

## **Chapter–4**

# **Spatio-Temporal Aspects of Rural Periodic Markets in the Study Area**

### **4.1. Introduction**

An analysis of spatial distribution of periodic market Centres may serve to distinguish the processes giving rise to the particular location pattern found in Uttar Dinajpur District. The processes are of three distinct types: Contagious process which ensures in the bunching together of units in agglomerations and one of the mutual repulsion which will ensure in a uniform form of market situations. Random pattern result from the probability of each individual, periodic market Centres on being a market situation. As periodic market places occur simultaneously on the same day and subsequently are engaged in direct functional competition with one another, it appears appropriate to speculate that they should display uniform spacing pattern.

Periodic markets are point for sale of farm produce into large sacks for sale in urban markets. An organization of rural markets overseas takes into cognizance the distribution of population and settlement, degree of mobility of traders and purchasers and local variations in productive capacity and resource endowment (Lado 1988). This space, time arrangement of periodic markets ensures a premium return from waiting for demand and supply of goods and services of periodic markets as central places according to Geist (1990) can be determined on the basis of structural and functional criteria of goods and catchment area. The temporal structuring of periodic markets fulfills the local need for which they are built and the interval between markets afforded sufficient time for preparation (within the context of money and wares) for the next market day (Okafor 1982; Omole 2002).

### **4.2. Methodology:**

There is a spectrum of possible point distributions ranging from clustered to cluster to regular and regular to random. The hypothetical end member at the clustered end has all points coincide. At the regular extreme, there is a perfect equilateral spacing. Nearest Neighbour analysis (NNA) developed by plant ecologist, Clark and Evans (1954) produces a clear picture for this purpose and is based upon the distance from a point to its

nearest neighbouring point. They specifically designed the nearest neighbor index ( $R_n$ ) for measuring pattern in terms of the organization of a circle of points in two or indeed three dimensions. This yields lower mean values where points are clustered together and maximum means nearest neighbour distance in regular pattern where points are equally spaced. Apparently the random distribution lies between these two extreme. This is the step of departure from observed spatial distribution to a theoretical random distribution pattern. It is a straight line measurement of distance separating any phenomenon and its nearest neighbor in space. The method has significantly contributed to the analysis and evaluation of spatial patterns of levels in geography. The nearest neighbour analysis is applied here to assess quantitatively the observed spatial pattern of periodic markets in the region because this method is useful for analyzing point patterns as it serves for randomness. A random distribution of points is defined as a circle of points on a given area for which any point has had the same probability of occurring as any other point, or any sub area of specified size has caused the same opportunity of receiving a degree as any other sub area of that size, and that the location of each spot has not been influenced by that of any other period. This method draws out the nature of clustering of points, in terms of regular, random and clustered. Such nature of clustering of points is assessed through the ordered series of distribution which is recognized as ' $R_n$ ' value or nearest neighbour scale. Under this scale, there may be chances of pattern in which a pattern that is not random is either more regular than random or more clustered than random. Thus the complete randomness is the intermediary state between complete regularity to complete clustering of a continuum of spatial forms. On the other hand, the regular pattern observes a rule in which each point is at the utmost possible distance from every other spot but in equidistance manner. Likewise the clustered pattern presents the position of points aggregated and occupying a single focal point in the region. In this manner it is apparent that a figure produced by a number of points is linked up to their relative spacing on a given field, and thus it's reflecting the way in which the points occupy the available space.

**Result:**

The district shows that the distribution pattern of periodic market centres is running from regularity towards random. The ' $R_n$ ' values range from 1.01 in Karandighi Block to 1.62 in Kaliyaganj Block. So, the distributional pattern of periodic market Centres bears the characteristic of perfect regularity in Karandighi Block. Simultaneously, a tendency is getting from regular to random distributional pattern of periodic market

Centres. In Raiganj Block as the Rn value varies from 1.37, as followed by Hemtabad block 1.35, Itahar 1.38, Chopra 1.4, Islampur 1.3, Goalpokhar I 1.45 and Goalpokhar II 1.46 shows a tendency of regular to randomness distributional pattern. The highest Rn value 1.62 is observed in Kaliyaganj Block which signifies the distributional pattern as random in scale. It has also estimated from the inquiry that in medieval and Zaminder's period periodic market originated as a solution to maintain the prestige and honor, but in recent era for the convenience of traders, markets are set in their visiting perspective in such a manner that the smaller and less attendant's markets are working for catering the services to local people. Creation of small periodic markets in accordance with the origin of larger and growing market Centres leads to spring up a tendency from regular to random distribution.

**Table No. 10 Distributional Pattern of Periodic market Centres based on Nearest Neighbour Analysis (Method based on Evans and Clark )**

<b>Blocks</b>	<b>Observed Distance (do)</b>	<b>Expected Distance (de)</b>	<b>Rn value</b>	<b>Chi square test</b> $X^2 = \frac{(o-e)^2}{E}$	<b>Remarks</b>
1. Raiganj	2.64	1.92	1.37	0.27	Regular to Random
2. Hemtabad	1.96	1.45	1.35	0.18	Regular to Random
3. Kaliyaganj	4.06	2.5	1.62	0.97	Almost Random
4. Itahar	2.94	2.12	1.38	0.31	Regular to Random
5. Chopra	6.1	4.36	1.40	0.69	Regular to Random
6. Islampur	3.43	2.62	1.30	0.25	Regular to Random
7. Goalpokhar-I	6.15	4.21	1.45	0.98	Regular to Random
8. Goalpokhar-II	4.46	3.05	1.46	0.65	Regular to Random
9. Karandighi	2.79	2.74	1.01	0.00	Regular

Source: Computed by Researcher

# DISTRICT UTTAR DINAJPUR 'Rn' Scale of the Periodic Market

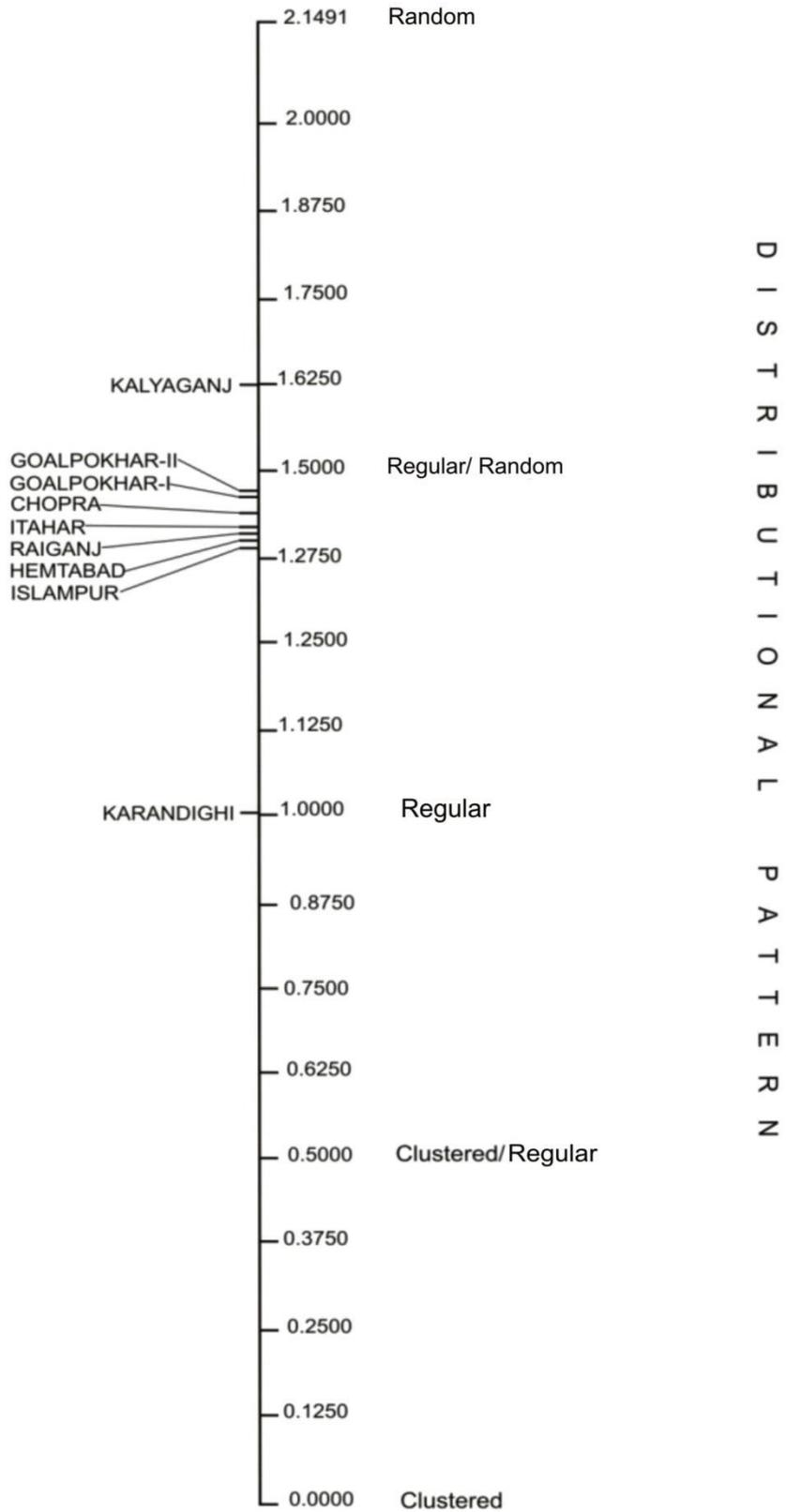


Figure No. 14

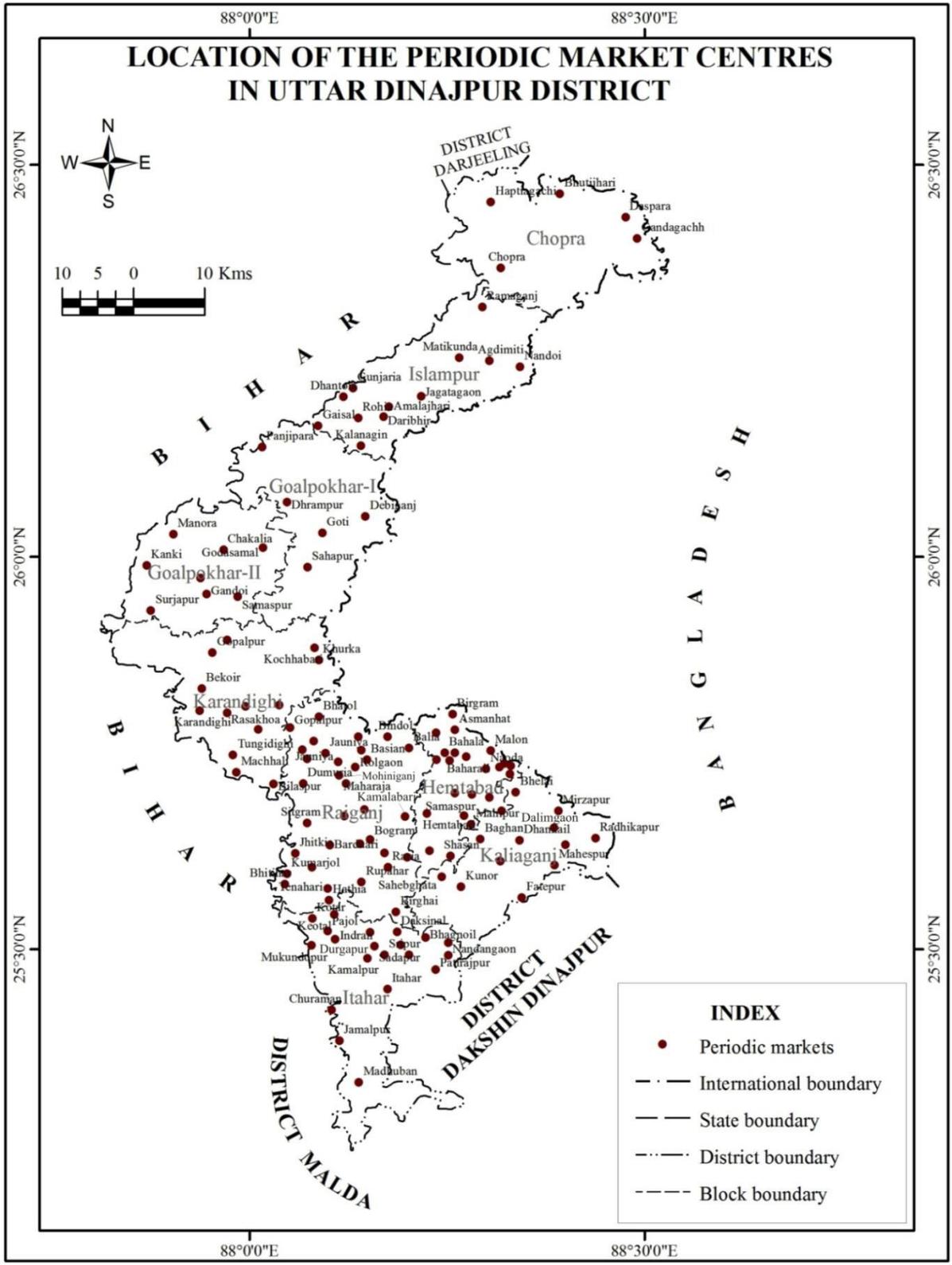


Figure No. 15

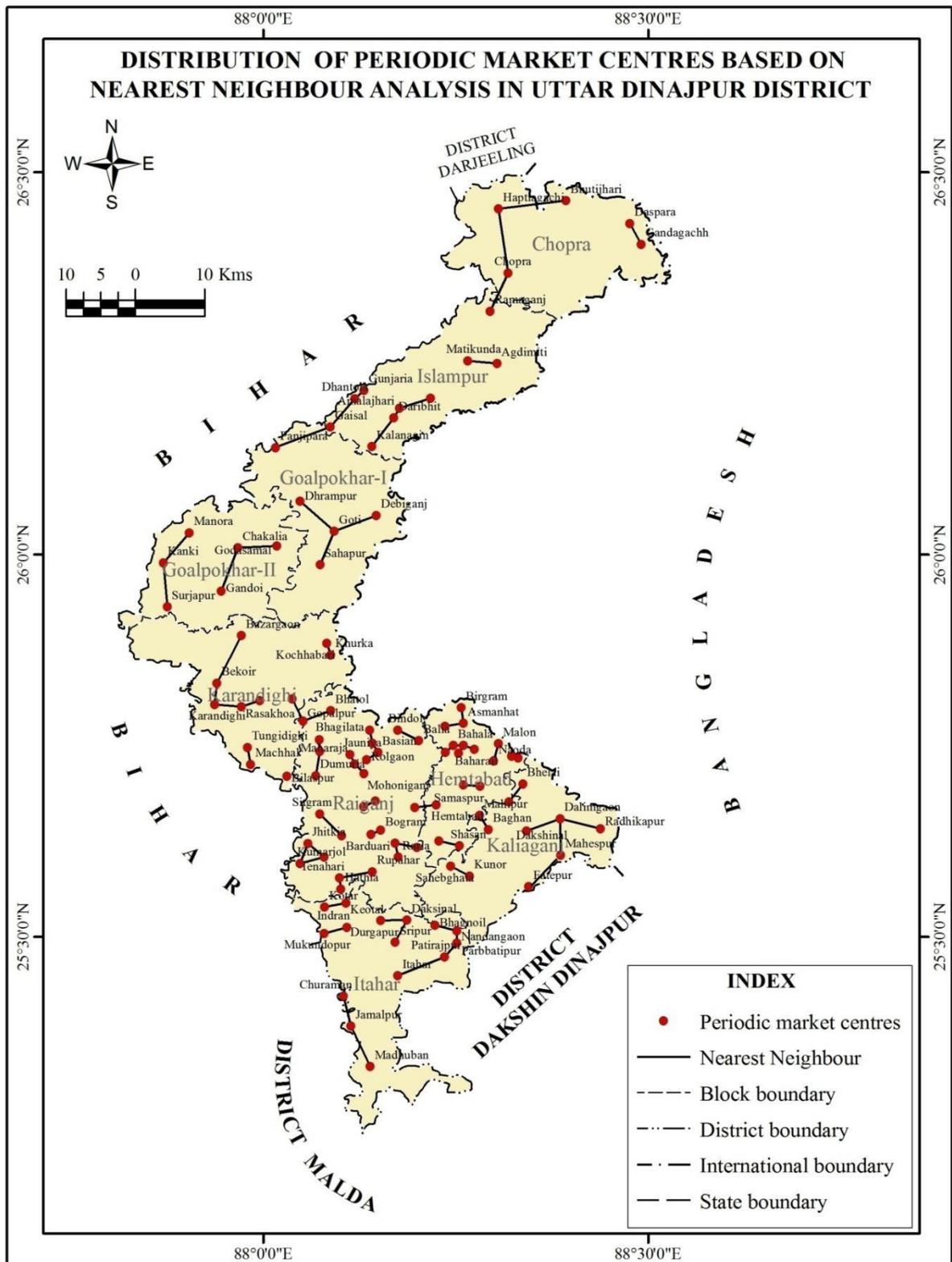


Figure No. 16

If the distributional form is presented in accordance with the periodicity among the sample rural periodic markets the result vary in respect of having weekly and

bi-weekly market places. Among all the community development blocks Itahar block has a maximum number of weekly markets i.e.25. Raiganj block is predominated with biweekly periodic market centres i.e. 23 as followed by Islampur block i.e. 20 and 14 and 15 biweekly market centres catering the services in Hemtabad and Chopra block respectively.

**Table No. 11 Block-wise Periodic Distribution of Periodic Market Centres**

Blocks	Weekly	Bi-weekly	Tri-Weekly	Total
Chopra	2	15	0	17
Goalpokhar-I	0	10	0	10
Goalpokhar-II	1	9	0	10
Hemtabad	7	14	1	22
Itahar	25	5	1	31
Islampur	1	20	0	21
Kaliyaganj	9	13	1	23
Karandighi	5	17	0	22
Raiganj	24	23	2	49
Total	74	126	5	205

Source: West Bengal State Marketing Board

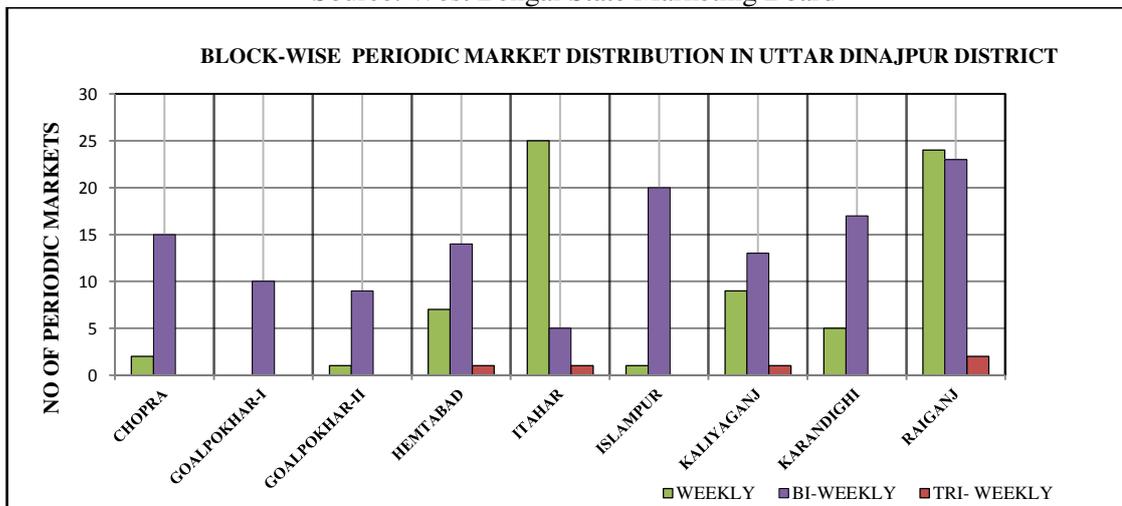


Figure No. 17

### 4.3. Typology of periodic market centres in Uttar Dinajpur District:

Periodic market centres in the district have been looked at from many angles for their classification. These are estimated attendants size of the market,

function and exchange orientation, number of shops, periodicity, major commodities and marketing hours. Classifications of periodic market centres are based on various attributes not only indicate the market center's importance, but also its gradation among the market organization in space.

### **Classification of Periodic markets based on estimated attendance during peak selling time of days:**

The importance of periodic market centres can also be judged by the number of people who gather at it. The congregation therefore, becomes an important indicator of the type of market centres. Since, it was really difficult to count out the precise figure of people who meet at each market centres, the number was estimated during peak marketing hours on the market days of periodic markets. The estimated attendance of periodic market places varies due to a number of factors which the market places possess. The estimated attendance in sample periodic markets during peak marketing hours ranges from 250 (Karandighi hat) to 12000 (Durgapur hat). Equally, it is discernible from the table 12 the sample rural periodic market's estimated attendant's has been grouped into four classes, i.e. below 500, 500-999, 1000-4999 and more than 5000. In conformity with these value there are 6 markets, which accommodate more than 5000 attendants during peak selling time of days. There are 18 market centres which accommodate 1000-4999 population as followed by 8 market centres has an estimated attendance of 500-999 and 11 market centres fall in the category less than 500 attendants as follows. The half dozen markets which accommodate participants more than 5000 are Durgapur hat, Dhankhoil hat, Kunor hat, Patiraj hat, Mohiniganj hat and Kamalabari hat. These marketplaces held on better accessible site and apart from this suitable situation these market places transact a variety of goods and cattle accompanied with daily required commodities. Though at that place are a great deal of components in respect of attracting attendants in periodic markets yet it is clear from fig:18 that there is a significant positive relationship in between a number of stalls and number of attendants in periodic markets. A considerable number of stalls with a diversity of commodities attract a considerable number of attendees. In the said diagram number of stalls is required as an independent variable against the number of attendants as the dependent variable. It can be argued from the scatter diagramme that most the of periodic markets consisting a less number of shops i.e. < 200 attract the least number of attendants

i.e. below 2000. A few number of periodic markets (Durgapur, Patiraj and Dhankhoil, Kamalabari hat) having the shops in between 400-600 attract 6000-12000 attendants during peak selling time of days.

**Table No. 12 Block-wise breakup of Periodic Market Centres, based on the attendants**

Name of the blocks	Number of market centres and attendants			
	<500	500-999	1000-4999	>5000
No. of market centres				
Raiganj(10)	-	1	7	2
Hemtabad(5)	-	1	4	-
Kaliyaganj(5)	-	-	3	2
Itahar(6)	3	1	-	2
Karandighi(5)	3	1	1	-
Goalpokhar I(2)	-	1	1	-
Goalpokhor II(2)	1	-	1	-
Islampur(5)	2	2	1	-
Chopra(3)	2	1	-	-
Total(43)	11	8	18	6

Source: Field Survey, 2012-13

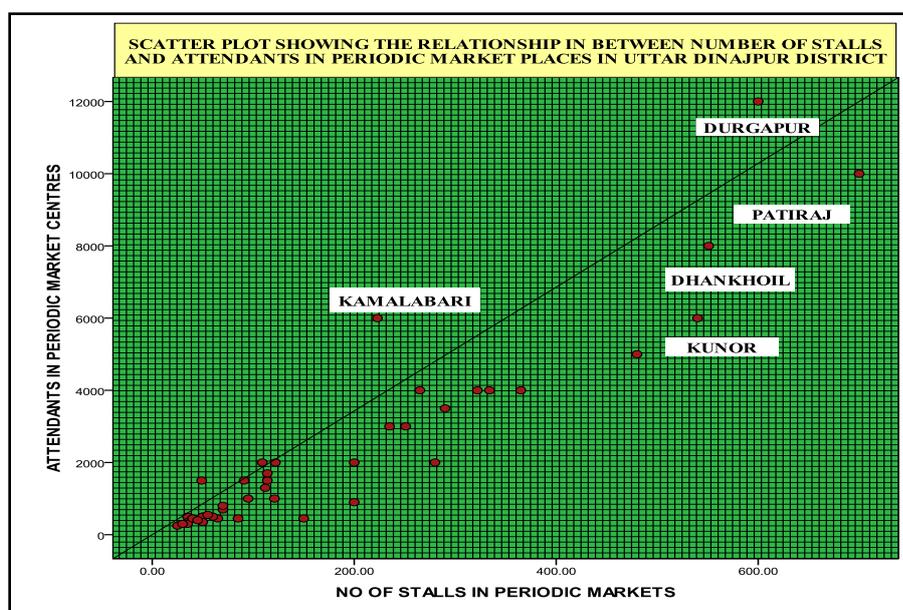


Figure 18

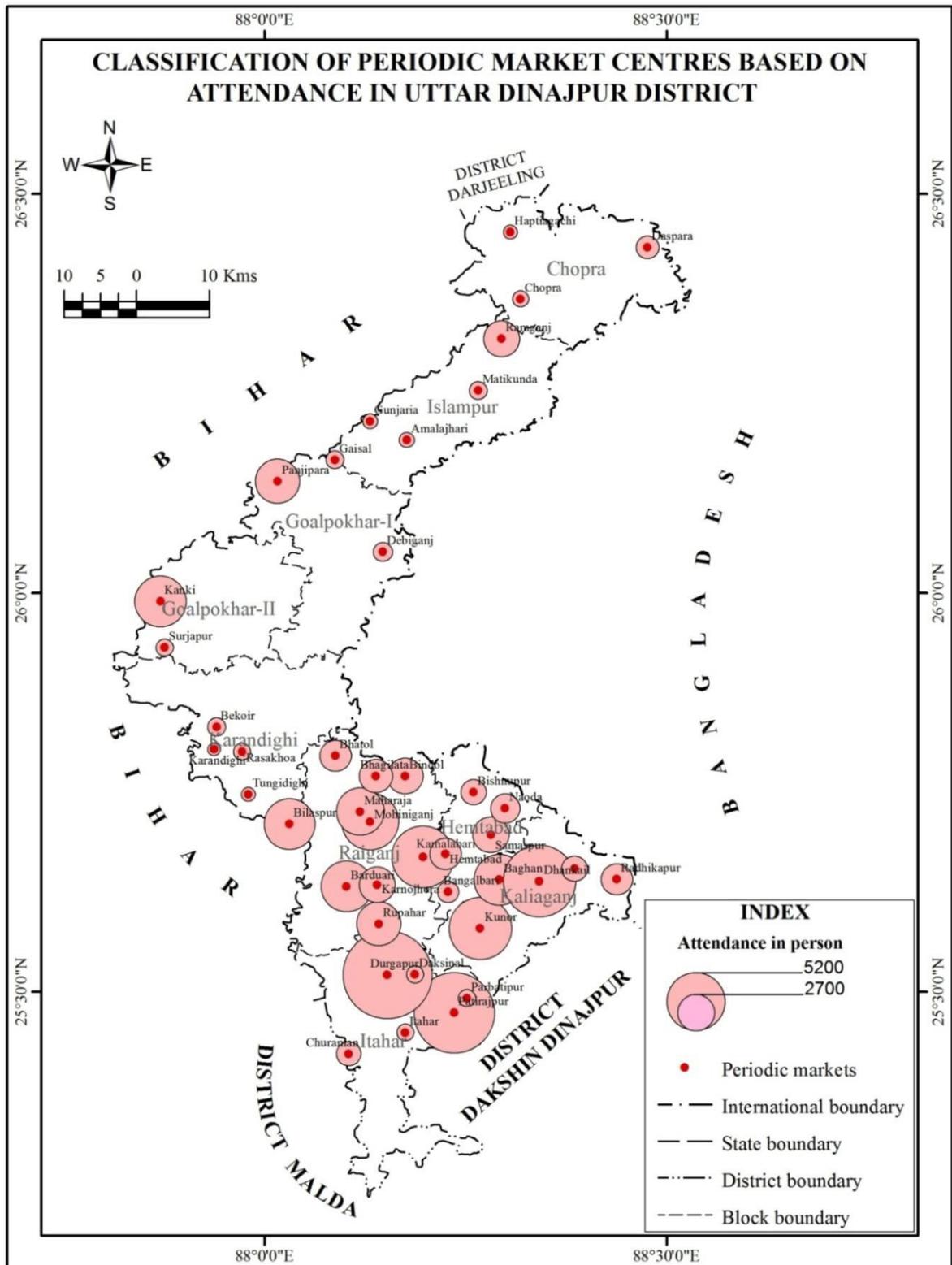


Figure No. 19

### **Periodic Market based on the number of stalls and morphology:**

Number of shops is also an important variable for the classification of the periodic market centres as it reflects their functional magnitude of rural periodic market centres. Particularly in periodic markets all the shops are not permanent in nature. At any periodic markets, there are generally three kinds of shops temporary, permanent and itinerant. All these have crucial importance for the classification of periodic markets. In the present case all these three kinds of shops have been added up to classify periodic market centres of the district. The number of shops in the rural periodic markets ranges from 25 (Karandighi hat) to 700 (Patiraj hat) with an average of 180 shops per rural periodic markets. The study reveals that periodic markets of the district are grouped into four classes bearing a number of shops less than 100, 100-300, 300-500 and more than 500. It is clear from the table that the majority of the rural periodic markets are of a small and very small size with regard to the number of shops. There are nearly 46.5 % ( 20 rural periodic markets) among sample total 43 has less than 100 shops. About 34.9 % ( 15 periodic markets) and 9.30% ( 4) periodic markets are medium size with 100-300 shops and 300-500 shops as follows. Periodic markets with more than 500 shops are few as only 9.3% (only four) in numbers.

**Table No. 13 Frequency of Periodic markets based on Number of Stalls**

<b>No. of stalls</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percentage</b>
<100	20	46.5%	46.5
101- 300	15	34.9%	81.4
301 - 500	4	9.30%	90.7
>501	4	9.30%	100
Total	43		100

Source: Field Study, 2012-13

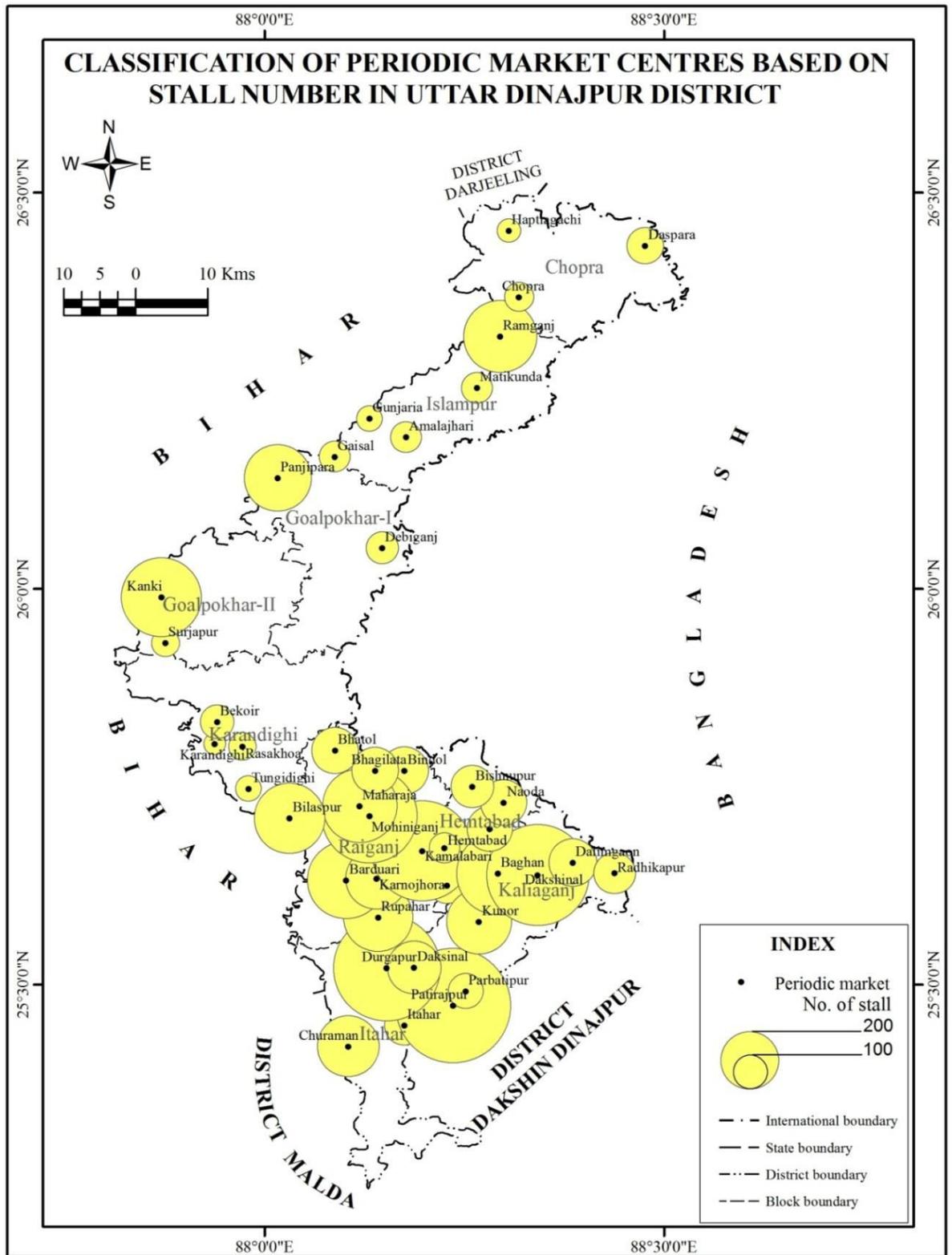


Figure No. 20

**Morphology of Periodic Markets:**

Prolong periodic marketing at a particular site lead to the origin of permanent shops along with some temporary shops. The location of stalls in the periodic

market places follows a pattern, which is functionally organized. The location of traders is based on the following two factors.

- Specialization of goods.
- Perishability of goods
- Goods that are likely to break

The rationale underlying the spatial arrangement of stalls within the market site become explicit on a careful scrutiny of market plan. The nature of the items sold and volume of consignments decide the space needed; (a) for parking the vehicles; (b) for display of goods. Similar traders and service men congregate in separate portions of the marketplace become quite distinct cloth dealers' area, grain dealers' area, livestock area, which may be further subdivided into the goat and cattle area. At Kamalabari, Samaspur, Dhankhoil, Patiraj, Durgapur poultry is sold just outside the market area where all the birds are brought by the sellers. In Dhankhoil the wholesale trade in onion, chilly is confined to the entire row. Exceptionally heavy arrivals of certain commodities during some months are handled in two different ways; either by allocating a separate area which may lie outside the markets. Handicraft products always lie in the association. The serviceman too congregates into separate groups, e.g. the cobblers, lock repairs, carpenters, blacksmith. The barbers are usually found at the periphery of the market areas. At Kamalabari, Dhankhoil periodic market centres slaughtering places are found separately far from each other in use (a) for killing pigs and selling the pork; (b) for killing goats and for selling the mutton; (c) for selling chicken. Various traders are allotted spaces for different activities. Some periodic market places are also selling the pork of tortoise. It would appear that there are not only 'unclean' trades, but also the different degree of 'uncleanliness'. Longstanding and permanent traders doing a fairly large volume of trade in grains, grocery items needing a roof have their stalls either in the covered sheds, or at a spot where some of them have made elevated platforms, over which they erect a temporary canopy with cloth and bamboos, as soon as they reach the market. These stalls form a 'core' area where most of the villagers buy their weekly needed items. Adjoining this core area gathering of other stalls selling less essential articles are found. Here and still further away from the central area we find hardware stall, ropes, baskets and other bamboo articles, plastic articles, bangles, often fancy articles like comb, mirrors and cheap ornaments, soaps, cosmetics, tobacco and matches. The

few traders selling brass and aluminum vessels occupy the covered stalls, or display their wares on the ground. Bulky items of earthenware are found on the periphery of the market places. The buying trader specializing in the purchase of vegetables and other produce tends to locate themselves on the periphery of the market or along the crossing of the road so that they can tap the producer's sellers efficiently and when their transaction is completed they depart from the market as quickly as possible. The distinguishing feature of this area is that it does not have any built up stalls of mud and bamboo, which are provided for selling traders, the buying traders and those who are providing services (cobbler, carpenter, tailor, blacksmith or barber). On the other hand fish or meat items are sold at a particular site. In case of livestock the cattle are sold at different site to avoid inconvenience of consumers.

On the basis and having regard to other activities, six functionally distinct components may be identified. They are:

- Parking space:
- Services e.g. tailors, lock and umbrella repairers, blacksmith, barber, cobbler outside but near the site.
- Livestock sales (a) cattle (b) goats (c) poultry;
- Wholesale dealers who deal with rice and other grains, agricultural commodities, jute.
- Retail seller is segregated according to the types of goods sold, e.g.
  - For immediate consumption-vegetables, fruits, meals, tea
  - Consumable articles- kerosene, soap, matches, scented sticks
  - Non-consumables, articles like earthenware items, clothing, mats, bamboo baskets, etc.
  - Agricultural implements
  - Stationary articles

Entertainers like snake charmers, magic men, beggars and vendors of rat killer's medicine and other's items will be fewer and even absent during the slack seasons when both attendance and transactions in this market will shrink.

#### **Classification of periodic market centres based on areal coverage:**

It is evident from the table of skewness which is used to express the extent of asymmetry in the distribution, result 2.269. The result indicates that the

distribution of areal coverage of market centres are not in symmetrical nature. There are 35 periodic market centres which cover of 0.01-6.67 acre area and 6 market centres cover an area in between 6.68-13.33 acre and only one market centres cover an area more than 13.34 acres.

**Table No. 14 Coverage Area of Periodic Market Centres in Uttar Dinajpur District**

Area in acre	Frequency	Percent	Cumulative Percent
0.01 - 6.67	35	81.4	81.4
6.68 - 13.33	6	14.0	95.3
>13.34	2	4.7	100.0
Total	43	100.0	

<b>No.Of market Centres (N)</b>	43
<b>Skewness</b>	2.269
<b>Std. Error of Skewness</b>	.361

Source: West Bengal State Marketing Board, 2011-12

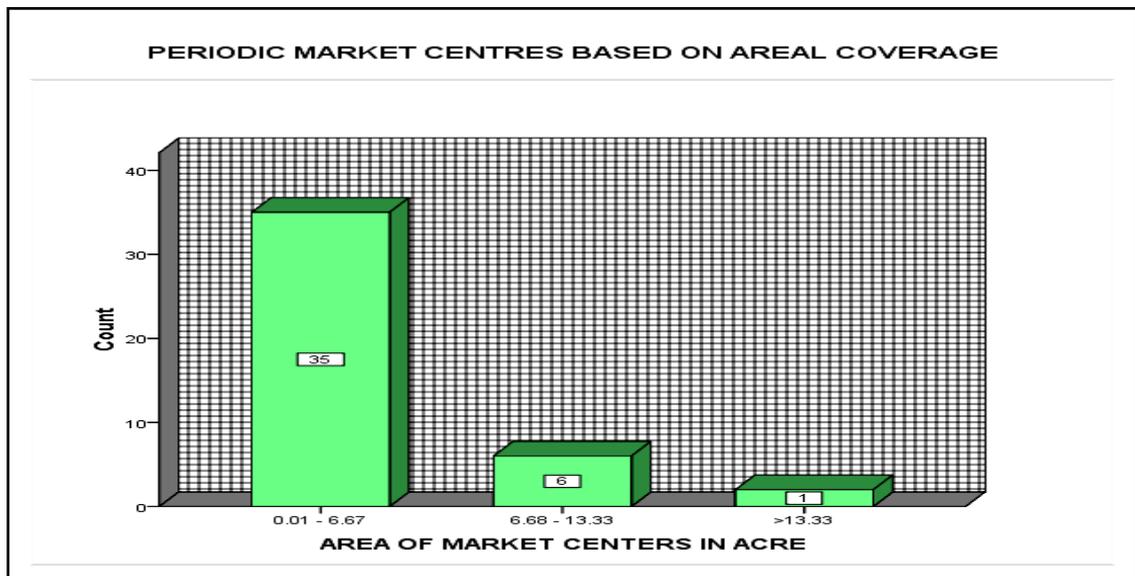


Figure No. 21



### **Classification based on Length of marketing Hours:**

The length of marketing hours is another important parameter for the classification of periodic market centres. Length of marketing hours denotes the duration when marketing activity in a market on a market day takes place. As shown in the table: 15 periodic market centres of the district are grouped into four classes on the basis of length of marketing hours. Table 15 make it clear that about one half (56%) markets of the district transact their business for three to six hours and about one third (25.6%) perform marketing trasaction for less than three hours. There are 5 periodic market centres which transact their business for more than 9 hours and constitute 11.6% of the total sample market centres.

**Table No. 15 Frequency of Periodic Markets based on Length of Marketing Hours**

<b>Marketing time In hrs</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
< 3.0	11	25.6	25.6
3.1 - 6.0	24	55.8	81.4
6.1 - 9.0	3	7.0	88.4
9.1 - 12.0	5	11.6	100.0
Total	43		100.0

Source: Field Study, 2012-13

### **Classification based on the Nature of Market centres:**

There are two types of rural periodic markets in Uttar Dinajpur District viz. Ordinary Periodic Market (OPM) and Ordinary periodic accompanied by neighboring livestock dealing market (OPLM) operating in the same locality on the same market day. According to the sample survey there are 31 Ordinary Periodic Markets constitute 72.1%, and rest of periodic markets, i.e. 12 constitutes 27.9% as Ordinary Periodic and Livestock markets. Ordinary periodic markets due its less volume of services attracts less attendants in comparison to Ordinary periodic and Livestock market. On the other hand livestock market centres are economically more important in the regional development of pattern than that of the ordinary periodic markets. Livestock Market Centres cannot function in isolation. Their origin, growth and development largely depend on surrounding areas, called as area of influence, or hinterland of livestock and cattle market centres. People are more willing to travel longer distance for purchasing and selling of cattle.

**Table No. 16 Typology based on Nature of Periodic Market Centres**

<b>Nature of Periodic markets</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Ordinary periodic Markets (OPM)	31	72.1	72.1
Ordinary periodic and Livestock Market(OPLM)	12	27.9	100.0
Total	43		100.0

Source: Field Study, 2012-13

The ordinary periodic markets are the chief sources of perishable and nonperishable commodities. These market places are catering the daily and weekly needs of consumers and traders. Small scale traders wish to visit these market places for selling their surplus production. Simultaneously, Consumers wish to travel these market places for purchasing their daily needs like vegetables, fish, cloths, earthenware, handicrafts, grocery items, agricultural implements and grains, etc. On the other hand Ordinary periodic and livestock market places are comprised with general commodities in addition to livestock. Cow, Buffalo, Camel and Goat are sold or purchased apart from general commodities. Most of the sellers and consumers are rural based in these marketplaces. Their mainstay of the economy is agricultural based. So, it is very much inevitable to them for procuring healthy livestock from these markets on weekly basis. Poultry is also another common livestock item which is transacted in most of the market places.

It has been studied in the later chapter that the economic significance of ordinary periodic and livestock market are more than that of the ordinary periodic markets. These markets are sparse in nature in every block of the district .It is very necessary for sellers and consumers to attend these market places for the sake of transaction of their cattle. These markets are also occupying a larger area than that of ordinary periodic market places because more space is required for cattle transaction.

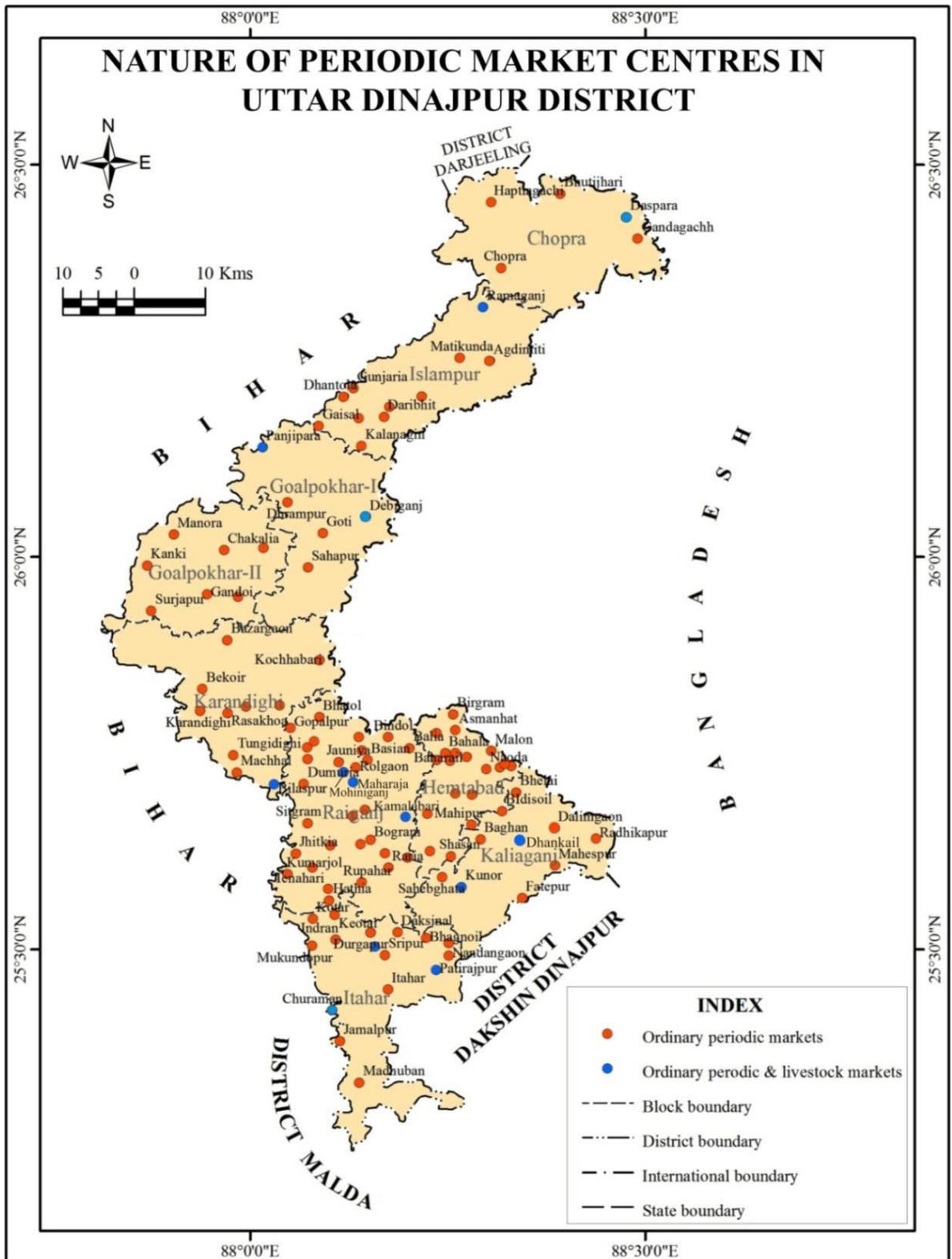


Figure No. 23

### **Classification of periodic markets based on function and exchange orientation:**

The importance of the market centre reflects the number and quality of functions, it performs in a region. The wholesaling and retailing activities have been prevailing in the markets of the nine talukas in the district. No doubt that, the district headquarter and all the talukas are performing the marketing activities with a large population and tends to represent wide range of functions and enjoys administrative status. This leads to the huge congregation of people on these market centres on the respective market days. Apart from these marketing activities, the semi-urban or big villages are having a tendency of fast growth by one or the other reasons. Periodic Markets as commercial institutions have a number of functions to perform. They perform utility functions, exchange function and an institutional function. Periodic markets are not only commercial centres fulfilling exchange functions, but also are growth points. Market centres have a tendency to establish a strong links with its surrounding areas. A higher order market attracts a large number of sellers and buyers. In order to serve the congregation of people, a host of activities begins to converge in these centres. Good and dense transportation network, banks, storage points, grading establishments, packaging, telephone, telegraph links tend to get strengthened in these centres. By virtue of the establishment of the market the income of the settlement establishments is enhanced. Thus a chain effect takes place on account of the establishment of markets. It is correct to say that the market in its wake paves the way for local and regional development. Analysis of market functions are very important aspects of marketing studies mainly to understand the magnitude of trade of markets for spatial interactions. Periodic markets are the points through which the surplus products of rural areas are exchanged and some of the produce gets on its way to the urban centres and the manufactured products from urban centres gets distributed in rural areas. The importance of the market center reflects the number of quality of functions if performed for a region. As a result, the market becomes a magnet and paved the way for spatial mobility. The exchange system in periodic markets operates in two ways viz. Vertical and horizontal. In the exchange system the rural agricultural and artisan products are distributed and exchanged with the surrounding areas and exchange operates at the level of hierarchy of settlement i.e. from rural to urban centres and vice versa. The type of function-retail or wholesale is very important aspect in the study of periodic markets. Uttar Dinajpur District's periodic market

have an excellent combination of solely retail periodic market and both retail and wholesale periodic market. Periodic markets are the entry point for locally produced goods in the larger marketing network. Periodic markets consisting both of function and are instigated by seasonality. Fiber crops, fruits and livestock are transacted in a wholesale manner in periodic markets. There are 35 (81.4%) of periodic markets operating only retail base transaction and a few numbers, i.e. 8 constituting 18.6% of periodic market operating both retail and wholesale transaction among the sample study. Obviously, the regional and supra regional reflections in the periodic marketplaces in their own turn also generate a larger exchange and monetary dealings. What is most surprising is that the agricultural and local bases of commodity structure are never eroded let alone destroyed. This integrity is phenomenal. These market centres viz. Dhankhoil, Ramganj, Durgapur, Patiraj, kunor, Kamalabari, Bilashpur etc. act as growth centres within the district. These centres cater as daily and periodic needs of own population and its larger surrounding areas. Beside the retail shop of grain, cloth, vegetables, hosiery items, footwear, electrical goods, hardware items, utensils, medicine and stationary items, these centres also deal with the wholesale trade and horticultural items.

**Table No. 17 Periodic Markets and its Function**

<b>Functions at periodic market places</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Retail	35	81.4	81.4
Retail and wholesale	8	18.6	100.0
Total	43		100

Source: Field survey, 2012-13

If the focus is given on the cross tabulation below, it is very much clear from the table:18 that most of the periodic markets, have retail activity accommodate only less than 500 attendants in comparison to periodic market centres transacting in wholesale marketing activity. As the wholesale marketing activities in addition to retail transaction constitute the vertical exchange system and create a rural, urban interaction naturally such type of markets attract a considerable number of traders and consumers from long distant.

**Table No. 18 Functions and Attendance in Periodic Market Centres**

Attendants in market	Types of Functions in periodic markets		Total
	Retail	Retail and Wholesale	
<500	15	0	15
501 - 1500	9	1	10
1501 - 2500	5	0	5
2501 - 3500	3	0	3
3501 - 4500	3	1	4
4501 - 5500	0	1	1
5501 - 6500	0	2	2
7501 - 8500	0	1	1
9501 - 10500	0	1	1
>10501	0	1	1
Total	35	8	43

Source: Field Survey, 2012-13

**Classification based on the number of major commodities in periodic market centres:**

The commodity structure in every periodic market place reflects the needs of people articulated in response to the demand of culture, environmental resources, history and traditional linkages. The commodities are both indigenous and exotic and everywhere they tend to fulfill an incredibly large spectrum of needs, secular and religious. Nor is the commodity structure constant through the time. It displays marked temporal variation. Seasonal changes largely regulate agricultural and horticultural commodity structure in periodic market places. For the purpose of discussion the variables identified in enumerating the marketing functions are divided into groups. The first group consists durable items like Kirana, cloth, hosiery, utensils, general goods manihari, etc. The second group consists of ubiquitous items like tea stall, fruits vegetables, including meat, fish and poultry occur in separate groups. Agricultural input items like seeds, fertilizers, pesticides, etc. are kept in a special category. Food stuffs like bakery goods, ready-made items like sweets, confectionery, bhujia, are likewise placed in a separate group. Special goods like medicines, perfumery, handicraft items form separate categories along with cattle. On the other hand, with the advancement of transport and accessibility a large spectrum of manufactured items is arriving at periodic marketplaces from neighboring urban

places. Some large periodic markets draw their commodities from regional, supra regional and locally sources itself show a far greater flexibility itself and resilient in their response to oxygenic impulses of socio economic development. Naturally its commodity spectrum is widening and increasing complexity of the same. It is evident from table:19 the number of major commodities which arrive to be traded, in below three in thirty one (72.09%) of rural periodic markets followed by only 8 (18.6%) periodic markets with major commodities more than 5 in number. Only four periodic market places (9.30%) operating in the district transact more than 7 commodities on market day or days of the week. The number and varieties of commodities in market places depend on a number of factors. For example Durgapur hat, Dhankhoil hat, Patiraj hat and Kamalabari hat with high accessibility lead to inclusion of considerable number and varieties of major commodities. Not only that a glimpse of a number of urban products due modernization of trade and increasing of transformational efficiency are penetrating to the rural consumers through these periodic markets. As most of the commodities of Uttar Dinajpur District are of agricultural and horticultural origin, they are subjected to seasonal fluctuation in quantities available at periodic market centres and consequently also liable to seasonal changes in their price or rates. Obviously there are marked fluctuation in the quantities of agricultural products, namely cereals, pulses, vegetables and fruits available at the market centres with the changes of seasons. Immediately after the harvesting season, they are available in maximum quantities at periodic market centres and diminish in quantity by degrees till they are reduced to a minimum or not at all available in the period preceding the harvesting season. Vegetables and fruits are available in maximum quantities in the seasons of production and not available at all in other seasons. The farmers of Uttar Dinajpur district have hardly any staying power to wait for better prices for their produce of cereals, grains and pulses or posses proper or large storage facilities to maintain their quality. The availability of various commodities of agricultural and horticultural origin reaches the lowest level in the months of June, July, August, September and October which increase in quantity from the month of January and diminishes subsequent months ending with May.

**Table No. 19 Frequency of Periodic Market centres based on number of Major Commodities**

Number of commodities	Number of market centres (frequency)	Percent (%)	Cumulative Percent
<3	31	72.1	72.1
4 - 6	8	18.6	90.7
>7	4	9.3	100.0
Total	43	100.0	

Source: Field Survey, 2012-13

However, neither is it easy to catalogue all categories of goods and commodities exposed for sale in periodic market centres nor can very usefully purpose be served by doing so. But they can be readily classified into three categories, viz. Perishable, Semi perishable, and durable. However it may be born in mind that commodity structure of this reflects the regional specialty and availability of the items, production of specific crafts in the region, efficiency of transport linkages of goods brought for sale from different places exposed the nature of marketing system.

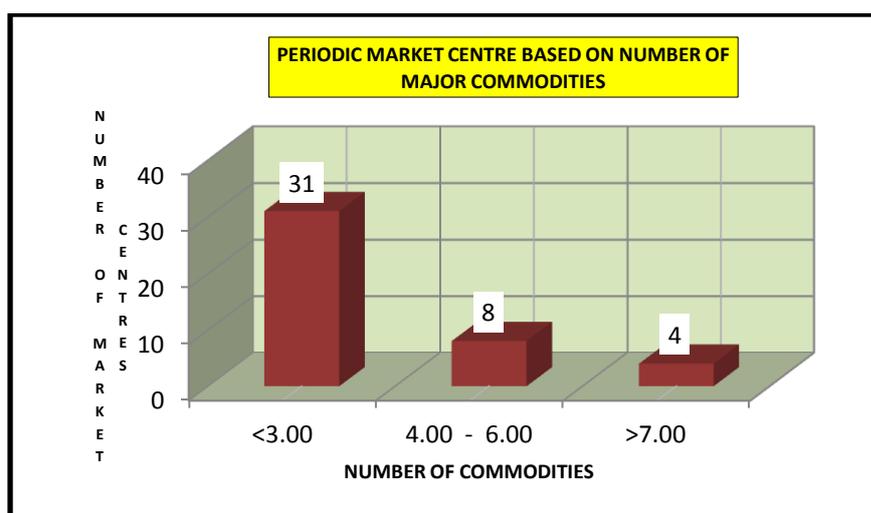


Figure No. 24

**Table No. 20 General and livestock Commodity structure of Periodic Markets in Uttar Dinajpur District**

<b>Regional Goods</b>	<b>Exotic Goods/Manufactured Articles</b>
<p><b>A. Agricultural Product</b></p> <p>I. Vegetables</p> <p>II. Fruits</p> <p>III. Cereals and pulses</p> <p>IV. Spices</p> <p><b>B. Animal and Animals Products</b></p> <p>I. Cows and Buffalos</p> <p>II. Goats and Sheep</p> <p>III. Camels</p> <p>IV. Pigs</p> <p>V. Fishes and other aquatic animals</p> <p>VI. Tortoise</p> <p><b>C. Other food articles</b></p> <p>I. Gur/local sugar</p> <p>II. Sweets</p> <p>III. Puffed rice</p> <p>IV. Others</p> <p><b>D. Artisan products</b></p> <p>I. Earthenware</p> <p>II. Baskets</p> <p>III. Local Mat/Dhokra</p> <p>IV. Wooden articles</p> <p>V. Brooms</p> <p>VI. Jute ropes</p> <p>VII. Bamboo winnowers</p> <p><b>E. Forest produce</b></p> <p>I. Honey</p> <p>II. Medical herbs</p>	<p><b>A. Processed/Manufactured goods</b></p> <p>I. Mill made articles</p> <p>II. Readymade garments</p> <p>III. Hosiery Items</p> <p>IV. Luxary articles</p> <p>V. Salt</p> <p>VI. Kerosene oil</p> <p>VII. Small iron and aluminum products</p> <p>VIII. Tobacco</p> <p>IX. Soaps</p> <p>X. Bididi: Indigenous cigarette</p> <p>XI. Plastic goods</p> <p>XII. Match Boxes</p> <p>XIII. Locks, Keys, etc.</p> <p>XIV. Others (cosumers and Luxary goods, Curios, etc.)</p>

Source: Field Survey, 2012-13

Varieties of commodities are brought for sale in the market places which includes cloths, readymade garments, food grains, vegetables, fruits, ornamental goods, bangles, stationary items, spices and other finished /manufactured goods. These marketplaces serve as convenient channels for distribution of agricultural and other products and for providing services of artisans and craftsmen. They serve as regional and local

distribution centres. It is stated however that, market centres were likely to play an important role in the building up of integrated rural communities.

### Classification based on Road accessibility:

Accessibility by road is another important variable for the classification of market centres. The accessibility is the measure of the ease with which a specific location can be reached from a given point. In the present case it is measured with reference to the physical distance from metal road. As it is evident from the bar graph, periodic market centres of the district are grouped into three classes on the basis of road accessibility. It is clear from the graph that more than one half (62.8%) of the total periodic market centres of the district lie beside the metal roads and one fifth within distance 2.5-5 km. Only 16.3% of periodic markets are situated beyond the distance of 5 km. It is very much necessary to look into the accessibility of the periodic market centres for reaching the specified destination. It not only determines the influx of participants in market centres but also viable for the availability and varieties of goods disposed in the market centres. For the convenience of plying large vehicle need motor able road. From the below bar graph it has been noticed that periodic markets situated beside the motor able road have a greater prospect of development in terms of business under proper management.

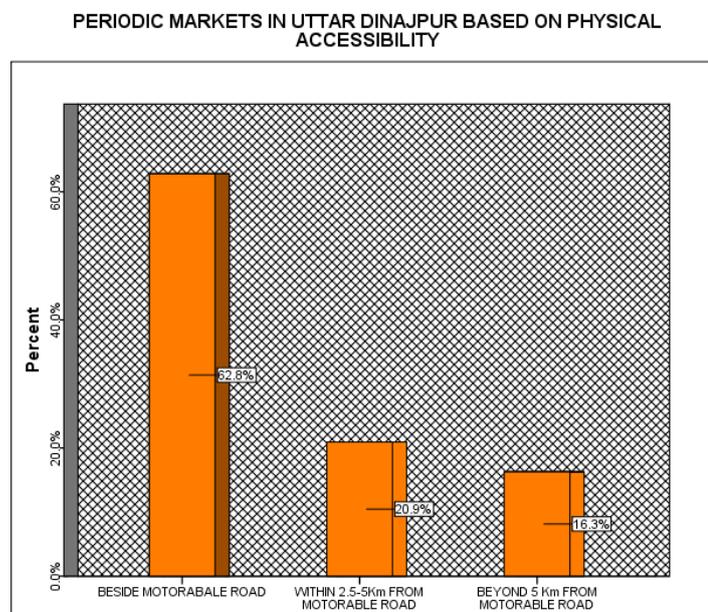


Figure No. 25

### Classification of periodic market centres based on average influential zone:

The estimated areal coverage, range of functions has some significance in determining the impact of market centres on regional economy. It is evident from the survey that 6 periodic market centres out of 43 has some estimated average influential range beyond 15 km. There are 8 periodic market centres have average influential range between 10-15 km and 16 and 13 periodic market centres have average influential range of 5-10 km and less than 5 km as follows. Influential range of a market centre largely depends on the varieties of goods incurred into the market centre and as a result participant, especially consumers and traders are willing to visit market according to magnitude of services of market centres.

The market centres under this category are Durgapur, Kamalabari, Mohiniganj, Maharaja, Kunor, Dhankhoil, Ramganj, Chopra, etc. The market centres in small villages are still in the infant stage. But to some extent, they are able to provide the minimum functions which satisfied the basic needs of the rural population.

**Periodic Market centres Based on Average Influential Zone**

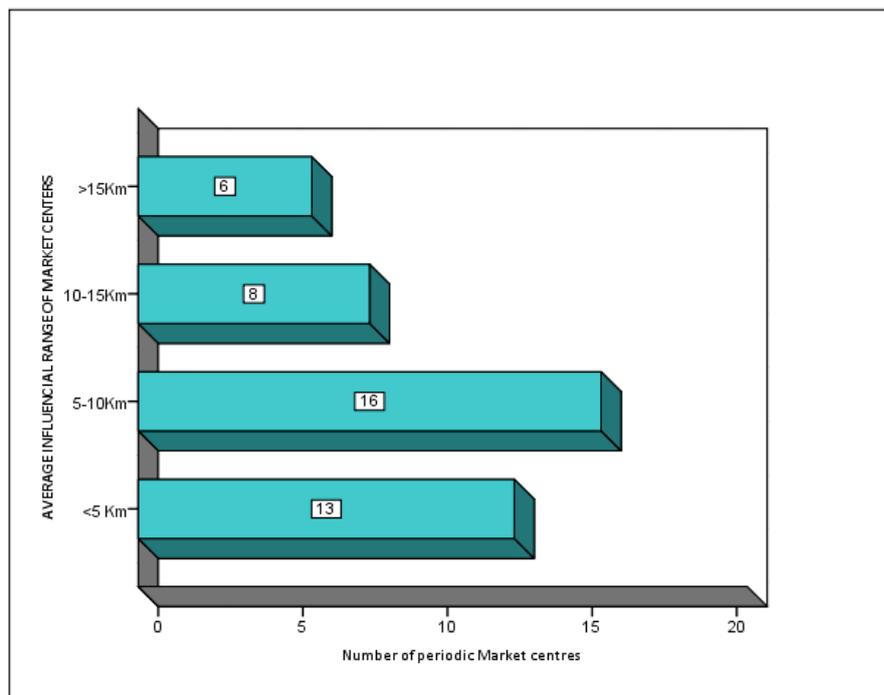


Figure No. 26

In small market centres, the vegetable shops are predominant along with the locally produced goods brought by the people from the surrounding villages.

In larger markets on the other hand, the traders reach from longer distances and prefer to adopt some means of transport other than walking on foot. The transport accessibility helps the ruralites to attend the markets held at different settlements.

#### **4.4. Periodicity of Market Centres in Uttar Dinajpur District:**

The system of periodicity provides an adjustment to the agricultural system. Only one marketing day in a seven-day- week means six rest days or days of other agricultural activity and rural folk get sufficient time for relaxation as well as for preparation for the next visit to the market. The frequency of occurrence of these markets varies widely, so that meeting occurs at a given place every second, third or nth day where n rarely is greater than three. In order to perform these special functions the markets are held at predetermined specific sites according to set of temporal schedules on every second, third or nth day where rarely is greater than seven. The periodic markets studied in the Uttar Dinajpur District have specific market days, where the dominant economic function is bulking and distribution of farm produce and local food processing products. So from the point of view of functional organization, periodic markets are one of the most important characteristics of the functioning of the marketplace sub-organizations. Periodicity of market center in the district do not observed the only single market day, but there is maximum periodic markets held bi-weekly lead to increase the market meetings of the week more than expected number of market meetings. During field study it was very much critical to judge that which factors are responsible for the occurrence and persistence of the periodicity regime.

Otherwise, these market sites are deserted during the workweek. The frequency of market meetings varies from market to market. 35.9% of the markets meet weekly, 61.2% meet twice weekly, 2.4% meet three times weekly.

It has been investigated that weekly markets are more dominant in the district and simultaneously the mean attendance in weekly marketplaces is larger than those of the bi-weekly market places. On the basis of the above inference it has been investigated that weekly markets serve a wider area because the availability of a variety of goods and services that encourage the client to visit maximum range. As a result threshold surpasses the limit of services in market places. Later on the periodicity of market places also is an expression of the combined consequence of socio-ethnic views. In Muslim

dominated area Friday markets are much more popular than that of the other days of the workweek. On the other hand bi-weekly markets lead to increase the market days of the week and finally produce a cyclical movement of traders and consumers.

**Table No. 21 Periodicity of Periodic market centres**

Periodicity	Frequency	Percent	Cumulative Percentage
Weekly	74	35.9	35.9
Biweekly	126	61.2	97.1
Tri-weekly	5	2.4	99.5
Total	205	100	100

Source: West Bengal State Marketing Board, 2011-12

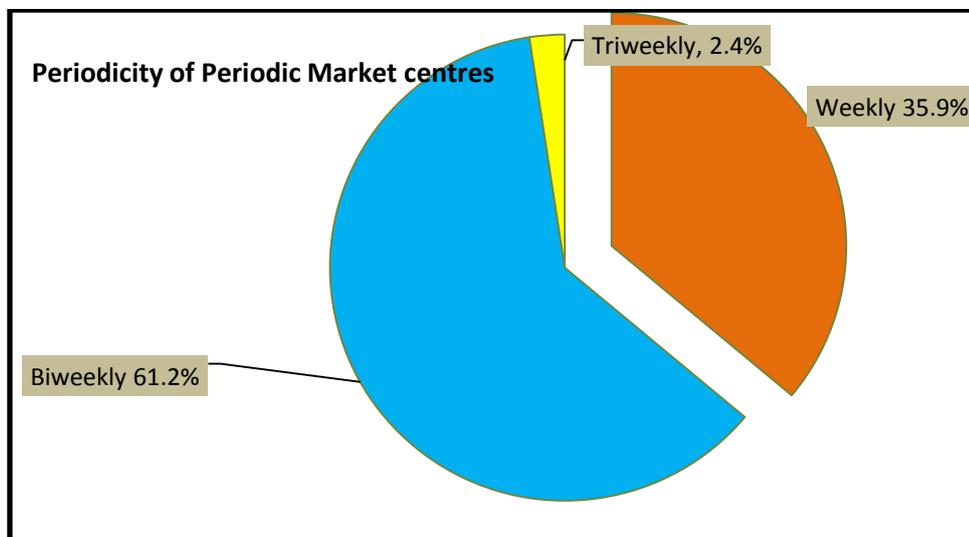


Figure No. 27

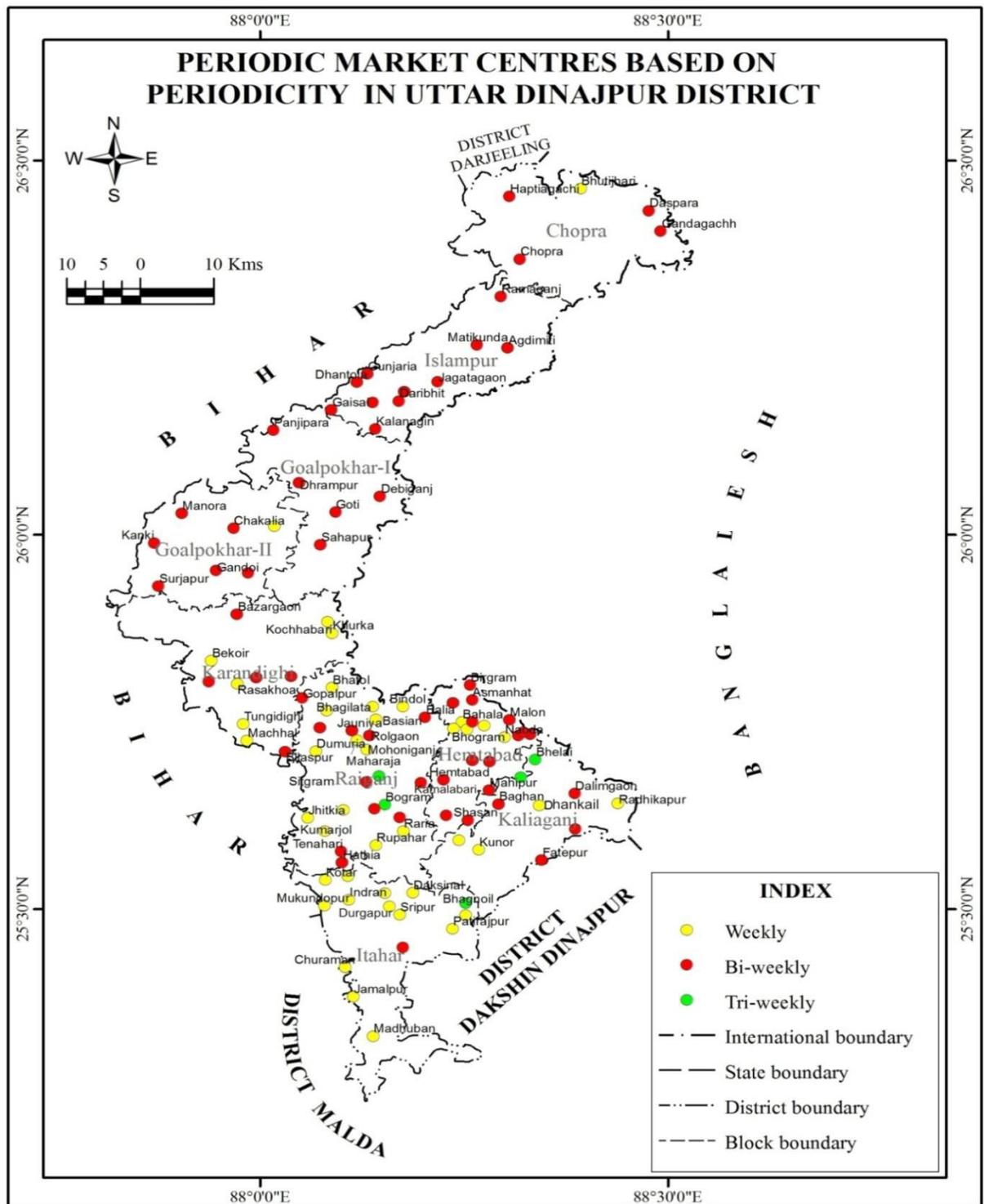


Figure No. 14

**Table No. 22 Day-Wise Distributions of Periodic Market Centres in Uttar Dinajpur District**

Name of the blocks/No. of market Centres	Days of the week							Total (Market meetings)
	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	
1.Raiganj (49)	11	11	9	14	15	7	12	79
2.Hemtabad (22)	10	5	7	5	6	-	5	38
3.Kaliyaganj(23)	7	1	6	5	5	5	6	34
4.Itahar (31)	4	4	6	7	5	7	4	37
5.Islampur (21)	6	5	6	4	7	3	4	35
6.Karandighi(22)	2	2	2	5	5	3	3	22
7.Gaolpokhar-I (10)	1	4	3	2	3	3	2	18
8.Goalpokhar-II( 10)	4	2	3	1	2	2	2	16
9.Chopra (17)	4	5	4	5	2	6	6	32
Total ( 205)	49	39	45	48	50	36	44	311
In (%)	15.75	12.54	14.47	15.43	16.7	11.57	14.15	100

Source: West Bengal State Marketing Board, 2012-13

**4.4.1 Day-wise market meetings in Uttar Dinajpur District:** Good, (1975) observed, marketing calendars regulate the frequency of a market and define the length of the 'market week' for a given area and its set of markets. These calendars frequently have a pervasive influence on many other aspects of economic and social life. There is a variance of the occurrence of periodic markets on each day of the week ranging from 50 to 36 as maximum and lower limit. The maximum frequency is observed in Thursday i.e. 50 (16.7% of total of market meetings, whereas minimum frequency observed on Friday, i.e.36 (11.57% of total market meetings). It is to be noted that though there is a considerable number of Muslim and Hindu population, instead of that there is no influence on regulating the particular market day. It is well-defined from the fact that the number of market meetings in Uttar Dinajpur District does not stick to any kind of decorum of schedule holidays of Hindu, Muslim or Christian. But it is evident from table 22, that there is some impact of British Holiday i.e. Sunday on frequency of market meeting. It has been observed that 49 periodic market are organized on Sunday, i.e.15.75 % of total market meetings of the workweek. Apart from this 50 periodic market are also organized on Thursday. It is the combined effect of the presence of bi-weekly markets compound with major day and minor day depending on the volume of patronage. Maximum market meetings are observed in Raiganj block.i.e.79

as follows by Hemtabad, Itahar, Islampur, Kaliyaganj, Chopra, Karandighi, Goalpokhar-I, Gaolpokhar II.

It is interesting to note that the district have more market days than the entire number of markets (table-22). For example, in Uttar Dinajpur district, there are 205 periodic market Centres in all and 311 market days. This is because many markets are taken for more than one day in a workweek. In areas served by bi-weekly markets, therefore, market availability increases above the required number by the number of days by which market gathering increases above one. The Chi-Square goodness of fit test has been used to determine whether the actual number of market meetings on each day of the week differs significantly from the expected number of market meetings. The expected market meeting in this case, is 44.43. The average number of market meetings on each day, i.e. total number of market meetings divided by the market days of the week. The Null Hypothesis ( $H_0$ ) framed is as under:

**$H_0$** =There is no significant difference between the actual number of market meetings on each day of week and expected number of market meetings.

**$H_a$** =Bi-weekly markets lead to increase the availability of market days above the expected number of market days.

$$H_0: f_{xo} = f_{xe}$$

Where,

$H_a: f_{xo} \neq f_{xe}$

Test statistics:  $X^2$

$$df = 7 - 1 = 6$$

Significance=0.01, 0.05, 0.10

Decision Rule: Reject  $H_0$  if the calculated value of chi square is greater than the critical value ( $X^2$  value > 16.81, 12.59, 10.64) at the chosen significance level.

**Table No. 23 Chi-Squared Test of Periodicity of Market Centres**

Days of The week	Observed Frequency (o)	Expected Frequency (e)	Residuals (o-e)	(o-e) <sup>2</sup>	(o-e) <sup>2</sup> /e Or X <sup>2</sup>
Sunday	49	44.43	4.57	20.9	0.47
Monday	38	44.43	-6.43	41.34	0.93
Tuesday	45	44.43	0.57	0.32	0.007
Wednesday	48	44.43	3.57	12.74	0.29
Thursday	50	44.43	5.57	31.02	0.7
Friday	36	44.43	-8.43	71.06	1.6
Saturday	44	44.43	-0.43	0.18	0.004
Total	311	311	0	177.56	4

Source: Computed by Researcher

**Result:** Since the result indicates that the estimated value of  $\chi^2$  is 4 which is too much smaller than that of the critical value 16.81, 12.59, 10.64 so the Null hypothesis is accepted and alternative hypothesis is rejected at 0.01, 0.05, 0.10 significance level. It confirms the fact that market activity in the district occurs on each day of the week with a slight fluctuation.

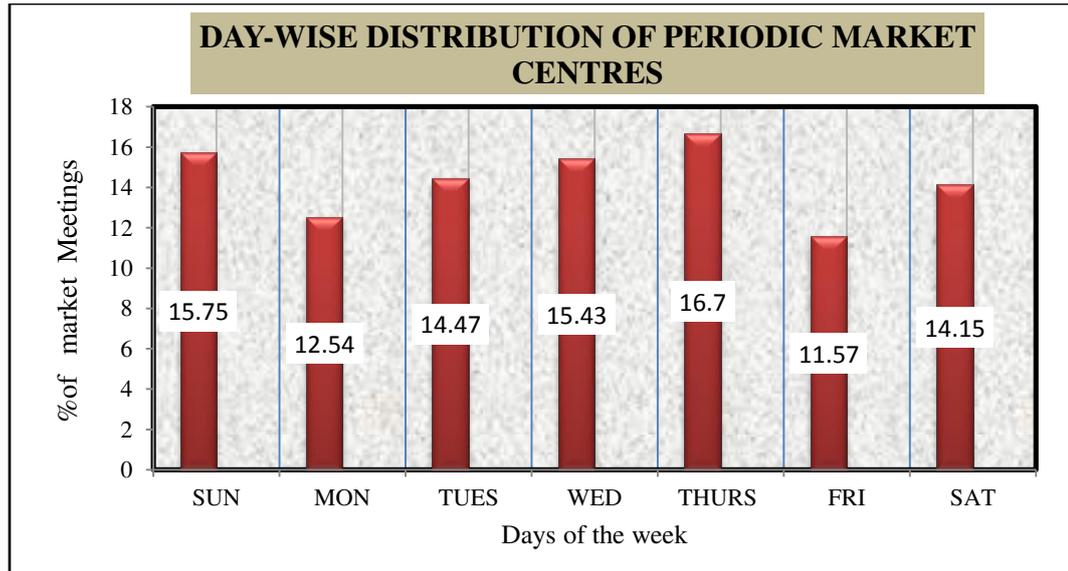
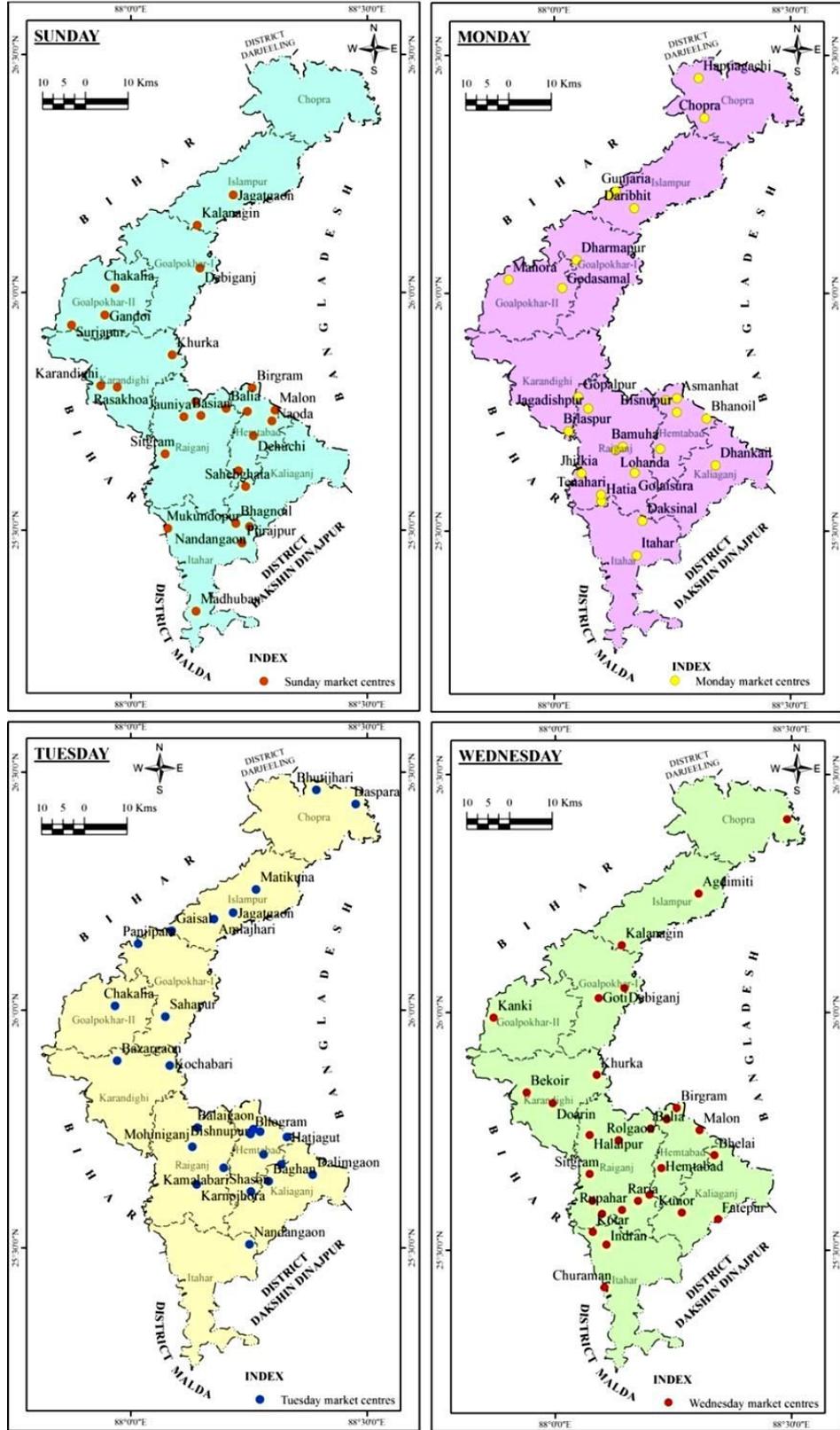


Figure No. 29

## SCHEDULE OF WEEKLY MARKET DAYS IN UTTAR DINAJPUR DISTRICT



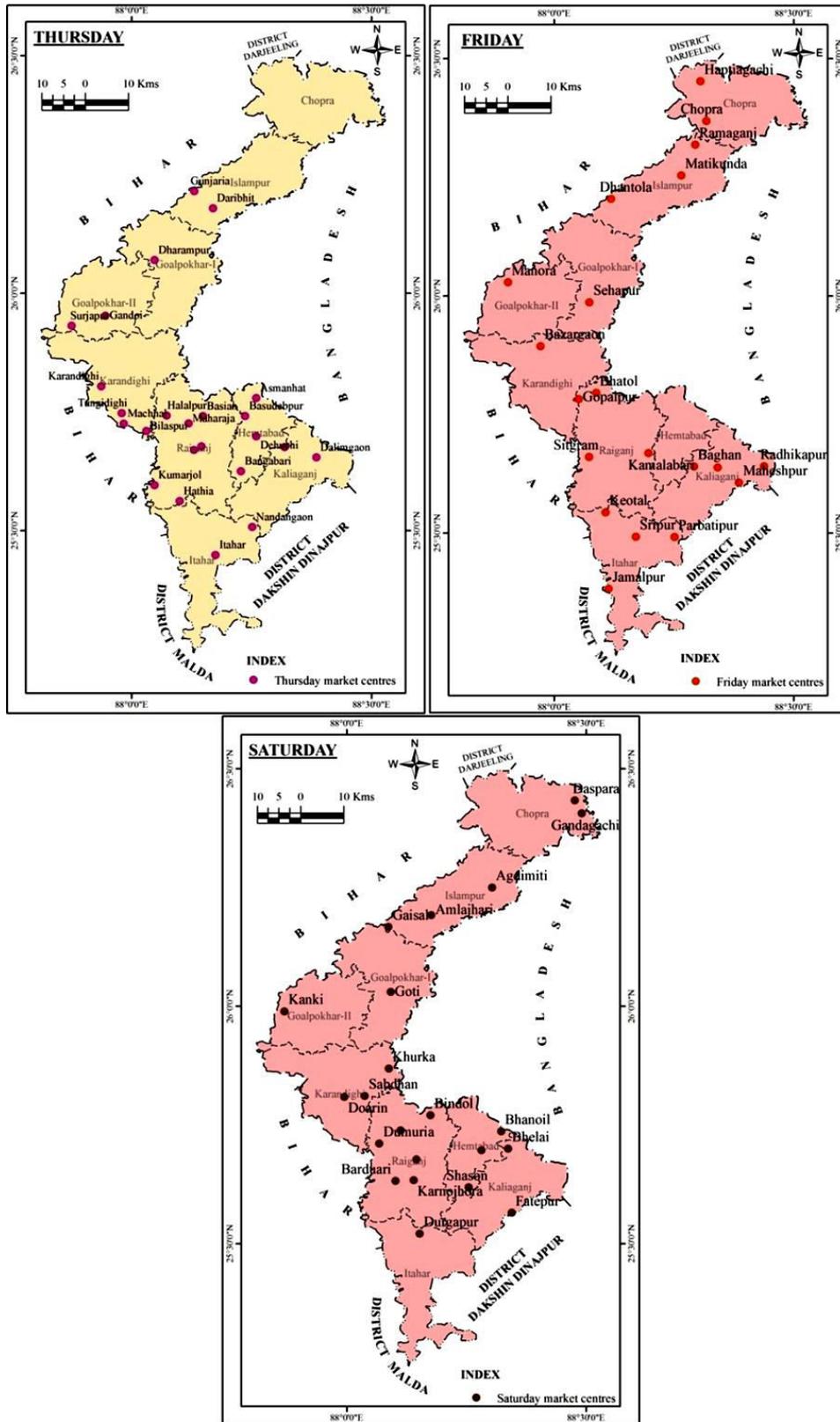


Figure No. 30

#### **4.5 Spatio-temporal Synchronization of periodic market centres in Uttar Dinajpur District:**

A consequence of periodicity is the partial substitution of temporal for spatial competition between centres (Hodder & Ukwo, 1969). It is generally believed that market meetings are organized in space and time to achieve an “optimal” sequence (Smith, 1971). Periodic market systems provide excellent examples of the complex spatial and temporal components present in most development problems. The spatio-temporal synchronization of periodic market system is an intensively studied area in marketing geography. R.H.T. Smith (in 1971, 1972) in particular has made comparative studies of a number of periodic market systems throughout the world. He pioneered a method of testing the spatial-temporal synchronization or it was named later, integration of a market arrangement. The spatial temporal spacing offers a rational option for buyers to minimize travel cost for the same day, adjacent day and one day ahead or after Market Places (Tamaskar, 1978). The spatio-temporal sequencing of a set of periodic market places is expected to be such that each one is able to serve a threshold number of buyers at each meeting to keep up its existence in a thriving state. Plainly, the nearest market place in a space should come about as far apart in time as possible to be capable to ensure a threshold number of vendors at each market meetings. Marketplace separated by comparatively long distance can set their meetings simultaneously on the same day without facing cut throat competition. In any area therefore it is possible to assess the stage of spatial and temporal synchronization or integration of periodic market places. Highly integrated subsets have an inverse relationship between spatial and temporal proximity, while poorly integrated groups indicate a direct relationship between the two. The complete synchronization of market places is an exception in the real world situation (Smith, 1972).

##### **Methodology:**

An analysis of the pattern of distribution and the development of periodic market network can be useful to identify the processes, which give rise to the locational spacing. The relationship between temporal and locational spacing is a fundamental characteristic of periodic marketing system in Uttar Dinajpur district. In this research paper an attempt has been made to show correlation between temporal separation and locational spacing of periodic market places. The efficiency of spatio-temporal

synchronization is assessed by measurements of average locational spacing of market meeting on the same day, adjacent day, one or two days apart. The spatio-temporal relation of periodic markets within the Uttar Dinajpur District has been examined with the help of distances calculated and a mean obtained for each day. With the aid of maps showing markets occurring on the same day, adjacent day, one daytime and two days interval, actual distances between them has been calculated and a mean obtained for each day for each block of the territorial dominion. In the adjacent day market, distances for prior and after day market has been measured and mean has also been received. For object lesson, for Sunday markets, all Sunday markets were joined with nearest Monday and Saturday markets. The same practice has been done in all other computations. The values obtained have been tabulated and graphs for each day have been drawn for further analysis.

#### **Significance of the study:**

The synchronization is more consistent between marketplaces whose meeting share held on the same day and adjacent days locational spacing and inversion occurs when long temporal separations are taken into account. Only there are a few honorable exceptions where market meetings may be taken on the same day at two places, not far apart from each other in space, one earlier, traced by the other later in time. This is pitted by the en block shift and relocation of the market meeting at another place at a short distance on the same day. So, it may be remarked that a perfect integrated trading system in between periodic market center maintain the inverse relation between spatial location of periodic markets with those of temporal placement. The optimality of periodic market centres as spatio-temporal systems have to be viewed in the light of the participation capacity of buyers and sellers. It is expected that there should be an optimal succession of market meetings which will maximize attendance of both buyers and sellers on succeeding days.

#### **4.5.1. Block-wise study of spatio-temporal Synchronization of Periodic market centres:**

As Raiganj block predominates considerable number of periodic markets in Uttar Dinajpur an excellent assessment of spatial-temporal synchronization analysis has been prepared. Spatial and temporal competition is complementary; that is markets located, closer to each other, are separated by a longer time interval, and vice versa (Smith

and Good, 1971 and 1972). Though the famous hypothesis '*Proximity in place implies separation in time*' (Fergurland and Smith, 1970) do not follow in Raiganj block. Equally, it has been proved in previous chapter that spatial distribution pattern of periodic market centres in Raiganj block signifies a regular form and it is not always maintain the decorum for when the time gap is less, the spatial position of markets will be apart and vice versa. Inference drawn from the below exposition may be summed up as follows: i.e. market place meeting on two day apart in relation to Sunday show mean distance 10.0 Km in comparison to same day market meetings i.e.3.39 Km. In case of Monday market meetings and its adjacent day, one day apart and two day apart are partially accorded with the hypothesis as one day apart market meeting in respect of Monday is 3.44 Km of mean distance in comparison to adjacent day and same day i.e.5.56 Km,4.84 Km accordingly. Tuesday market meeting integration completely create an ambiguity and cut throat competition situation among the traders and consumers as the same day market meetings is less distance than that of the adjacent one day and two day market meetings. Wednesday markets also do not accord with the hypothesis '*Proximity in place implies separation in time*'. Thursday, Friday, and Saturday market meetings are fully harmonized with the hypothesis as the computed spatial distance value on the same day (5.612Km, 10.139Km, 7.63 Km) market meetings are more than that of the spatial distant value of adjacent, one or two days apart markets. So it is proved that the integration of market centres is not feasible within the block.

Periodic market places in Raiganj Block cater the demands of the heavy amount of buyers and sellers in rural counterpart. The district witness with agricultural activities and remoteness, inaccessibility, low density of demand, low per capita income has compelled the area and residents to set up periodic markets in adjacent counterpart. Since spatio-temporal synchronization of periodic markets does not accord with the integrated set up - '*The distance of the periodic markets on the same day is more than that of the market on the other days in a week*' so it is very much essential to rethink about the spacing of periodic markets for the sake of smaller rural markets for avoiding cutthroat competition with the larger markets and could survive in within the range of large market area.

The famous notion '*Proximity in place implies separation in time*' (Fergurland and Smith, 1970) follows the same principle to some extent in Hemtabad block. Inference drawn from the below exposition may be summed up as follows: Most of

the market place meeting on Monday, Tuesday, Wednesday, Thursday, Friday & Saturday maintain the same path as 'Proximity in place implies separation in time' in spatio-temporal spacing. Except Sunday partially accept the famous norm 'Proximity in place implies separation in time'. It can be said as the spatial, temporal arrangement of periodic market centres signify some sort of inverse relation in terms of spatial and temporal distance between periodic markets and it is also the indication of most integrated marketing systems. This space-time arrangement of periodic markets ensures a premium return from waiting for demand and supply of goods and services (Wanmali 1988). So it can be said that, periodic market centres in Hemtabad block is more integrated in respect of spatio-temporal arrangement in comparison to others blocks. In Kaliyaganj block Tuesday, Wednesday and Thursday only maintain the ideal relationship of spatio-temporal spacing as followed by Itahar Block on Monday and Wednesday. But the rest of the day trader face a cut throat competition due to converse relationship of spatio-temporal spacing of periodic market centres. Karandighi block has the more integrity in respect of the arrangement in spatial and temporal spacing. So, Karandighi Block show more integrity in spatio temporal arrangement of periodic markets than that of the Islampur block as the former follow the inverse spatio-temporal spacing for four days of the week e.g. Monday, Tuesday, Thursday, Friday whereas the later follow the same for two days of the week. Goalpokhar-I and Goalpokhar-II follows the ideal spacing for one day and two days only as follows. Whereas Chopra block attain the inverse relationship of spatial and temporal spacing for three days e.g. Sunday, Tuesday, and Wednesday as follows.

### **Spatio-temporal Synchronization of Periodic Market Centre in UttarDinajpur District**

**Table No. 24 Spatio-temporal Synchronization in Raiganj Block**

Sl No.	Temporal distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	3.391	4.844	2.038	5.763	5.612	10.139	7.63
2	Adjacent day	6.95	5.56	7.97	5.85	3.08	4.49	5.6
3	Oneday apart	5.6	3.44	9.68	5.02	5.5	6.0	5.38
4	Two days apart	10.0	5.78	8.03	5.0	5.1	5.4	5.2
Remarks		+	0	+	+	*	*	*

**Table No. 25 Spatio-temporal Synchronization in Hemtabad Block**

Sl. No.	Temporal distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	2.254	2.84	4.70	5.40	4.40	3.90	4.12
2	Adjacent day	3.45	2.23	2.17	3.12	3.9	2.29	3.67
3	Oneday apart	2.34	1.90	1.34	2.10	1.87	1.80	2.15
4	Two days apart	1.85	1.82	1.70	2.00	1.50	1.76	1.54
Remarks		<b>0</b>	*	*	*	*	*	*

**Table No. 26 Spatio-temporal Synchronization in Kaliyaganj Block**

Sl No.	Temporal distance	Sunday	Monday	Tuesday	Wed	Thursday	Fri	Sat
		Mean Distance in Km						
1	Same day	4.50	5.9	6.5	5.6	6.2	6.9	2.17
2	Adjacent day	5.1	5.52	4.9	4.2	5.1	3.39	3.19
3	One day apart	3.45	6.17	3.8	3.4	3.2	4.01	2.34
4	Two days apart	2.67	8.43	2.1	1.8	2.8	3.12	1.45
Remarks		<b>0</b>	+	*	*	*	+	+

Source: Computed by Researcher

Where,\* Accord with hypothesis, 0 partially accord with hypothesis, + does not accord with hypothesis

**Table No. 27 Spatio-temporal Synchronization in Itahar Block**

Sl No.	Temporal distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	4.25	7.24	3.65	4.34	6.12	4.54	5.45
2	Adjacent day	3.19	5.14	2.43	3.91	4.56	7.19	6.76
3	One day apart	4.12	4.30	1.89	2.89	5.16	6.45	4.23
4	Two days apart	7.23	2.45	2.12	2.45	6.78	4.44	7.67
Remarks		+	*	0	*	+	+	0

Source: Computed by Researcher

**Table No. 28 Spatio-temporal Synchronization in Karandighi Block**

Sl No.	Temporal Distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same Day	5.54	7.45	6.67	4.79	5.9	9.32	7.78
2	Adjacent Day	4.36	4.54	4.65	5.68	5.12	8.17	6.45
3	One Day apart	6.23	3.64	3.47	4.65	3.89	6.45	4.45
4	Two Days apart	3.34	2.87	3.12	6.72	3.23	4.46	5.23
Remarks		+	*	*	+	*	*	0

Source: Computed by the Researcher

Where,\* Accord with hypothesis, 0 partially accord with hypothesis, + does not accord with hypothesis

**Table No. 29 Spatio-temporal Synchronization in Islampur Block**

Sl No.	Temporal distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	5.98	6.98	5.67	6.64	7.43	7.93	4.71
2	Adjacent day	6.32	5.34	4.65	4.98	9.19	7.45	7.34
3	One day apart	5.65	3.40	3.39	3.49	8.73	10.23	6.34
4	Two days apart	9.16	2.67	2.73	4.0	8.56	6.89	3.12
Remarks		+	*	*	<b>0</b>	+	+	+

Source: Computed by the author

**Table No. 30 Spatio-temporal Synchronization in Goalpokhar-I**

Sl No.	Temporal distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	8.81	4.84	8.038	5.38	6.66	9.10	7.34
2	Adjacent day	5.31	3.78	7.67	5.55	5.08	7.67	6.6
3	One day apart	6.32	5.66	9.32	4.60	7.12	6.67	7.45
4	Two days apart	4.64	3.65	4.03	3.70	4.1	9.91	4.2
Remarks		+	+	+	*	+	0	+

Source: Computed by the Resracher

Where,\* Accord with hypothesis, 0 partially accord with the hypothesis, + does not accord with the hypothesis

**Table No. 31 Spatio-temporal Synchronization in Goalpokhar-II**

Sl No.	Temporal Distance	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		Mean Distance in Km						
1	Same day	6.68	7.32	9.55	7.34	10.2	8.70	7.79
2	Adjacent Day	5.34	6.56	7.93	5.00	5.67	3.23	6.34
3	One Day apart	4.73	8.98	6.12	4.23	7.34	6.12	5.67
4	Two Days apart	3.33	6.50	9.17	3.23	6.72	6.76	4.24
Remarks		+	+	+	*	+	+	*

Source: Computed by the Researcher

**Table No. 32 Spatio-temporal Synchronization in Chopra Block**

Sl No.	Temporal Distance	Sun	Mon	Tues	Wed	Thursday	Fri	Sat
		Mean Distance in Km						
1	Same day	3.39	4.65	7.19	7.05	6.43	7.15	4.67
2	Adjacent Day	2.65	3.76	6.30	6.18	4.34	5.38	6.18
3	One day apart	2.18	3.41	6.48	5.45	3.45	6.63	4.17
4	Two Days apart	1.90	5.39	4.76	3.12	5.18	4.14	3.67
Remarks		*	<b>0</b>	*	*	0	+	+

Where,\* Accord with hypothesis, 0 partially accord with hypothesis,+ does not accord with hypothesis

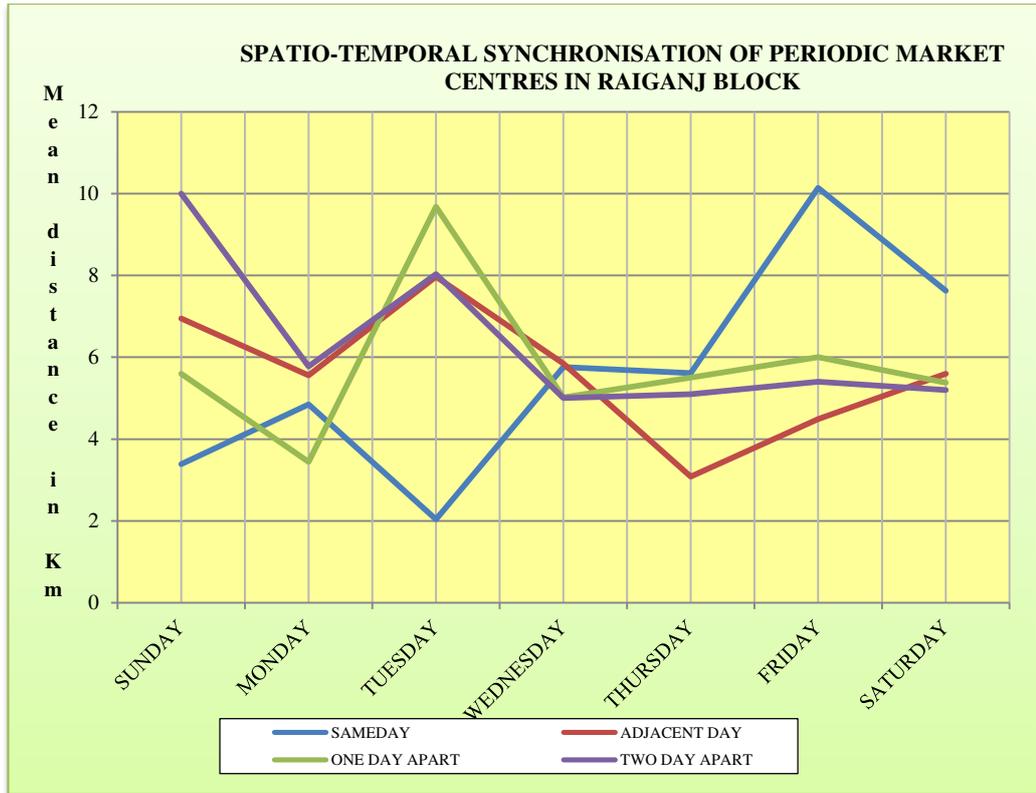


Figure No. 31

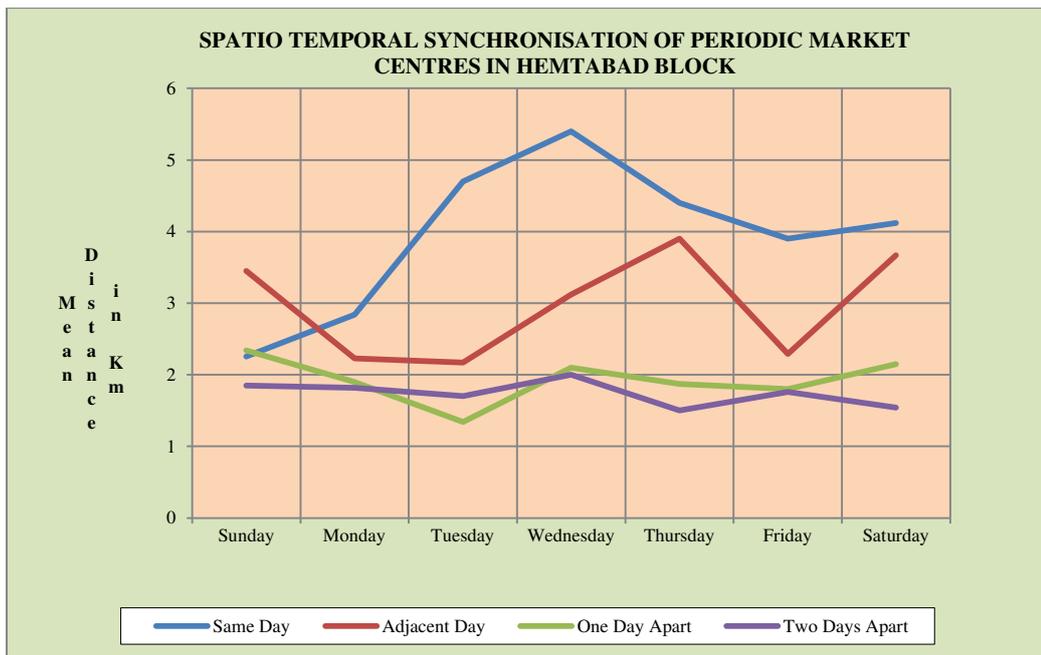


Figure No. 32

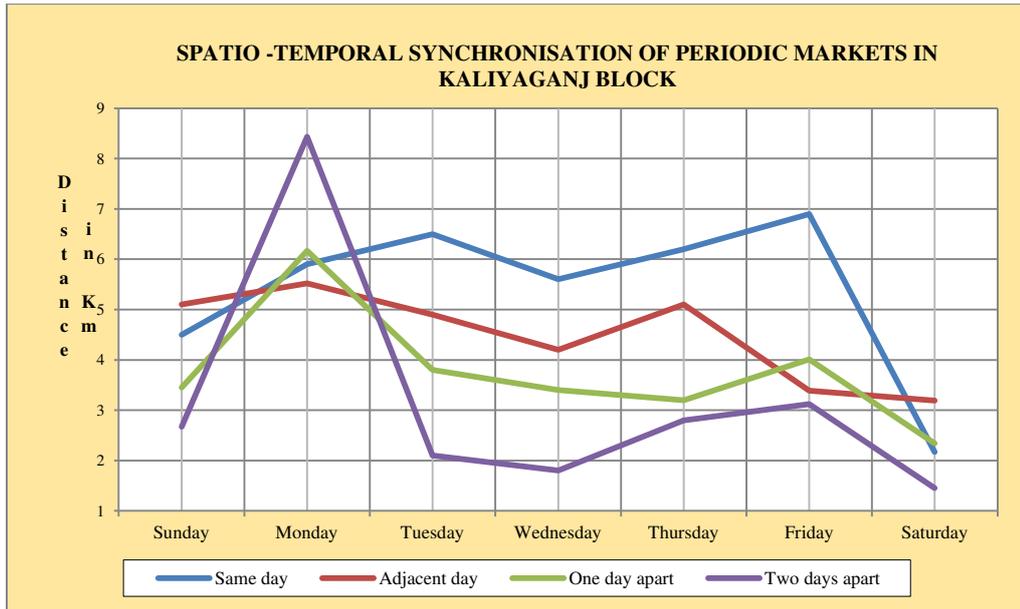


Figure No. 33

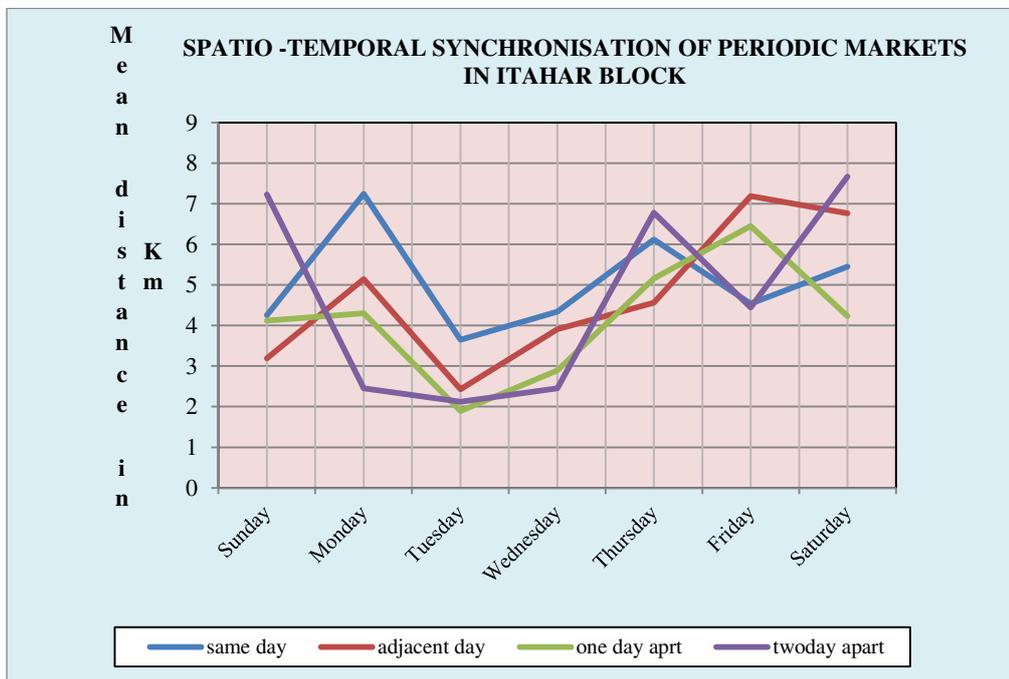


Figure No. 34

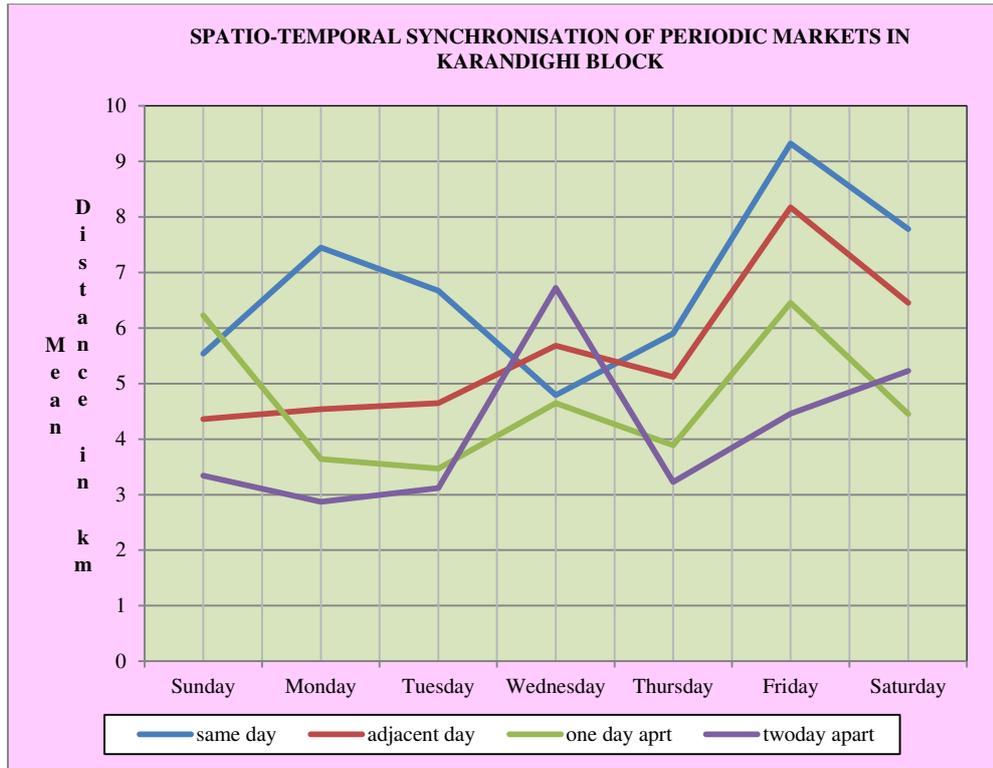


Figure No. 35

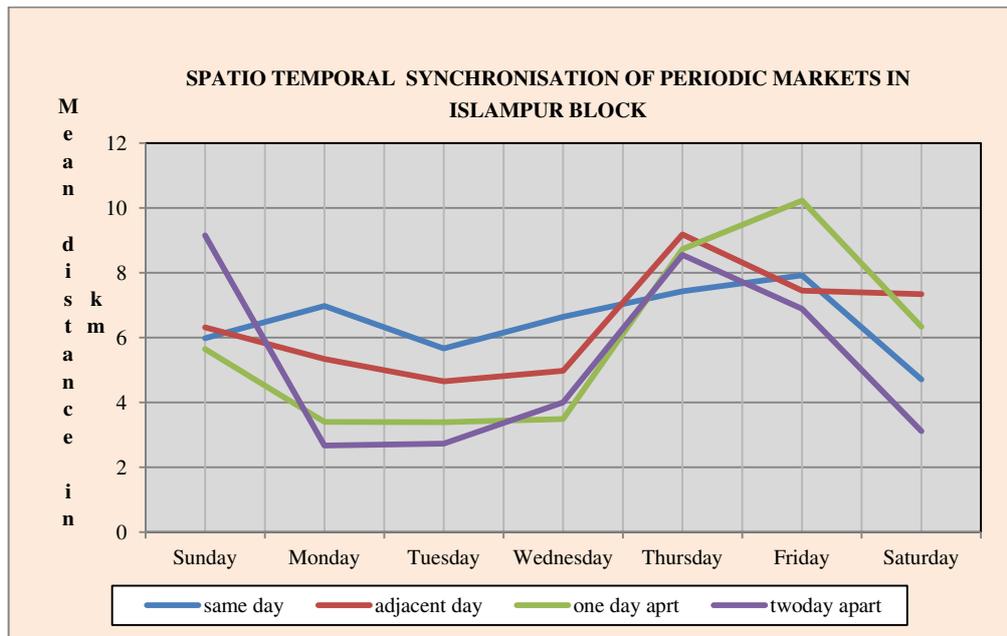


Figure No. 36

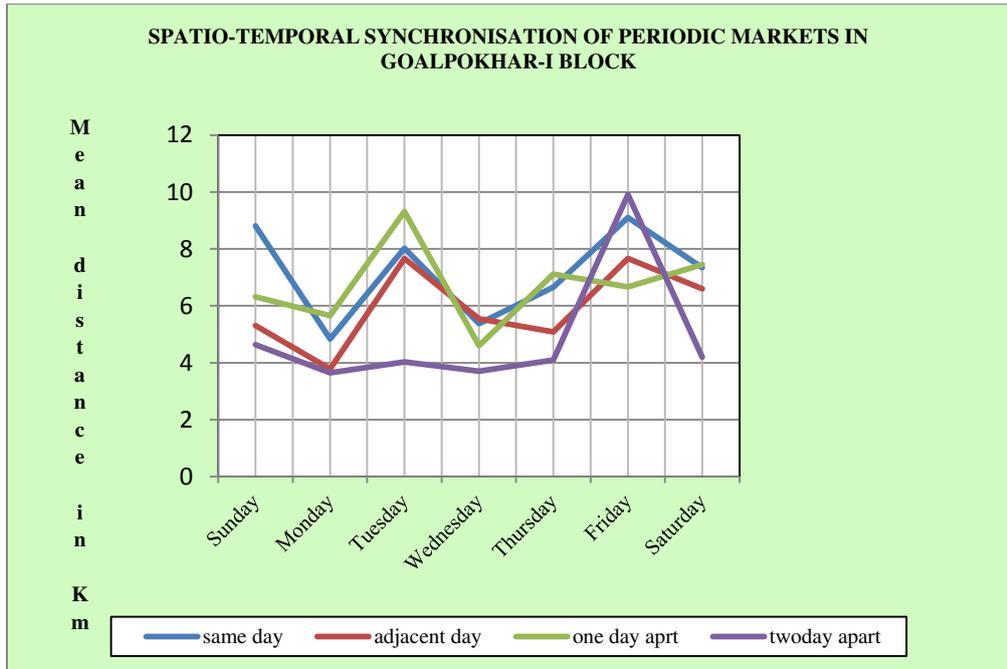


Figure No. 37

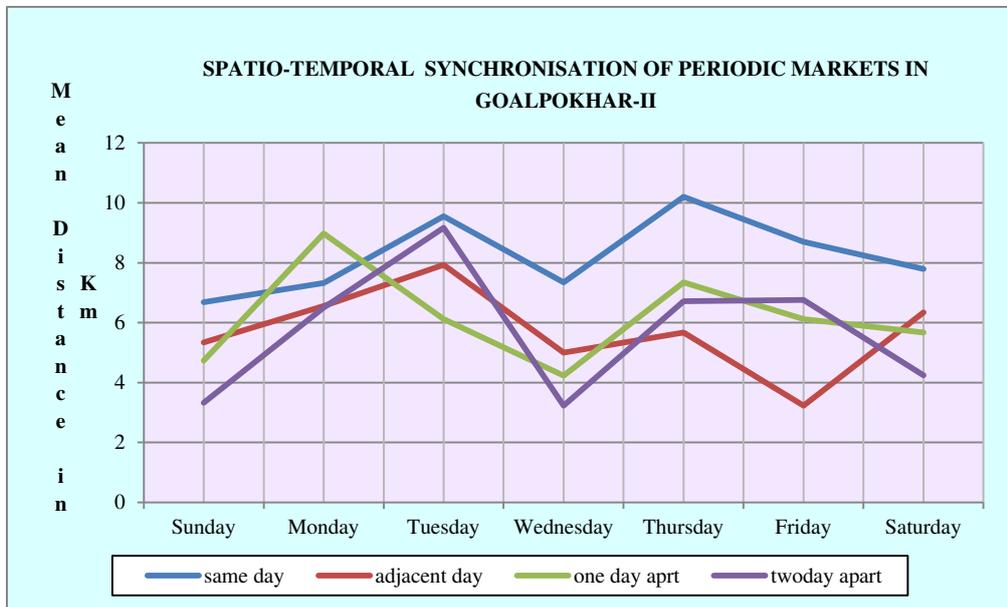


Figure No. 38

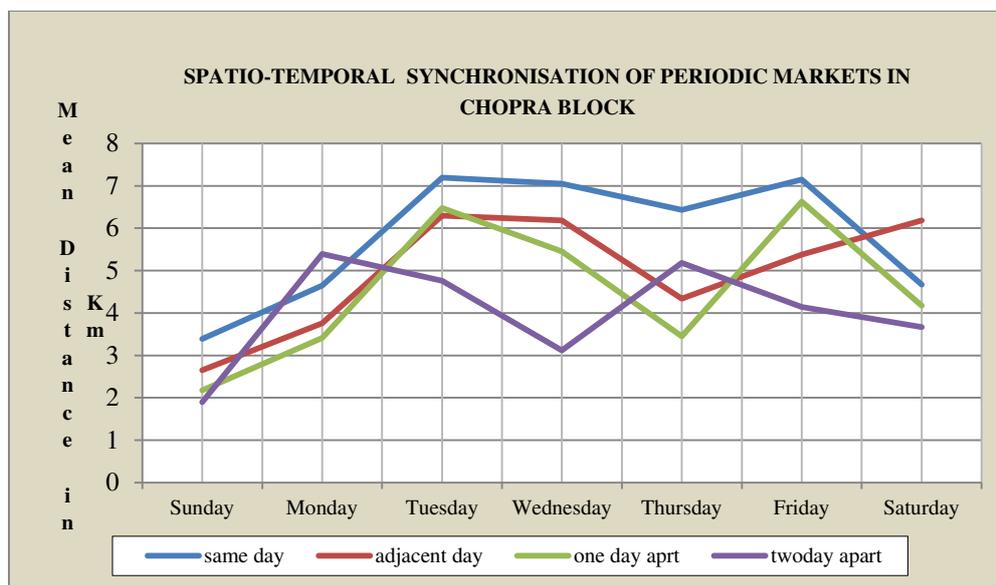


Figure No. 39

**Conclusion:**

Synchronization of periodic markets in respect of space and time is a mark of level of integrity in marketing system. But the district shows some differences from the point of view of integral arrangement. Instead of having a lot of periodic markets in Raiganj Block, the block experiences a lack of integrity in respect of synchronization. On the other hand, the residents of Hemtabad and Kaliyaganj blocks can take wise decisions in respect of attending periodic market centres rather than becoming victims of the integral arrangement of periodic markets. Though Thursday, Friday, and Saturday markets have been harmonized in respect of spatio-temporal sequencing, Monday, Tuesday, and Thursday do not show integral spatio-temporal sequencing of periodic market centres.

In order to achieve well-integrated marketing activities, the district should have to be arranged in a rational manner, i.e., the inverse relation between spatial location of periodic markets with those of temporal placement. The spatio-temporal sequencing of a set of periodic market places is expected to be such that each one is able to serve a threshold number of buyers at each meeting to keep up its existence in a thriving state. Simply, the nearest market places in space should come about as far apart in time as possible to be capable of ensuring a threshold number of vendors at each market meeting. Marketplaces separated by comparatively long distances can arrange their meetings simultaneously without cut-throat competition.

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