## CHAPTER V

**HIERARCHICAL PATTERN OF THE PERIODICAL CATTLE MARKET CENTRES IN AURANGABAD DISTRICT.**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Introduction.</td>
<td>228</td>
</tr>
<tr>
<td>5.2</td>
<td>Important studies on the determination of hierarchy of market centres.</td>
<td>229</td>
</tr>
<tr>
<td>5.3</td>
<td>Techniques used for identification of hierarchy.</td>
<td>230</td>
</tr>
<tr>
<td>5.4</td>
<td>Eleven Indicators / variables used for hierarchical orders of cattle markets in Aurangabad district.</td>
<td>231</td>
</tr>
<tr>
<td>5.5</td>
<td>Details about hierarchical orders of cattle market places.</td>
<td>234</td>
</tr>
<tr>
<td>5.6</td>
<td>Conclusion.</td>
<td>254</td>
</tr>
</tbody>
</table>

References.
5.1 Introduction

In the previous chapter, the sellers, buyers, middlemen and the service areas of the cattle market places in Aurangabad district have been analysed and it has been concluded that the sellers, buyers, middlemen play an important role in the cattle marketing activities. They are the actors in the cattle marketing system of the district. They take care of cattle in all respects including theft of cattle, feeding and breeding of cattle, diseases caused to cattle etc. These participants are the main source of income to the cattle markets in Aurangabad district. It has been also discussed the importance of extensive service areas for the development of cattle markets of the district in the previous chapter.

The hierarchy of cattle markets places especially hierarchical base and hierarchical orders of the cattle markets in Aurangabad district are expounded in this chapter. The term hierarchy denotes ranking of periodic cattle market places into successive groups which have been determined on the basis of several variables. The meaning of "hierarchy" is the organisation with grades of authority from the lowest to the highest (oxford dictionary 1969).

According to H. M. Saxena (1990), A study of the hierarchical pattern is essential to understand spatial interdependence of the market places, functional system of market discrete stratification of centres and for interestial placement of orders". The hierarchical pattern of market places provides a base for regional development and planning of a country. The term hierarchy will be construed to mean a connected set of linkages involving at least three centres" (Taaffee 1962). The cattle market centres are categorized broadly according to their order or rank. The hierarchical system constitutes an integral part of spatial models of the periodic cattle market places. (Please refer chapter III).
5.2 Important studies on the determination of hierarchy of market centres:

In order to understand the pattern of hierarchy, important studies have been made by the geographers, Economists. But this study is of varied nature. The work of Walter Christaller (1931) translated into English in 1966 in the form of "Central place theory" may be considered as a pioneeering work, related with the hierarchy of central places in Southern Germany. Christaller's central place theory is a much discussed theory and today very few geographers accept all the aspects of this theory. But it is the fact that his work has stimulated some of the most advanced and scientific work in geography. August losche (1939) was another scholar whose Economics of location was related with the central problem of the locating economic activity. He stressed that economic factors are more important for spatial pattern of service centres or settlements. He presumed the equal distribution pattern over flat plain with self sufficient farms equally spaced. Spatial differences would emerge due to forces of concentration and of the operation of economics of scale. The result of loschan land scape is the series of circular market areas. But his scheme was not proper for determining a hierarchy in actual terms. Mr Berry (1967) has indentified the hierarchy of central places in the South Western Iowa, South Dakota and Chicago, is the acknowledged work in U.S.A. He has identified seven orders of hierarchy namely (1) hamlet (2) village (3) large village (4) small town (5) regional centre (6) regional metropolis and (7) national metropolis based on different variables and their correlations.

Again Mr. Thorpe (1968) has developed hierarchy of service and trade centres in the United Kingdom on the basis of sale figures of all centres in the country. He has identified seven types of centres namely regional centres, sub-regional centres, area centres, major centres, district centres, local centres and village or small suburban centres.
Garmier and Delober (1979) are of the opinion that hierarchy of commercial centres be determined by "equipment" such as variety of speciality shops; quality of shops, variety of goods sold, forms of organisation etc. and functioning of the "equipment" in terms of "turn over". Other geographers have determined the hierarchy on the basis on single variable like number of retail shops, threshold population or the size of trade area etc. But the hierarchy should be determined on the basis of several variables for understading regional indentity.

The types of periodic market places according to their size and functions is essential for understanding the relationship amo ng the individual market place and the organisation of these markets into a system.

All market places of the district are not equally significant in total areal, functional organisations. But they differ in their service provisioning capacities. The concept of hierarchy concerns itself into the differentiation of cattle market centres into broad categories, according to their relative importance.

5.3 Techniques used for identification of hierarchy

Wayne Mckim (1972) has used the interview technique to determine hierarchical levels of market places. Before that Mr. Skinner (1964) had applied the interview technique to identify hierarchical levels or grades of market places. As far as the cattle market places of Aurangabad district are concerned the hierarchical typology of market centres supported by Mr. Skinner is not fully applicable. Hence the technique of interview, observation of cattle markets, processing and interpretation of statistical data have been used for the determination of hierarchical levels of cattle market places of the district. The hierarchical level is expounded on the data collected during the field work in 1994-1996. The district census book 1991 has been used to compute total service areas of the markets.
5.4 Eleven indicators / variables used for hierarchical orders of cattle markets in Aurangabad district.

Eleven indicators or variables are used for the clarification of hierarchical grades of cattle markets in the district. The size of cattle market as the areal indicator and other functional indicators are used for the clarification of grades of cattle markets. The variables used for gradation of hierarchy of cattle markets of Aurangabad district are (1) The size of cattle market (2) Number of cattle displayed for sale at cattle market place (3) Population included in the services area of cattle market places (4) The service areas of periodic cattle market places (5) Travel distance of buyers to cattle market place (6) Frequency of buses (7) Frequency of trains (8) Attendance of sellers (9) Attendance of buyers (10) Social provisions like resthouses, veterinary, telephone services etc. (11) Annual income to the organising body from the marketing activities.

The above mentioned variables are used to find out hierarchical levels or orders of cattle market places in the district; but it is difficult to find out annual income of the cattle markets. Because annual income is changable of each year and is also difficult to obtain data regarding annual income. However, an attempt has been made to find out annual income of cattle market while doing field work. The annual income was searched out from the marketing bodies, from the contractors of the markets, from the local persons and institutions which are concerned with the marketing activities of the cattle market places of the district.

The eleven indicators, which are mentioned above are selected to represent hierarchical order of cattle market places. A value between 1 to 5 has been allotted to each indicator in respect of individual grading. However the scores are awarded arbitrarily. The combined values of eleven variables have been used to identify different grades of hierarchy of the cattle market places of the district.
The details for counting values allocated to areal and functional indicators are given at the end of this chapter in the appendix to identify hierarchy of cattle market places of the district.

The total score is 55 of the 11 indicators for the grade of hierarchy of the periodic cattle market places of Aurangabad district. According to these scores the orders of hierarchy of cattle market places are determined. The periodic cattle market places which have obtained the score of 20 or below 20 are included in the third order of hierarchy whereas the cattle market places scoring 21 to 40 values have been included in the second order of hierarchy. The first order of hierarchy are obtained to those cattle market places which have secured above 40 scores or values.

Thus, the hierarchical order of cattle market places with 11 variables have been determined with ranking method. Three orders of hierarchy of cattle markets are identified in the district. The third order of hierarchy of market places are 17 and the second order market places are 21 in number which is the largest number among the grades of markets. The first order of hierarchy of markets has been determined with 4 market places only. The first order of hierarchy of market places are only from the urban areas of the district. The grades or the orders of hierarchy of periodic cattle market places of the district have been depicted in Fig. 5.1.
HIERARCHICAL ORDERS OF CATTLE MARKET CENTRES IN
AURANGABAD DISTRICT

(Based on ranking)

Fig. No. 5.1

INDEX

--- District Boundary
---- Taluka Boundary

● I\textsuperscript{st} Order cattle market centres
○ II\textsuperscript{nd} Order cattle market centres
○ III\textsuperscript{rd} Order cattle market centres
5.5 Details about hierarchical orders of cattle market places.

The first order cattle markets in Aurangabad district are four in number. Out of these four centres, Aurangabad is the district and taluka head quarter and other three centres namely Kannad, Paithan and Vaijapur are the taluka headquarters. Kannad is located to the North West part, Vaijapur to the Western part and Paithan is located to the Southern part of the district place Aurangabad. The highest score of the first order cattle market centre goes to Aurangabad centre. These first order market centres represent the highest order of marketing activity in the district. They may be considered as the controller of the regional economy of the Aurangabad district. The second order cattle market centres in the district are 21 in number. In these second order marketing centres, only two centres are the taluka head quarters and remaining nineteen centres are the major villages of the district. They are spatially distributed in all parts of the district. However the largest number of second order cattle market centres are identified in Paithan taluka which is followed by Sillod taluka. Again the second order cattle market centre is confined each to Aurangabad, Khuldabad and Kannad talukas of the district. The third order cattle market centres in Aurangabad district are 17 in number. They represent the lowest order of cattle markets in Aurangabad district. All these market places are the villages in the district. They are located in each taluka of the district except Soyegaon taluka which has no cattle market. However there is a market concentration of five market villages in Kannad taluka which is the highest number in the district. This highest number of the third order market centres may be due to vast hilly areas, low population, very limited transport facilities in Kannad taluka of the district. These centres are located in the isolated areas and they are linked with Kaccha roads. In Aurangabad Taluka, the third
SIZE OF WEEKLY MARKET, CANTONMENT, AURANGABAD

MAP SCALE 1:900
Total Area 6.60 Acres

- Cattle Market
- Vegetable Market
- Water Tank

Entrance

Fig. 5.2
SIZE OF GANGAPUR MARKET
Map-scale 1/2640
Total Area 2 Acres

Cattle market

General Market

From Gangapur

To Aurangabad

Index Road

Water Tank

Godean

Fig 52
SIZE OF JIGTHAN MARKET
(GANGAPUR TALUKA)

Map - Scale 1/656
Total Market Area - 1 Acre.

Goat Market

Cattle Market

General Market
with Vegetables.

INDEX

Human Settlement

Temple

Fig 5.2
SIZE OF PAITHAN MARKET

Map-scale 1/432
Total Market Area
2.6 Acre

General Market

Doleshwar Temple

Cattle Market

Godavari River

New Durga Hotel

Index
River
Temple
New Durga Hotel

Fig 5.2
SIZE OF BIDKIN MARKET
(PAITHAN TALUKA)

Map scale 1/2520
Total Market
Area 4 Acres.

- Cattle Market
- General Market

Index
- Trees
- Big Well

Fig. 5.2
SIZE OF THE
PACHOD MARKET.
(PAITHAN TALUKA)

Map Scale 1/450

Total area 1 Acre.

CATTLE MARKET

GENERAL MARKET

To

From

Aurangabad

Index

Road

Statue

Human Settlement

Fig 5.2
SIZE OF SAVANGI BAZAR (MARKET)
(KHULDA BAD TALUKA)

Map scale 1/422
Total market area 2420 square yards

Index
- Road
- Tamasha (Recreation) Theatre

Fig. 5.2
SIZE OF SULTANPUR MARKET
(KHULDAHAD TALUKA)

Map Scale 1/520
Total Market Area 242.0
Square Yards

FROM KHULDAHAD

Cattle Market
Vegetable Market
General Market with food, grain, cloths, sweets etc.

INDEX
Road
Trees
River
Human Settlement

To Fulambri

Fig. 5.2
SIZE OF VAIJAPUR MARKET

Map Scale 1/880

Total Market Area - 2.5 Acres

Cattle Market

Sheep-Goat Market

Index
- Store House
- Trees
- Temple

Fig 52
order market centres are 3 in number. This may be due to more vigorous Aurangabad cattle market centre in the Taluka. Again the third order cattle market centres are identified in two in numbers in each taluka of Sillod, Vaijapur, Gangapur and Paithan. In Khuldabad taluka, one cattle market is included in this category. Some of the third order market centres have a scope for the upgradation to second order market centres in due course of time with the development of transport facilities, political influence, encouragement of the people, planning of the local bodies, co-operative efforts of the people with unity in such village markets.

Thus, the periodic cattle market centres of the Aurangabad district have been classified in three groups or orders on the basis of resultant scores. The details about these groups of cattle markets places are as follows.

5.5.1 First Order market centres

As we have seen earlier that there are four cattle markets in this category. These centres have most of the characteristics of the marketing functions. The Aurangabad cattle market centre has secured the highest score of 45 out of 55. Kannad, Paithan and Vaijapur cattle markets are also included in the first order of the hierarchical level which have equal score of 41. As compared to Aurangabad periodical cattle market centre, they lagged behind by 4 scores only. The "Dawan" or the line of cattle with tied ropes of specific distance in these cattle market places are arranged on the second day of the market place. The first order market places are the most vigorous market places of the district. They have been developed into the nodal centres where the routes are converged from nearly all directions. The size of cattle markets in this category is 3 to 7 acres and above. The size of Aurangabad market and other cattle market is shown in Fig. No. 5.2. The number of cattle displayed for sale at these first order cattle market centres per market day
is above 600 cattle. The population included in service area of these cattle market centres is above 60,000 at Aurangabad and from 30,001 to 60,000 at Kannad, Paithan, Vaijapur cattle market centres. Again the service areas of these cattle market centres is from 10,001 to 20,000 sq. kms. The travel distance of buyers to these cattle market centres is above 250 kms. The frequency of buses and trains, attendance of sellers and buyers in these markets, various social provisions and the annual income of these first order market centres are the highest in this category as compared to the second order and the third order of the hierarchical levels of the cattle market centres in the district. The frequency of buses on the market day at the first order market centres varies from 101 to 150 and above 150. Aurangabad cattle market centre has the frequency of buses above 150. Every day 600 buses run from Aurangabad bus station, excluding private bus service. Remaining first order market centres have the frequency of buses from 101 to 150. But the most remarkable matter is related to the frequency of trains of the first order market centres. The only Aurangabad cattle market centre has got the benefit of the frequency of trains. The only Aurangabad cattle market is the railway station. There is a frequency of 20 Express and passenger trains at Aurangabad railway station per day. There is no special train on the market day. Remaining first order market centres are not situated on the railway line. Therefore they did not get the benefit of the trains except Aurangabad cattle market centre in this first category.

The attendance of sellers is 341 to 480 and above at these market centres while the attendance of buyers varies from 601 to 800 and above 800 in these first order cattle market centres. Various social provisions like drinking water, rest houses, fencing, tress for taking rest to the cattle, telegram, telephone facilities, veterinary facilities, lighting at night etc. are provided in the first order market centres. The annual income is also maximum of the first order market centres of the district. For instance, the annual income of
Aurangabad cattle market centre is Rs. 9,60,000 approximately which is the highest income of the cattle market, among the other cattle markets. Thus, the graded values allotted to areal and functional indicators mentioned above are the maximum or the highest in these first order market centres as compared to other categories of the hierarchical orders of the markets. The first order market centres dominate over the less active less powerful market centres of the district. Because social provisions and other facilities including transport facilities are easily available to first order market centres. Other categories namely second order and third order market centres have very limited social provisions and also limited transport facilities.

5.5.2 Second Order Market centres

There are 21 second order market places in this category. The second order market places have limited market functioning. These market places have secured the score from 21 to 40. The notable market places in this category are Gangapur, Bidkin, Adul, Sillod, Bharadi, Manur, Lasur, Pachod, Wadod, which have secured the score from 26 to 31. However the highest score 31 goes to Gangapur cattle market, followed by Bharadi cattle market. Some of the names of second order market places are Pishor, Jigthan, Fulambri, Deogaon (R), Savangi Bazar, Adul Khurd and Adul Budruk, Dhorkin, Devalgaon Bazar, Parsoda and Mahalgaon. They have secured the value from 21 to 25. The "Dawan" or the line of cattle with tied ropes of specific distance in these cattle market places are not arranged on the second day of the market place. The second order market places are less vigorous market places. But they have a tendency for their development in future. In this category the network of transport and communication, social provisions are being provided in due course of time. In this category the size of cattle markets varies from 2 to 3 acres and 4 to 5 acres. The number of cattle displayed for sale at
these 21 cattle market places per day is from 301 to 600. Again the population included in service areas of these cattle market places varies between 15,001 to 30,000 with few exceptional centres like Gangapur centre which has above 30,000 population in the service areas. Besides, the service areas of these second order market places are from 10,001 to 15,000 sq. kms. The travel distance of buyers to these market centres is from 201 to 250 kms. The frequency of buses and trains, attendance of sellers and buyers, the social provisions and the annual income of these second order market centres are higher than the third order of the hierarchical levels of the cattle market centres in the district. The frequency of buses on the market day of the second order market centres is from 51 to 100. Regarding the frequency of trains, the Lasur railway station has got advantage. Other market centres in this second order category are not linked with the railway line. But there is no special train on the market day at Lasur railway station. The second order market centres have the attendance of sellers from 201 to 340 and that of buyers from 401 to 600. There are limited social provisions in these cattle markets. They include shedding of trees, drinking water, network of transport and communication. The annual income of the second market places is from Rs. 75,000 to 1,10,000. The second order market places dominate over the less active third order market places of the district. A few tahsil head quarters and big size villages comprize the second order group of cattle markets in the district.

5.5.3 Third Order Market centres

There are 17 periodic cattle market places in the third order of the hierarchical level of market places. The size of cattle markets, in this grade is below 2 acres. The third ordered market places have less economic activities in comparison to the second order market places of the district. These market places have a very limited linkages of roads.
All these third grade market places are away from the railway line. The cattle are brought to the cattle market places from the less distant areas i.e. from the areas of 50 Kms. distance or from the neighbouring village. The number of cattle displayed for sale at these market centres are below 150 cattle heads. The service areas of such periodic market places are also below 500 kms. The frequency of buses is below 10. Besides the attendance of sellers in the markets is below 60 and that of buyers is below 200. The social provisions like telegraphs and telephone services, veterinary and other services are also negligible in this category. The annual income of these market places varies from 10,000 to 20,000 rupees. Some of the places which are included in the third order of this hierarchical level are Charthan, Pimpri, Savangi, Sidhanath Wadgaon, Chapander, Hatnour, Digar, Shafapur, Chincholi (Limaji), Lohgaon, Zalki, Gavalitanda, Sultanpur.

The participants are mostly local, A very few participants attend the market from the longer distances. These centres command the population below 5000 including their services areas. The middlemen are mostly unregistered and generally speaking there is no collection of market fee / cess by the local body of the markets from the sellers for the encouragement of marketing activity. In few market places a very few amount is collected as the market fee or cess.

The majority of the sellers, buyers, middlemen belong to the same market village. This category has got the lowest order in the hierarchical level of the periodical cattle market places of the district.

The third order market places of the district reveal their linkage by bullock carts to Kaccha roads or unmettelled roads. In few cases, state roadways are connected to these village markets. But there is not a single market in this category which lagged behind in getting the benefit of direct bus service.

The above empirical evidence about the hierarchical levels of the periodical cattle market places stemming from the values of variables has identified the
status or grade of the cattle market places of the Aurangabad district. The taluka wise distribution of the orders of cattle market places of Aurangabad district is recorded in the following table.
**TABLE 5.1**

TALUKAWISE GRADES / ORDERS OF CATTLE MARKET PLACES IN AURANGABAD DISTRICT.

<table>
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<th>1</th>
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<tbody>
<tr>
<td>Sr. No.</td>
<td>Score / Value of Indicators</td>
<td>Order of Cattle market places</td>
<td>Talukawise numbers of cattle markets with percentage</td>
<td>Grade wise Total number and percentage</td>
<td>Remark</td>
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<td>---</td>
</tr>
<tr>
<td>1</td>
<td>Above 40</td>
<td>1st Order</td>
<td>1 (25%)</td>
<td>1 (25%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>2</td>
<td>21 to 40</td>
<td>IIInd Order</td>
<td>1 (4.7%)</td>
<td>3 (14.3%)</td>
<td>2 (9.6%)</td>
</tr>
<tr>
<td>3</td>
<td>Below 20</td>
<td>IIIrd Order</td>
<td>3 (17.6%)</td>
<td>2 (11.7%)</td>
<td>5 (29.6%)</td>
</tr>
<tr>
<td>4</td>
<td>—</td>
<td>—</td>
<td>5</td>
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</table>
The above table reveals that the percentage of first grade cattle market centres is the common or equal i.e. 25 % each in Aurangabad, Vaijapur, Paithan and Kannad talukas. No first order cattle markets centres are observed in Gangapur, Sillod and Khuldabad talukas. It has been noticed that Soyegaon taluka is devoid of any grade of cattle market place in the district. The second order markets have the highest percentage (28.6 %) in Paithan taluka, followed by Sillod taluka which has 23.8 % of this order of markets. In Gangapur and Vaijapur talukas, the second order markets have the equal percentage (14.3%) each. The lowest percentage of the second order cattle markets are observed in Aurangabad and Khultabad talukas of the district. The Kannad taluka has the highest percentage (29.6%) of the third order cattle markets which is followed by Aurangabad taluka. The equal percentage i.e. 11.7 % of the third order cattle markets are identified in Gangapur, Paithan, Sillod and Vaijapur talukas whereas the lowest percentage of this category of markets is confined in the Khuldabad taluka of the district.  
While making observation, we can say that the first order periodic cattle market centres are in a small number and the second order markets have the largest number in the district. The third order markets are in the middle as far as the number of the category of the markets is concerned. There is possibility for the upgradation of cattle markets if the population and the number of cattle heads are increased, the network of transportation and communication spreads, the social provisions made available.

5.5.4 Physical units of Aurangabad district and the grades of cattle markets.

As far as the physical units of Aurangabad district are concerned, the first grade markets are mainly in the plain areas of the district. There are 75 % first grade cattle markets in the plain areas and 25 % of them in the plateau areas of
the district. It is noted that in the hilly areas of Aurangabad
district no cattle market of this category is identified.
Secondly, all the first order markets are having taluka
headquarters as well as the district head quarter. They have
urban base. All the favourable conditions including
population density, means of transport, vast service areas,
cattle population is up to the level in the plain areas rather
than other physical units of Aurangabad district. The second
grade markets have the highest percentage (52%) in the plain
areas of the Aurangabad district. The percentage of the
second grade markets in the plateau areas and the hilly areas
of the district is 33 % and 15 % respectively. These second
grade market places have limited network of transport,
population, limited social provisions. They are mainly
located in the rural areas of the district. If the network of
transport, population of a place and population in service
areas, social provisions are developed, the surrounding areas
are economically developed and other cultural factors are
favourable, then some of the second grade markets have
chances in future for upgradation to first grade markets.
Specifically Gangapur, Bidkin, Pachod, Sillod and Bharadi
cattle markets have opportunities for the upgradation of the
first order cattle market places in the district. They have
scored the values from 29 to 31. As far as the third grade
markets in the district are concerned, the hilly areas and the
plain areas equally have the highest percentage (41% each).
There are a large number of the third grade market places in
the hilly areas of the district, mainly because of very limited
transport service, low density of population, very limited
service areas, few social provisions, less interest of the local
marketing body, lack of political power; negligence of local
people about marketing activites. In the plain areas of the
district, the number of third grade markets centres is large
because there are leading cattle market centres like
Aurangabad, Paithan, Vaijapur. They are most vigorous
cattle markets. Therefore neighbouring cattle market places
like Charthan, Pimpri (Khurd), Pimpri (B.K.), Gavalitanda,
Loni (B.K.), Loni (Khurd), Lohgaon (B.K.), Lohgaon (Khurd) etc. have became weak because of very limited infrastructure. All these third grade market places are the small villages in the district. Therefore, the participants prefer the most vigorous cattle markets having all sorts of facilities required to them. The percentage of third grade market places in the plateau areas of the district is only 18%. There are changes for upgradation to the Sidhanath Wadgaon, Digar, Shafepur, Lohgaon, Sultapur cattle market place which have secured the values in the range of 16 to 20 out of 55 values. Thus, the physical units also affect the distribution of the grades or the orders of the cattle market places in the district of Aurangabad.

5.6 Conclusion

The foregoing discussion reveals that the hierarchical pattern is helpful to understand spatial interdependence of the market places. It provides the basis for regional development and planning of the country. In respect of hierarchical pattern, the works of Water Christaller, August Losche, Berry, Mr. Thorpe, Garnier and Delobez are noteworthy for the research studies on the determination of hierarchy of market centres. Mr. Skinner, Mr. Wayne Mckim have used the interview technique to identify hierarchical level of market places. For the determination of hierarchical levels of cattle market places of the district, the interview technique, observation of cattle markets, the processing and analysis of the statistical data have been used. Eleven indicators of 55 scores have been used for this purpose. The size of the cattle markets, The number of cattle, displayed for sale, the population in service areas of the cattle markets, service areas, frequency of buses and trains, attendance of sellers and buyers, social provisions, annual income of the cattle markets etc. are used as the indicators. In Aurangabad district, three orders of cattle market centres have been searched out from the scores.
The first order cattle markets are only four in number, located in urban areas. They are Aurangabad, Paithan, Kannad and Vaijapur. They have secured more than 40 scores. They are the most vigorous cattle markets of the district. The size of the market, number of cattle displayed for sale, population in service areas, transport service, social provisions, annual income etc are the highest in this category. The most of the facilities are provided to these markets. Whereas the second order market centres in the district have limited market functioning. They have secured the values from 21 to 40. These second grade markets are less vigorous as compared to the first order market centres. They have limited size of the market and the social provisions are also limited. The annual income of this category ranges from Rs. 75000 to 110000. Again the third order market places have less economic activities. The cattle are brought to the market from very less distant areas. The size of the market is very small and the social provisions are negligible. The maximum annual income of the third order markets is upto Rs. 20000/ -. The population of the service area is also very low. The participants are mostly local. These markets are linked by bullock carts to *Kaccha* roads.

Although there are three orders of cattle markets in the district, the cattle marketing system as a whole has a distinctive significance for interrelationship among different levels of hierarchy of the cattle markets. The spatial distribution of the first order cattle markets is even. But other categories of cattle markets vary in their spatial distribution. The higher order of cattle markets serve comparatively larger population, and their service areas are also larger than those of the lower order of cattle market centres. The higher order centres are spatially located as to be accessible to the lower order cattle market centres in the district.

It is remarkable that there is no first order cattle market in Gangapur, Khuldabad, Sillod talukas whereas Paithan taluka has the highest percentage of the second order markets. The third order cattle markets have the highest
percentage in Kannad taluka and the lowest percentage in Khultabad taluka of the district. It must be noted that Soyegaon taluka does not have any cattle market of first order, second order or that of third order cattle market.

According to the physical units of Aurangabad district, 75% first order cattle markets are confined to plain areas due to economic development, various social provisions and other favourable factors. It is also noted that in the hilly areas of the district, the first grade cattle market is not identified. The second grade cattle markets are also the highest in number in the plain areas, followed by the plateau areas of the district. The third order cattle markets are mainly found in the hilly areas and the plain areas. They are the weak cattle markets; located in a small villages. They have very limited infrastructure. Although they are categorized as the first order, second order and third order cattle markets, still they have their linkage or correlation with one another in many ways. There are bright chances of upgradation to third grade and second grade cattle markets. They may be upgraded in due course of time in the second grade cattle markets and the first grade cattle markets respectively.

Thus in this chapter we discussed about the hierarchical pattern of the periodical cattle markets of the district.

In the next chapter, it is proposed to study the transportation system of the district, which plays an important role in the development of cattle markets places and the economic activities of the people. The transportation system is very much related to the hierarchy of the cattle markets. The outward movement of cattle, the itinerent sellers, other participants are mainly relied on transport facilities. The roads and the railway lines can help to uplift rural cattle market places to the higher grade.
**APPENDIX**

**GRADED VALUES ALLOTED TO AREAL AND FUNCTIONAL INDICATORS**

1. **Size of cattle market** :-
   
<table>
<thead>
<tr>
<th>Acres</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 2 Acres</td>
<td>1</td>
</tr>
<tr>
<td>2 to 3 Acres</td>
<td>2</td>
</tr>
<tr>
<td>4 to 5 Acres</td>
<td>3</td>
</tr>
<tr>
<td>6 to 7 Acres</td>
<td>4</td>
</tr>
<tr>
<td>Above 7 Acres</td>
<td>5</td>
</tr>
</tbody>
</table>

2. **Number of cattle displayed for sale at market centres** :-
   
<table>
<thead>
<tr>
<th>No. of Cattles</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 150 cattle</td>
<td>1</td>
</tr>
<tr>
<td>151 to 300</td>
<td>2</td>
</tr>
<tr>
<td>301 to 450</td>
<td>3</td>
</tr>
<tr>
<td>451 to 600</td>
<td>4</td>
</tr>
<tr>
<td>Above 600</td>
<td>5</td>
</tr>
</tbody>
</table>

3. **Population included in service areas of cattle market places**
   
<table>
<thead>
<tr>
<th>No of Persons</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 5000</td>
<td>1</td>
</tr>
<tr>
<td>5001 to 15000</td>
<td>2</td>
</tr>
<tr>
<td>15001 to 30,000</td>
<td>3</td>
</tr>
<tr>
<td>30,001 to 60,000</td>
<td>4</td>
</tr>
<tr>
<td>Above 60,000</td>
<td>5</td>
</tr>
</tbody>
</table>

4. **Service areas of periodic cattle market places**
   
<table>
<thead>
<tr>
<th>Area in square Kms.</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 500 Kms.</td>
<td>1</td>
</tr>
<tr>
<td>501 to 10,000 Sq. Kms.</td>
<td>2</td>
</tr>
<tr>
<td>10,001 to 15,000 Sq. Kms.</td>
<td>3</td>
</tr>
<tr>
<td>15,001 to 20,000 Sq. Kms.</td>
<td>4</td>
</tr>
<tr>
<td>Above 20,000 Sq. Kms.</td>
<td>5</td>
</tr>
</tbody>
</table>
5. Travel distance of buyers to cattle market places

<table>
<thead>
<tr>
<th>Travel distance in Kms.</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 50</td>
<td>1</td>
</tr>
<tr>
<td>51 to 150</td>
<td>2</td>
</tr>
<tr>
<td>151 to 200</td>
<td>3</td>
</tr>
<tr>
<td>201 to 250</td>
<td>4</td>
</tr>
<tr>
<td>Above 250</td>
<td>5</td>
</tr>
</tbody>
</table>

6. Frequency of buses

<table>
<thead>
<tr>
<th>No. of buses</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 10</td>
<td>1</td>
</tr>
<tr>
<td>11 to 50</td>
<td>2</td>
</tr>
<tr>
<td>51 to 100</td>
<td>3</td>
</tr>
<tr>
<td>101 to 150</td>
<td>4</td>
</tr>
<tr>
<td>Above 150</td>
<td>5</td>
</tr>
</tbody>
</table>

7. Frequency of trains

<table>
<thead>
<tr>
<th>No. of trains</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 4</td>
<td>1</td>
</tr>
<tr>
<td>4 to 8</td>
<td>2</td>
</tr>
<tr>
<td>9 to 13</td>
<td>3</td>
</tr>
<tr>
<td>14 to 18</td>
<td>4</td>
</tr>
<tr>
<td>Above 18</td>
<td>5</td>
</tr>
</tbody>
</table>

8. Attendance of sellers

<table>
<thead>
<tr>
<th>No. of Sellers</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 60</td>
<td>1</td>
</tr>
<tr>
<td>61 to 200</td>
<td>2</td>
</tr>
<tr>
<td>201 to 340</td>
<td>3</td>
</tr>
<tr>
<td>341 to 480</td>
<td>4</td>
</tr>
<tr>
<td>Above 480</td>
<td>5</td>
</tr>
</tbody>
</table>

9. Attendance of buyers

<table>
<thead>
<tr>
<th>No. of buyers</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 200</td>
<td>1</td>
</tr>
<tr>
<td>201 to 400</td>
<td>2</td>
</tr>
<tr>
<td>401 to 600</td>
<td>3</td>
</tr>
<tr>
<td>601 to 800</td>
<td>4</td>
</tr>
<tr>
<td>Above 800</td>
<td>5</td>
</tr>
</tbody>
</table>
10. Social provisions at cattle market places

<table>
<thead>
<tr>
<th>Provisions</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 4</td>
<td>1</td>
</tr>
<tr>
<td>4 to 08</td>
<td>2</td>
</tr>
<tr>
<td>09 to 13</td>
<td>3</td>
</tr>
<tr>
<td>14 to 18</td>
<td>4</td>
</tr>
<tr>
<td>Above 18</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Annual income from the marketing activity to organising body.

<table>
<thead>
<tr>
<th>Annual income in rupees</th>
<th>Value / Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Rs. 20,000</td>
<td>1</td>
</tr>
<tr>
<td>20,001 to 40,000</td>
<td>2</td>
</tr>
<tr>
<td>40,001 to 60,000</td>
<td>3</td>
</tr>
<tr>
<td>60,001 to 80,000</td>
<td>4</td>
</tr>
<tr>
<td>Above 80,000</td>
<td>5</td>
</tr>
</tbody>
</table>
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