sections as a measure of quality Iyengar arrives at the measure of quality elasticity.

Ghatge, M.B.and Rao, R.V.S. (1957) point out, "Trend in operation technique and organisation presupposes change. Marketing is susceptible to change with the slightest impact of circumstances owing to the fact that it is a crucial activity, which aims at meeting human wants. As long as our agricultural
production was of self-sufficient type the vulnerability was low...This change necessitated in Indian farmer to compete in world markets."

The authors further say that with changes in the economic field, in the sphere of agricultural marketing, however, the lacuna continues, though some changes are discernable.

(a) Farmers have now gradually been realising that some of the functions carried out by middlemen, if taken over by them, they can increase their share in the consumers' rupee.

(b) In the contract terms between buyers and sellers changes have occurred. Standard contract terms on mutual basis incorporating F.A.Q. standards...have been drawn for certain commodities. Laying down of standard contract terms and their adoption has brought about a change in the preparation of the goods towards better quality.

(c) In the sphere of physical movement of goods it is observed that movement by road is getting more popular than by rail.

(d) As regards sales, consignment basis is being gradually replaced by firm sales. This is the result of improvement in quality of goods standardised for sale.

(e) Changes have taken place in the storage of fruits and vegetables.

(f) Changes have taken place in the dissemination of news.

(g) Changes in the marketing finance towards non-credit co-operatives have taken place.

(h) Changes in the cost and price spread due to operational practices, organisational set up and institutional development.

(i) Role of Co-operatives and Government in marketing has increased.

(j) Institutional changes in the marketing organisations, banking institutions, commodity exchanges, etc.
Some of the aspects of agricultural marketing changes listed need a thorough review before being adopted as a policy.

1.3 General Findings of the Review of Literature: Agricultural marketing reforms require appropriate policies by the Governments. Restrictive trade policies do not help in achieving efficiency in agricultural marketing system. Transformation in the food consumption pattern are causing changes in agricultural production and marketing at the international, national and state level. Suitable marketing infrastructure facilities and institutional supports help achieve better growth in agriculture. Due to lack of suitable policy initiatives and lack of required infrastructure, the reform measures are not helping the agricultural growth in India. Marketing through regulated markets have been a major thrust in India, all these years, aiming at improving the agricultural marketing system at the primary markets level. This is true in Karnataka state as well. Due to changed circumstances there is a need to evolve an appropriate policy to revitalize the working of regulated markets in Karnataka and to provide opportunities for trading outside the regulated markets in order to bring in efficiency in the agricultural marketing system and to help the farmers’ get better share in the consumers’ rupee.

Though there are many factors influencing the performance of regulated markets it is ultimately the quantity of arrivals of commodities sold through the regulated markets which is a major indicator of its performance. If reforms take place within the regulated markets, the assumption is that the quantity of arrivals to these markets shall increase and vice versa. On the other hand if the reforms are taking place outside the regulated markets then the commodities sold outside the regulated markets may increase. Therefore, there is a need to study whether reforms lead to change in the pattern of marketing. Also, due to reforms the production pattern may change resulting in the marketing pattern. Therefore, there is a need to research whether there is any change in the cropping and production pattern and how this change has affected the performance of regulated markets in terms of arrivals. This subject has to be properly understood
before suggesting appropriate marketing policies needed to bring in changes in the agricultural marketing system.

1.4 Research Gap and Statement of the Problem:

Several studies have been done on subjects covering the role of regulated markets, market structure, conduct and performance, marketing of commodities, impact of reforms on agricultural production, changes in agricultural trade etc., at the macro level. But no detailed study has been done on the pattern of changes taken place in marketing of agricultural commodities at the primary level vis a vis the regulated markets comparing their performance between pre and post reform periods. Hence an attempt is made in this study to find out whether there is any shift in the marketing of agricultural commodities at the micro level so that appropriate policy suggestions can be made for improvement.

The changing cropping and production pattern and the changing marketing and consumption pattern may make the present policies and programme followed by the Governments unsuitable. In this regard the policies of establishment and developments of organised markets at the primary markets level under the Government sector needs a review and the Government priorities in this regard may have to be rescheduled. The changed pattern in production of agricultural commodities, if not followed by a suitable marketing arrangement appropriate for the commodity concerned may create a void resulting in non-utilisation or under-utilisation of productive resources and discourage agricultural productive activity.

1.5 Statement of Objectives:

The main objective of the present study is to find out the shift that has taken place in agricultural marketing during the post reform period, that is, after 1990 compared to the pre reform period. Specific objectives of the study are as follows:
To examine the agricultural marketing policies and programme and the changes in agricultural marketing pattern in selected countries.

To assess the comparative performance of agricultural marketing in Karnataka and to examine the crop type wise performance in production and arrivals of commodities in the areas of Agricultural Produce Market Committees (APMCs) between pre and post reform periods.

To examine the agricultural marketing practice by progressive farmers as a case study.

To evolve a suitable policy framework for agricultural marketing improvements.

1.6 Hypothesis:

In addition to the above basic problem statements and objectives, the following hypothesis are framed in order to test in the field.

1. Reforms lead to change in agricultural marketing pattern.

2. The APMC performance was better during the pre reform period compared to the post reform period.

3. The changing pattern of cropping has not resulted in corresponding changes in traditional marketing pattern.

1.7 Methodology:

The study is based on primary and secondary data. The secondary data is obtained through various Government organisations, reports, publications, periodicals, etc. In order to derive at the production value for the taluk, the taluk
wise acreage was multiplied by the district wise data on yield of a particular crop. The primary data is obtained by mailing the questionnaires to sample farmers.

1.7.1 Tabulation of Data:

The collected data were fed to computer in the Microsoft access software through codification and then tables were obtained. Wherever necessary data were transferred from Microsoft access to Microsoft excels and then tabulation, graphing and analysis were done. The software tools like statistical and financial tools and the econometric views available in the computer are made use of to analyse the data.

1.7.2 Analysis of Data:

Various methods were used to analyse the data. They are, Percentage variation analysis, Ratio analysis, Fisher's index number analysis, standard deviation and analysis of variance. Further, t-test and Levene F test analysis are done to find out the performance in production and arrivals of commodities and the variations in marketing during the two periods under study. The primary data collected were also tabulated and analysed to find out the results.

There are many performance indicators of APMCs such as, arrivals of commodities, marketing efficiency, market functionaries and their service, market margins, market intelligence and awareness, market infrastructure, etc. But ultimately it is the arrivals of commodities which helps in performance evaluation because, all the other performance indicators mentioned are the causes and the arrivals is the result. Since the present study is focusing on the changes in cropping and marketing patterns between two periods the performance in respect of production and arrivals in the APMC areas are evaluated to derive at the results required to fulfil the objectives of the study. So the meaning of ‘market performance’ for the purpose of present study is the quantity of arrivals of commodities to the regulated markets- meaning, higher is the quantity of arrivals to the market better is the performance and vice versa.
Since the present study involves the study of relative changes in production and marketing the parameters influencing the arrivals such as acreage under cultivation and production in the APMC areas are also taken as the parameters for examining the performance of agricultural marketing in Karnataka. The performance is analysed for three years, 1978-79, 1989-90 and 1999-2000 separately, in terms of individual crop type performance and in terms of percentage of arrivals to production. Ratio analysis is done to measure the changes in different crop types for the three periods under study in terms of acreage, production, arrivals and value of commodities. Percentage variations in the four parameters under study were examined to find out the changes during the pre and post reform periods. Further, the price index is calculated for the two periods under study to find out variations in the prices of different commodity types.

In order to examine the changes in marketing during two periods under study the index of changes in quantities of arrivals and the price of commodities for different crop types are calculated by applying the Fisher's Index Formula, i.e.,

$$\text{Fisher's Index No} = \sqrt{\frac{\sum P_1Q_1}{\sum P_0Q_0}} \times \sqrt{\frac{\sum P_1Q_1}{\sum P_0Q_1}} \times 100$$

Where,

- $P_1$ = Price for the period 1
- $Q_1$ = Quantity for the period 1
- $P_0$ = Price for the base period
- $Q_0$ = Quantity for the base period
For evaluating the performance of APMCs, arrivals of commodities to markets are considered. The performance of production and arrivals are measured for the sample APMCs for three different periods, i.e., 1978-79, 1989-90 and 1999-2000. The mean values and standard deviations for production and arrivals for each APMC area are calculated and the following t-test statistic is used to find out the significant levels.

\[
t = \frac{|\bar{x} - \mu|}{s \sqrt{\frac{1}{n-1}}}
\]

Where,

- \(\bar{x}\) = Mean of the sample APMC
- \(\mu\) = Mean of the population
- \(s\) = Standard deviation of the sample APMC
- \(n\) = Number of APMCs selected

In order to measure the changes in the average production and arrivals between two periods the following test statistic is used:

\[
t = \frac{|\bar{x}_1 - \bar{x}_2|}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}
\]

Where,

- \(\bar{x}_1\) = Mean of the sample APMC for period 1
\( \bar{x}_2 \) = Mean of the sample APMC for period 2

\( \sigma^2 \) = Square of standard deviation of the sample for period 1

\( \sigma^2 \cdot 2 \) = Square of the standard deviation of the sample for period 2

\( n_1 \) = Sample size for period 1

\( n_2 \) = Sample size for period 2

The study also involves the variations in the production and arrivals of crops between two periods. In order to test for equality of sample variances F-test is used. Among the various types of F-tests the Levene F test is found suitable for the present study because Levene F test used in analysis of variance problem with k factors can be sensitive to unequal standard deviations in the k factors. Since the present study involves different crop types of disproportionate quantities and different APMCs of different sizes in terms of arrivals but the groups are homogeneous the Levene F test is used.

Levene F test is defined as:

\[
W = \frac{(N-k) \sum_{i=1}^{k} N_i (Z_i - \bar{Z})^2}{(k-1) \sum_{i=1}^{k} \sum_{j=1}^{N_i} (Z_{ij} - \bar{Z}_i)^2}
\]

where \( Z_{ij} \) can have one of the following three definitions.

1. \( Z_{ij} = |Y_{ij} - \bar{Y}_i| \)

   where \( \bar{Y}_i \) is the mean of the ith subgroup.

2. \( Z_{ij} = Y_{ij} - \bar{Y}_i \)
\[ Z_{ij} = Y_{ij} - \bar{Y}_i' \]

where \( \bar{Y}_i' \) is the 10% trimmed mean of the ith subgroup.

\( \bar{Z}_i \) are the group means of the \( Z_{ij} \) and \( \bar{Z}_{..} \) is the overall mean of the \( Z_{ij} \).

1.7.3 Study Area:

Bangalore Rural, Kolar and Raichur districts of Karnataka state are chosen for the study. In these districts chosen, all the APMCs are selected for the study. The study area is shown in Map-1. The reasons for choosing these districts are that Bangalore rural and Kolar districts are near to the state capital city i.e., Bangalore which is witnessing vast changes in consumption and demand pattern for agricultural commodities and it is presumed that this change has an impact on production and marketing of commodities in these districts. The Raichur district is deliberately chosen because it is located on the north east part of the state which is far away i.e., about 500 kilo meters from Bangalore city and it is a backward area compared to the other two districts chosen. A comparative study of changes in three districts with different locations and features will help proper analysis of the problem. Further, it is presumed that the agricultural marketing system that is evolving in and around Bangalore will be a trendsetter in other areas in future and thus the suggested policy measures for the study areas will be applicable to other areas as well.

1.7.4 Study period: The study pertains to three different periods of two decades. While choosing the three periods care is taken to select the normal years. One period was the year in which the economic reforms were initiated in India i.e., 1989-90. In order to do away with small variations, if any, an average of triennium data for the years 1988-89, 1989-90 and 1990-91 were chosen for the study. In order to examine the post reform changes the year 1999-2000 was chosen, again taking the average of triennium data for the years 1998-99, 1999-
2000 and 2000-2001. For studying the changes during the pre reform period the year 1978-79 was chosen. Here, only one-year data were taken because to derive at triennium data average, the complete data on arrivals and value of commodities were not available for the years 1979-80 and 1980-81

1.7.5 Commodity Types:

The study involves seven commodity types. They are, food grains, fruits, oilseeds, others, plantation, spices and vegetables. Each commodity type consists of several commodities the details of which are given in Appendix-I. Even though plantation and spices are not the major commodities grown and marketed in the study area these are included in order to find out their production and arrival pattern vis a vis the other commodity types.

1.8 Profile of the Study Area:

The study area consists of three districts of Bangalore Rural, Kolar and Raichur in Karnataka State. Bangalore Rural and Kolar districts are in the southern part of the state and Raichur district is on the northern part of the state. These districts are deliberately chosen because of the differences in geographical location, cropping pattern, the proximity to terminal market, the influence of economic developments, etc. The location of the districts chosen are given in Map-1 below.
The profile of the study area consisting of three districts of Bangalore Rural, Kolar and Raichur districts is given below.

1.8.1 **Bangalore Rural District:**

Bangalore Rural district lies to the South East of Karnataka state. The district lies between the latitude parallel to 12 Degree 15 Ft North and 13 Degree 35 Ft North and the longitude and meridians 77 Degree 05 Ft East and 78 Degree East. The mean sea level of the district is at a difference of height between 629 to 950 metres. This district comprises of eight taluks, namely, Channapatna, Devanahalli, Doddaballapura, Hoskote, Kanakapura, Magadi, Nelamangala and Ramanagara taluks. Before 1992 this district was a part of Bangalore district, now called as Bangalore Urban district. The area is depicted in Map-2.

The geographical area of the district is 5814 square kilometers. The area of the district is 3.02 per cent of the total area of the state and occupies 16th place in the state in geographical area. In each taluk there are 3 to 6 hoblis comprising of total of 35 hoblis in the district. One Zilla Panchayath, eight Taluk Panchayats and 228 Grama Panchayats are functioning as local governments in the district.

The rivers Pinakini, Arakavathi and Kanva flow in the district. Kanva, Manchanabele and Bhairamangala minor irrigation projects are helpful for irrigation. The district is famous for sericulture, floriculture, milk produce, vegetables and handicrafts. As per the 2001 Census, there are 1883 villages in the district, out of which 1714 are inhabited and 169 are un-inhabited. The total population of the district as per the 2001 Census was 18,77,416, out of which about 78.33 per cent is the rural population and about 21.67 per cent the urban. The percentage of male and female population is 51.2 and 48.8 respectively. The population density is 323 per square kilometers. The total literacy rate is 65 per cent in the district with 74.43 per cent of male literacy and 55.12 per cent of female literacy.
The number of agriculturists is 3,09,341 and agricultural labourers 1,32,762 in the district. Among the agriculturists about 63 per cent are marginal farmers holding below one hectare of land, 21.5 per cent are small farmers holding between 1 and 2 hectares of land each, 11 per cent are semi-medium farmers holding 2 to 4 hectares of land each, 0.04 per cent are medium farmers holding 4 to 10 hectares of land each and only 0.004 per cent are large farmers holding more than 10 hectares of land.

Out of the total geographical area of 5,85,431 hectares in the district, nearly 57 per cent is the total area sown and about 50 per cent is the net area sown. Total forest area is nearly 14 per cent, non-agricultural land constitutes nearly 10 per cent and barren land nearly 6 per cent and the remaining is the other uncultivated land like cultivable waste, permanent pastures, trees and groves, etc.

Net irrigated area is nearly 10.5 per cent of the total geographical area of the district. Out of 61,477 hectares under irrigation nearly 14 per cent is through canals, 25 per cent through tanks, 20 per cent is through wells, 40 per cent is through bore wells, 0.01 per cent through lift irrigation and other sources.

The normal average rainfall in the district is 817 m.m. per annum with almost evenly distributed in all the taluks. The normal rainy days in a year are 50 and are spread throughout the year.

The district has a good transport network with 6729 kilometers of roads and 105 kilometers of railway lines. There are 22 railway stations in the district. The district has 307 post offices, 82 telegraph offices, 91 telephone exchanges and 69,688 telephones as on March 2003.
APMCs IN BANGALORE DISTRICT

Taluk in Bangalore Rural District
- Kanakapura
- Channapattana
- Ramanagara
- Magadi
- Nelamangala
- Doddaballapura
- Devanahalli
- Hosakote

APMC Centers
- Doddaballapura
- Channapattana
- Kanakapura
Net income of the district was Rs. 4646 crores constituting 4.96 per cent of the State's income during 2001 with a per capita income of Rs. 24,880/- per annum at current prices. The share of agriculture in the total district income is 23.3 per cent, of manufacturing is 30 per cent and the remaining share is that of constructions, transport, trade and forests.

The major crops grown in the district are rice, ragi, maize, groundnut and sugarcane. Mulberry is also grown because sericulture is another important occupation of the people.

There are three APMCs in the Bangalore District. They are, Channapatna, Doddaballapura and Kanakapura.

1.8.2 Kolar District:

Kolar district is located on the east of Bangalore Rural district, bordering Andhra Pradesh and Tamil Nadu states. It is situated between 12 Degree 46 Ft and 13 Degree 58 Ft north Latitude and 77 Degree 21 Ft and 78 Degree 38 Ft east Longitude. The total geographical area of the district is 8223 square kilometers, occupying 4.28 per cent of the total geographical area of the state. Out of the total geographical area of 7,79,467 hectares, the forest area constitutes nearly 9 per cent and net area sown is nearly 45 per cent.

The Kolar district consists of 11 taluks viz, Bagepalli, Bangarpet, Chickballapur, Chintamani, Gowribidanur, Gudibande, Kolar, Malur, Mulbagilu, Sidlaghatta and Srinivasapura. The district head quarter is Kolar. The biggest taluk is Bagepalli with 933 square kilometers geographical area and the smallest is Gudinande with 227 square kilometers of geographical area. There are 306 Gram Panchayats, 3 Town Panchayats, 9 Town Municipalities and 3321 villages in the district. The district area is depicted in Map-3.
The total population of the district is 25.23 lakhs constituting about 4.78 per cent of total population of the state. Nearly 75 per cent of the people live in villages and the remaining in urban areas. Out of the total population 50.7 per cent are males and the remaining 49.3 per cent are females. The literacy rate is 63.14 per cent. It is 73.14 per cent among males and 52.81 per cent among females.

The normal rainfall in the district is 744 m.m. with highest of 818 m.m. in Mulbagilu taluk and lowest of 678 m.m. in Bagepalli and Gowribidanur taluks. The agriculture in the district mainly depends on rainfall as there are no irrigation dams. However, lakes and borewells are the other sources of water in the district. Nearly 26 per cent of the agricultural land is irrigated in the district. Out of this 18 per cent each of irrigation is through lakes and open wells and the remaining 64 per cent through bore wells.

As far as land holding is concerned nearly 2.35 lakh farmers hold less than one hectare of land, about 92 thousand farmers hold between 1 to 2 hectares of land, nearly 44 thousand farmers hold 2 to 4 hectares of land, about 15 thousand farmers hold 4 to 10 hectares of land and remaining about 1800 farmers hold more than 10 hectares of land. The district has 12781 kilo meters of roads and 199 kilometers of railway lines. There are 178 bank branches, 2294 co-operative societies, 422 post offices and 144 telephone exchanges. There are 8 textile mills, 10 chemical factories, 26 engineering factories and 135 other industrial units in the district. The famous Kolar Gold Fields, the gold mining centre is located in this district.
The major agricultural and horticultural commodities grown in the district are, ragi, paddy, maize, oilseeds, fruits and vegetables. Sericulture and animal husbandry are other agriculture related occupations of the people. The Gross Domestic Production of the district is about Rs. 3687 crores. The sectoral contribution for GDP is; Primary sector, 44%, Secondary sector, 14 % and Tertiary sector, 42 %. The Net Domestic Production of the district is 3367 crores with the net per capita income of Rs. 13,414 per annum.

There are eight APMCs in the district. They are, Bangarpet, Chickballapur, Chintamani, Gowribidanur, Kolar, Malur, Mulbagilu and Srinivasapura.

1.8.3 Raichur District:

Raichur district is located on the plain land on the North-Eastern part of Karnataka neighbouring Andhra Pradesh state. The total geographical area of the district is 8386 square kilometers with an average of 161 persons per square kilometer. There are small hills belonging to Yamini mountain ranges. Two major rivers flowing in the district are, Tungabhadra and Krishna.

The district has 5 taluks, viz, Raichur, Devdurga, Manvi, Lingasgur and Sindhanur. Lingasgur is the biggest taluk with 191 villages and Raichur taluk the smallest with 156 villages. There are 8 Town Municipalities, 7 Town Councils and 164 Gram Panchayats in the district. There are 878 villages with 808 inhabitants and 70 uninhabitants. The district area is depicted in Map-4.

The climate is a temperate one with the record of highest temperature in the state going up to 44 degree Celsius during the month of May. The normal rainfall level is 621 m.m. per annum.
The total population of the district is 13.51 lakhs (1991 Census) out of which 6.83 lakhs are men and 6.68 lakhs are women. The rural population is 10.10 lakhs and the urban 3.32 lakhs. The literacy rate in the district is 34.34 percent. The literacy rate is 46.75 per cent among men and 21.7 per cent among women.

The total Gross Domestic Production of the district is Rs. 2033 crores which includes Rs 946 crores (47%) in primary sector, Rs. 259 crores (13 %) in secondary sector and Rs. 827 crores (40 %) in the tertiary sector. The Net Domestic Production of the district is Rs. 1864 crores with per capita net income of Rs. 11,369 per annum.

Out of the total geographical area cultivated land is 6.77 lakh hectares; 58,814 hectares not suitable for cultivation, 44 thousand hectares are not cultivated and 1.55 lakh hectares are wastelands.

The net irrigated area in the district is 1.26 lakh hectares, with 81 per cent of irrigated area under canal irrigation, 12 per cent under well irrigation, 4 per cent under lake irrigation and remaining 3 per cent through bore wells and other sources.

Regarding land holdings, 2,53,254 farmers hold 6,78,511 hectares of cultivable land. Out of this 32 per cent of farmers are small farmers with less than 2 hectares of land possessing 17 % of land holdings; 28 per cent of farmers hold 2 to 4 hectares of land possessing 28 per cent of land holdings; 15 per cent of farmers are medium farmers holding 4 to 10 hectares of land possessing 34 per cent of the land and 2.8 per cent of farmers are large farmers with 10 hectares and more possessing 15 per cent of the land holdings.
The major agricultural commodities grown in the district are, rice, jowar, bajra, bengalgram, tur, oilseeds and cotton.
There are about 218 different industries with cotton ginning and pressing factories, textile mills, oil extracting plants, etc., being major agro-based industries. The famous Hutty Gold Mines is located in this district providing employment opportunity to many people.

The district has about 51 kilo meters of railway lines, 483 kilometers of state highways, 634 kilo meters of district main roads and 1145 kilo meters of rural roads. There are 48 commercial banks, 46 rural banks, 12 other banks and 1123 primary land development banks and 680 co-operative societies in the district. There are 280 post offices and 91 telegraph offices in the district.

There are four APMCs in the district. They are, Lingasugur, Manvi, Raichur and Sindhanur.

1.9 Limitations of the Study:

The pattern of agricultural production and the pattern of marketing at the primary wholesale markets level where farmers sell their commodities are taken up for the study. The arrivals recorded by the APMCs may not always reflect the commodity being sold in the specified market yards. The analysis is done based on the available data and it is assumed that the data used in this study are free from any defects and on this basis the inferences are drawn. It is assumed that the sample districts chosen for the study are representative and reflect the actual situation. The commodity types i.e. plantation and spices are not the major commodities grown and marketed in the study area and therefore, the pattern of changes in production and arrivals of these crop types may not be applicable to the state as a whole.

Even though in Kolar district 92 per cent, Bangalore Rural district 85 per cent and Raichur district 32 per cent of farmers own less than 2 hectares of land, depending upon the commodity they grow the quantity of marketed surplus
varies never the fact that the marketed quantity is less. It is assumed that since the present study is going to examine the relative changes in production and arrivals over two periods of time the high or low percentage of marketable surplus in production per se does not have much significance. Further, since all the major commodities grown in the study areas are incorporated in to study it is assumed that ratio of market arrivals to the production will be a suitable indicator of changes in market performance.

1.10 Organisation of the Report:

The Thesis is divided into 6 Chapters. The First Chapter deals with the introductory part, including the review of literature, objectives, hypothesis, methodology and the profile of the study area. The Second Chapter consists of the agricultural marketing policies and programme- their history, importance and their impact. The Third chapter highlights the changes taken place in the field of agricultural marketing at the world level and in India and the system of agricultural marketing practice in India. In the Fourth Chapter detailed analysis of changes in agricultural production and marketing in the state of Karnataka is done. In the Fifth Chapter micro level analysis of shift in agricultural production and marketing is done in detail APMC wise, crop type wise, and district wise and also analysis of opinion survey of sample farmers is done to supplement the results of the secondary data analysis. In the Sixth Chapter, summary, conclusion and policy implications are given.