The Title of the Study:

Forestry has an important role in the economic development of the country through the utilization of forest products. Forest products like wood, satisfy many human wants. Wood is a versatile material and is used in many forms in daily life. Management of forest aims at satisfaction of those wants and at the general well-being of humanity. Judicious distribution of forest products and realization of adequate returns to the grower of forests, on a sustained basis, are two main concerns in the forest management. Marketing achieves these aims for any business. Marketing is also equally important in forestry, not only for selling forest products but also in building a favourable image for the profession.

Government owns most of the forest land in India. Government forests affect the market by their size and scale of activity involved. There are many methods of distributing forest products from such government forests in the society. Such methods include at one end of the list, free supply of forest produce from government forest, and by open competitive bidding in auctions, on the other end. Purpose of this study is to examine the auctions, which account for a major share of sale of forest products like timber and firewood, in the publicly owned forestry system in India. Following title
is therefore selected for this study:

"Study of Auction As A Marketing Mechanism For Forest Products, with a Special Reference To Timber And Firewood in Maharashtra State"

Literature Review:

First of all, the relevant and available literature will be reviewed to gain valuable insights. That will also help in formulating the hypotheses. Ample literature is available on technical aspects of forestry in the country as well as elsewhere. Indian scientific forestry has its origin from Germany. German forestry practices have influenced the world of forestry. The conservation ethics of German forestry was also the base of Indian forestry since over a century. It is only lately that fresh thinking has been started by foresters all over the world. Winds of change in India in this sphere have come from abroad and that too mostly from the United States of America, Canada, United Kingdom, France, West Germany and from The Scandinavian countries. Hardly any inputs have so far been received in Indian forestry from the socialist countries. The Report of the National Commission on Agriculture (1976) and its Interim Report - Man-made Forestry (1972), have become the most important landmarks in recent forestry management in India which recommended the change from conservatism to a dynamic commercial approach. Forestry education in the country is restricted
to the government-run forest colleges where candidates are first selected to the Forest Service and then trained as foresters. Lately some Agricultural Universities have taken to forestry research. Marketing and Business Management are not included in the syllabus of forestry education. There is hardly any literature on these subjects in India so far. One, therefore, necessarily has to refer literature published in the Western countries. Forest marketing does not appear to have evolved as a full-fledged subject as yet anywhere.

The literature that was available has been grouped under following headings for the purpose of this review: (1) Forestry, Forest Products and Marketing; (2) Limitations of the public owned forestry system; and (3) Auctions and other methods of sale.

(1) Forestry, Forest Products and Marketing:

Worrel (1959) asserts that forestry is only one cog in the economy's gearbox. It is an important cog, but the economy could get along without it. Forestry is not a good

\[1/\] Economics of American Forestry; Albert C Worrel; John Wiley & Sons, Inc. 1959 p 434-435
thing per se. It is good only if it produces goods and services that the people want, and people must want these forest products more than other things that they might produce or else forestry is not justified. Explaining forest product pricing the author states that forest products go through a series of processing and marketing stages, between the standing trees and the ultimate consumer. At each stage, a price is developed and prices become progressively higher as product moves along. However, further a product progresses in processing stages, less violent are the fluctuations in price. Wackerman et al (1966)\(^2\) emphasize proper harvesting of timber crops. They make an important point that the forests are not an end in themselves, but a means to human benefits. Non-use of forests results in waste of a resource. Harvesting of timber crops is a key to the most of the other forestry operations, as the culmination of all forestry efforts is a merchantable tree for service to mankind. Conway (1976)\(^3\) agrees with above and clarifies that the cutting of the trees in forest must be related to the ultimate use of the product, because if the trees are cut without regard to their end use, value is lost. The value of timber-products is entirely set by the market. The job of the forester:


\(^3\)/Principles of Timber Harvesting System: Steve Conway: Miller Freeman Publications: 1976
is to produce a product to market situations. The cutting operations should maximize the value of raw material. Total extraction of wood, with minimum wastage in the forest, should be the aim of harvesting, as virtually no part of a tree is unsaleable today.

According to Nautiyal and Chaudhary (1979)⁴/ although the State Governments enjoyed a near monopoly in production of timber and other forest produce, they had little knowledge of the final requirement of the consumers. The forests are owned by the State whereas forest-based industries are almost entirely in private hands. The lack of coordination between the production and utilization of forest produce has serious implication for investment decision in forestry sector. Guise (1950)⁵/ deals with the management of farm wood lands in USA. He also states the importance of cutting action in wood harvesting, which should be carried out with an eye on the ultimate sale and use value. Advance knowledge of the form of later manufacture and of the demands of the purchaser are essential prior to log making. He also concludes that the marketing of the products is the final step in the cycle of growing and utilizing trees. Profitable disposal is also essential if the stimulus for the continuous forestry practice is to be

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⁴/ Forest Planning Process in India: JC Nautiyal and RL Chaudhary Faculty of Forestry: University of Toronto: 1979
provided. This also stipulated that the owner who wishes to realize to the fullest extent upon the material he sells must have complete knowledge of the technological phases of utilization and problems peculiar to wood disposal. Such knowledge firstly, enables the seller to get in contact with right industries and secondly, it enables him to dispose of his wood to the markets to which it is most profitably adopted.

Duerr (1960) emphasizes importance of marketing as a focal point of forest management. He brings out the relation between timber marketing and status of timber economy of a nation, by suggesting six developmental stages in the life of a nation. He also explains situation of demand and supply of timber in each stage. From that point of view a developing country like India appears to be in the 'colonial' stage of timber economy, where marketing is a minor activity, but the market for stumpage and for logs, is developed. Timber utilization practices entail a fair amount of waste. In the processing mills there is little horizontal integration and little close adaptation of the raw material to the end product. In the woods, creaming is common. Gregory (1972) explains timber demand, supply and timber prices in a market economy.

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Author cautions foresters against becoming 'product' oriented. The book differentiates between 'forest production' and 'timber production', when in former the importance to the economy cannot be measured by money value whereas in the later case timber is by far the major source of revenue from forests. Author states that timber markets tend to be imperfect in competition due to extensiveness of forest areas and high transportation costs per unit volume. Importance of competitive sales is underlined. Author feels that correct stumpage pricing combined with sales procedures could become a powerful tool to promote efficient timber utilization and to further the desired pattern of industrial development. In developing nations the land holding pattern sometimes leads to monopolistic pricing. Gregory also lists peculiarities of timber growing process.

Johnston, et al (1978) define forest marketing as the process of planning and managing sales in order to marry supply and demand to the best advantage of forest enterprise. Forest marketing is not merely a matter of negotiating agreement on prices and deliveries, but may also be concerned with short and long term yield regulation. They stress to have a close link between logging plans and sales planning for success in marketing. Clawson (1976) has an incisive look at the management of the National Forests in USA by its Forest Service. Due

2/ The Economics of National Forest Management: Marion Clawson Resources For Future: Washington DC 1976
to very size of the forests owned by the State, they account for a major share of the supply of timber and many other products. The Forest Service, which manages such forest, therefore, affects or even makes the market price for timber by its actions. He severely criticizes the method of stumpage sale and advocates timber extraction by the Service itself and selling it at some related yards. Even though the forest service is required by law to sell timber at competitive sales, the competition in practice is less than perfect. The very volume of timber offered influences, if not dominates, the price. Thappar (1975) paints a frightening picture of wood shortages in coming decades. He finds the current practice of leasing forest areas on long periods to the industries a harmful practice, because this involves subsidized supplies of raw material to such industries. Government also suffers as it does not realize adequate revenues. Author recommends pricing of wood and other forest products on the basis of cost of the material and a margin for a reasonable profit. Sharma (1980) does not agree with others and finds the stumpage sale a convenient and useful method of timber sale which suits the forest department best. Author separates forest marketing from others

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10/ Second India and Forestry in India in 2001: SD Thapar Association of Voluntary Agencies for Rural Development - New Delhi 1975
11/ Forest Economics, Planning and Management: LC Sharma, Bishan Singh Mahendra Pal Singh: Dehra Dun 1980
in that the prime mover underlying different marketing policies vis-a-vis forest products has to be the maximum social advantage, which (therefore) suggests state's intervention. In short, in marketing forest products from public forests profit maximization is a secondary aim. *Timber Trade Journal* (1980) predicts that sooner the use of wood as fuel will be uneconomical than use of oil due to rising prices for wood. Use of wood as fuel is also a waste of valuable resource. *Singh* (1980) feels that the Indian wood trade is in doldrums and there is little marketing skill or effort being put in this moribund business. Chaotic state exists in timber production, selling and buying, according to him. Author thinks this is due to the fact that timber is placed in market intermittently and merchants cannot predict what timber they can get, say six months ahead of their requirement. They therefore cannot enter into forward contracts. Author suggests gauging the efficiency of the department and especially of Forest Corporations, by their marketing operations, among other things.

*Romme* (1981) finds the markets for forest products not well developed in India. This has two effects. Firstly, the government is deprived of a system of incentive formation.

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14/ The Uncultivated Half of India: Jeff Romme: *The Indian Forester* Vol 107 No 1 and 2 Jan & Feb 1981
Secondly a relatively large share of the value of produce goes to middlemen willing to assume the costs and risks of a disorganized market, and a small share goes to the producer. The Asian Development Bank (1969)\textsuperscript{15} estimated that in the Asian countries in general and in South East Asia in particular (India included) the major effort of forestry should be the production of fuelwood, for many decades to come. At present the major share of the wood produced in India is utilized as fuelwood by the rural population. Maslekar (1980)\textsuperscript{16} has endeavoured to bring all the details of existing wood product marketing together for the first time in India.

The Working Group (1978)\textsuperscript{17} mentions the need for improving the management capacity of foresters and Forest Development Corporations and mentions establishment of an Indian Institute of Forest Management in order to meet the requirement of commercial forestry in the country. The National Commission on Agriculture (1976)\textsuperscript{18} has suggested a two way approach to forestry development in India to meet industrial and social needs. Report suggested creation of Forest Development Corporations and emphasized that the forests should be developed as resources to be managed in a business-like manner.

\textsuperscript{15}/ Asian Agricultural Survey: Asian Development Bank: 1969
\textsuperscript{16}/ A Study of Marketing of Forest Products in Maharashtra: AR Maslekar, Programme Office, Indian Institute of Forest Management (Govt of India): Monograph No 1-October 1980
\textsuperscript{17}/ Report of the Working Group on Forest (Medium Term Plan: Forestry Sector: 1978-83) Govt of India - October 1978
NCA recommended that as far as possible no sale of standing timber in forests should be made. NCA also advocated modern management approach in forestry.

2 **Limitations of the Government Owned Forestry System:**

*Davis (1966)* 19 feels that forestry should be recognised as a business and as a segment of the total business community. He suggests inclusion of market analysis of present and potential outlets of different classes of forest produce in the forest management plans prepared by foresters. Author discusses the limitations of a manager of public owned forest. Such managers are more concerned with public policy and they have little authority in negotiated sales and are committed by law to sell at not less than the appraised value, by competitive biddings in public auctions. According to the author this appraised value is based on the operator of average efficiency. *Davis* also explains the Principle of Functional Price which guides the auctions of public owned forest produce. Functional Price may not be equal to current market price but satisfies many other considerations of the public forest owner. *Sagreiya (1979)* 20 finds the method of sell of standing timber to contractors a profitable method in the past. Certain mal-practices by contractors, in which foresters also unfortunately


connived, has brought this system in disrepute. Author also criticizes the working of Forest Labourers' Cooperative Societies. Haynes (1979)\(^{21}\) tackles the problem of small forest based firms. The Forest Service sets aside a pre-determined share of annual timber harvest for such small firms, based on consideration of equity, community stability, industrial diversity and maintenance and enhancement of competition. Author concludes that this set-aside programme provides an implicit subsidy to these firms to win such sales. In India the Forest Departments set aside some forest areas to F1CS. Wiegner (1977)\(^{22}\) discusses results of certain public laws in forestry in the United States. She found that the governments' order to regulate extraction on an "Even flow" basis, where timber sales from National Forests are required to be uniform in quantity every year, have pushed up timber prices in the market. This policy was good intentioned and aimed at protecting public interests against private greed. In reality it helped private industries and hurt the public more.

3 Auctions of Timber and Other Sale Methods:

Bentley (1968)\(^{23}\) suggests four important goals for guiding selection of timber sales procedures of Forest Service. They are, (1) Economic efficiency, (2) Economic progress.

\(^{21}\) A Comparison of Open and Set-aside Timber Sales of National Forests in Douglas-Fir Region: Richard J Haynes: Land Economics 5.5.2 May 1979

\(^{22}\) The American People Being Robbed: Kathlean Wiegner: Forbes October 15, 1977

(3) Economic stability, and (4) Equity. Kolbe (1975) describes the method of auction along with terms of sales. He concludes that auctions are a job of competent professionals and everyone cannot handle them. Dowst (1975) deals with negotiation in sales. Art of negotiation is explained. Sharing of information on a selective basis is more important in negotiation than playing an useful dodger with bargaining tricks and ploys, says the Author. Probing human nature is the essence of negotiation. Article also lists some do's and don'ts and gives tips for a successful negotiator.

Schill (1977) describes Dutch auction, where bids are successively scaled down starting from the highest. It is a useful method in retail marketing and in merchandising retail goods, according to the author. It also helps seller to solve his funds flow problem due to unsold inventory. Oren and Williams (1975) prove that in any bidding situation, where the value of the objects being competed for is uncertain, a party who unknowingly overestimates the value of that object, tends to bid higher than others, and is therefore more likely to win the bid. It is common experience in forest auctions in India, that the competition becomes keen when outsiders

25/Negotiation, Somerby Dowst: Purchasing: Oct 21, 1975
participate than when only local purchasers come for auctions. Oren and Rothkopf (1975)\(^28\) have suggested some tactics that a seller can adopt to break the collusion or rigging strategy of bidders. Author feels that a seller can increase his profits by reducing uncertainty the bidder's face, in their cost estimates of working, by bringing in additional bidders; by increasing the interval between successive auctions; and by changing institutional factors. Author recommends inviting at least one new bidder in each auction to break collusion of local bidders.

Bentley et al (1978)\(^29\) list market functions with respect to forest goods and services, such as (1) generating and transmitting information; (2) effecting exchanges; (3) handling commodities; (4) facilitating these processes; and (5) performing related social services. Authors state that the degree of development of the information function tends to be low when market participants (particularly sellers) are many and small, the product is highly variable, as seen in stumpage market. It tends to be high where market participants are few and large, and product is more uniform, as in case of paper market.

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Authors agree with Gregory that the timber markets may not be freely competitive because of distance barriers between where trees are grown and where wood is utilized, and because of deficiency of information. Authors say that the marketing of timber and wood products tends to be highly structured and complex. In case of publicly owned timber shed the supply of stumpage may be inelastic since most rules for the allowable cut in such publicly owned forestry, disregard price. Mead (1978)\textsuperscript{30} establishes certain relationships between the extent of competition and size and class of buyers in auctions. He finds that, (1) a significant negative relationship exists between the size class of buyers and the extent of competition, confirming a not power position for larger firms; (2) There is significant negative relationship between the extent of competition; (3) The extent of competition in a timber sale is a positive logarithmic function of the number of active bidders; (4) Sealed-bid sales do not result in bid/appraisal ratios significantly higher than those for other sales; and (5) Small firms pay a higher premium over the appraised price than larger firms. Author also proves that the appraised prices are unrealistically low statements of the timber's fair market value.

\textsuperscript{30} The Firm and It's Competitors: Walter J Mead; Forest Resource Management: Vol II OSU Book Stores Inc Cornallis: Oregon Reprint 1978
Dahl and Hammond (1977) find that the auction markets appear to be the most widely used where actual inspection of the product is desirable in order to determine its quality. They also state that the public policy owners and consumers are both concerned that the marketing system remains efficient and responsive. The performance aspects of marketing and pricing are the operational efficiency and pricing efficiency, respectively. The key to the achievement of both is the existence of and transmission of a complete and accurate market information. Panshin, et al (1962) detail all aspects of forest products, their end-products and woodbased industries. Indian Forest Utilization (1970) briefly mentions different methods of sales of forest products. Auction is one of them. Rich (1970) has brought out the only available text book on marketing of forest products. It, however, deals only with the processed wood products like veneer, pulp and paper manufactured and marketed by private industries. Forest products marketing, according to author, is not easy. Author also presents a model for a bidding strategy of a buyer in US Federal Timber sales (p 155). Clawson (1978) elaborates on the original idea of Mead of setting log markets on the lines of commodity markets, to ensure environmental protection and for drawing forth a larger total supply of logs in markets.

from both the national and private forests in USA. Nayak and Ravichandran (1979) have compared pricing procedures followed by the forest department and a private woodlot owner in Gujarat. They found that the prices obtained in public auctions of the timber are higher than the departments' scheduled rates. Mehta and Maslokar (1978-79) have prepared some teaching cases for Forest Management Courses for the proposed Indian Institute of Forest Management. They bring out the present status of forest products marketing in the country. The case on Timber Sales Depot at Delhi attempts to show the relation between the various attributes of timber logs and prices realised in auctions. Wide publicity of sales, assured quality of logs, smaller lots, and precise measurements, have created confidence in the timber market in Delhi. The depot earned handsome profits through its sales.

Hypotheses:

The forestry system was discussed at length in first two chapters. Marketing is expected to be an important activity in forestry. The literature reviewed also brought out certain aspects of timber growing and its distribution in the government owned forests. It was found that there are

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26/ Project Study on Pricing & Forest Products: AM Nayak and S Ravichandran Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad: November 1979

various ways by which the forest departments sell their produce or make it available to the consumer. Among them, auctions are traditionally conducted to sell forest products. Through auctions, the government realises its revenues and maintains its public accountability and image of fair play, as the products are sold by competitive biddings to the highest bidder. The public is also able to secure its requirements of wood and other forest products in the market through these auctions. It is seen that the middlemen play an important role in the distribution of the forest products in timber trade. Certain limitations of the system were also brought out.

Considering all these facts it is hypothesized that:

a) The auctions, despite their shortcomings, are the best available means of marketing the forest products such as wood, for a publicly owned forestry system as obtained in India.

b) It is further hypothesized that the auctions of departmentally produced wood that is offered at the sales depots, are the best approximation of the marketing concept in the given situation.

c) It is also hypothesized that in the system of auctions for marketing wood and wood products from Government forests, the middlemen have an important role in the distribution of such produce from the point of auction to the ultimate consumer. The middlemen are therefore indispensable in timber trade in the present circumstances.
For the purpose of the study the auction has been defined as an arrangement of sale of goods, by the seller, for increasing price by exciting competition amongst the purchasers.

These hypotheses will be tested with reference to the efficiency of the auctions. Satisfying both the aspects of operational efficiency and the pricing efficiency will be the criteria. It will be seen whether the auctions help achieve the minimum cost in the accomplishment of basic marketing functions of assembly, processing, transportation, storage, distribution and all related physical and facilitating activities. It will also be searched whether auction prices bring adequate returns to the department as a seller and whether they help allocate the wood efficiently among buyers. It will be endeavoured to find whether auctions give expression to consumer preferences and how far they help the department in the orientation towards the ultimate consumer.

Objectives of the Study:

1. To study the present forestry system in India and find the relevance of marketing in forestry.

2. To examine different methods of the disposal of forest products with a view to find the significance of auctions in the existing situation.

3. To study the auction with reference to its operation and pricing efficiency and to see how far it qualifies as a marketing mechanism in forestry.
4 To find out whether auctions can be improved to make them more effective within the existing Indian Forestry System.

Study Methodology:

The study is completed with the help of following activities:

(1) Secondary data from the records of the Forest Department of Maharashtra State was collected. Use is also made of all available reports of the Department, Forest Development Corporation of Maharashtra Ltd, Forest Labourers' Cooperative Societies in the State and the Forestry Division of the Government of India and the Central Forestry Commission. The research reports and teaching cases prepared by the Forestry Group in the Indian Institute of Management, Ahmedabad in collaboration with the Nucleus Group from the Programme Office of Indian Institute of Forest Management, Government of India, are also referred to.

(2) All the relevant literature was scrutinized in the library to obtain insights into certain principles, concepts and relationships.

(3) Field visits during various tours on duty afforded opportunity to update the data. The opportunity was also used to gather first hand information required for this study. Discussions were held with
Forest Officers in the Department and in FDCM. Office bearers of FLCS and Forest Contractors Association and representatives of Forest Contractors' Agents Association were also contacted.

(4) The data gathered from the important forest depots for the latest available auctions was analysed at home during spare time. Results are presented in form of tables, flow charts and graphs. Certain relationships are explained with the help of correlation coefficients. A few timber markets were visited to get prevailing timber prices and market trends.

Over and above, the experience gained over twenty three years, from the date of joining Forest Service, has been extremely valuable and is fully used in the discussion all through this dissertation.

The Sample Chosen:

India is a vast country and exhibits enormous variety in many respects. Same is true about its forests. However, forestry practices in Forest Departments of different states and in timber trade are generally same. Any state could offer itself as a good sample for this study. Certain advantages in carrying out this work including the nearness from the place of study, have favoured Maharashtra State as the area of the study.
Limitations of the Study:

The Study is based on the latest possible secondary data from the records of the State Forest Department, and Government of India publications and reports in forestry. Field visits were undertaken to visit and study some selected timber depots and principal forestry working locations in the state. Discussions were held with Forest Officers, Managers of the Forest Development Corporations, Office Bearers of Forest Labourers' Cooperative Society, of Forest Contractors' Association and Forest Contractors' Agents' Association. Some case studies and research work carried out by the Forestry Group at the Indian Institute of Management, Ahmedabad, provided considerable insights. All said and done, forestry is a vast subject. Management orientation is a very recent development in this sector. Lack of adequate data and information are principal shortcomings of many activities in the country and forestry is no exception. Up-to-date comprehensive and accurate data is difficult to obtain readily. Whatever data is available, is rather sketchy and hence there are certain limitations for this study. The very concept of forestry as a business is rather new, and not yet accepted by all. There is therefore only a small beginning in this respect. There are apprehensions and skepticism in the foresters' mind towards applicability of general management techniques and concepts in forestry. It is also not feasible for a single researcher
to look into every aspect of the study. Endeavour has been made to cover as many aspects as possible in this new field of forest products marketing.

**Scope of the Study**

Eventhough the states administer their forests separately, there are some basic commonalities in Indian forestry. Firstly, the National Forest Policy decides the overall orientation of country's forestry. Secondly, there is a uniform legal base for all punitive and protective actions in forestry provided by the Indian Forest Act (Act LXVI of 1927). Thirdly, all the forest officers are imparted similar training at various levels in government forest colleges and schools. Courses are suitably abridged or expanded to suit each level. These ensure a common background and outlook to the forestry personnel, all over the country. In this study, Maharashtra state is chosen as a reference state. It is the third largest and the highest industrialized state in the Indian union. As a major part of former Bombay State, it has a long tradition of scientific forestry. It is one of the four states that produce some of the most valuable timbers of the market i.e., Teak and Rosewood. The state had pioneered many forest related activities such as creation of Forest Labourers' Cooperative Societies; the Forest Development Board; establishment Integrated Saw Mill-Seasoning cum-Preservation Units for processing secondary timbers; Involvement of Food-for-Work Programme and Employment Guarantee
Schemes in forestry development; and adoption of a 15 year Perspective Plan for Forestry, etc. Over and above, most of the data regarding forests and its working is readily available. The State also has two of the country's biggest timber markets located at Nagpur and Bombay. Bombay is also one of the biggest ports of India. It was therefore felt that a study carried out in Maharashtra would cover almost all the aspects of timber marketing, as are obtained in the country and hence the study would be a representative one in its scope.

**Layout of Study:**

To understand the role of auctions in marketing of forest produce it is necessary to know the Indian forests and the forestry system. First two chapters were therefore devoted to this aspect of study. Certain hypotheses regarding efficacy of auctions in wood marketing are formulated in this chapter, based primarily on the existing literature, field experience, and some secondary data. Timber market, trade practices, distribution channels, role of middlemen in timber trade, and overall orientation of the Forest Department towards marketing is discussed in Chapter 4. The entire mechanics of auction, from the time the crop is set for felling to the point of sale, is detailed in Chapter 5. The pricing of wood products is considered in Chapter 6. A critical look into the auction, is taken in Chapter 7 to see what purpose it serves; what
utilities it satisfies; how efficient are auctions from operational and pricing point of view; and their effectiveness in satisfying the aims and needs of the producer as well as of the consumer. The last Chapter deals with suggestions and recommendations, in the light of entire discussion, to make the auctions more effective. Some suggestions for further research are also made.