Vol III Issue VIII Feb 2014

Impact Factor : 2.2052(UIF)

ISSN No :2231-5063

International Multidisciplinary Research Journal

Golden Research Thoughts

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IMPACT FACTOR : 2.2052(UIF)

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RNI MAHMUL/2011/38595 **ISSN No.2231-5063**

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Golden Research Thoughts
ISSN 2231-5063
Impact Factor : 2.2052(UIF)
Volume-3 | Issue-8 | Feb-2014
Available online at www.aygrt.isrj.net

"A GEOGRAPHICAL STUDY OF AGRO-SERVICE CENTRES IN PAROLA TEHSIL OF JALGAON."

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Abstract:-Agro service centres play an important role to transfer the advanced technology to the farmers and are providing the services and inputs for crops. They are useful to increase the agricultural production. The Parola Tahsil is one of the most fertile and well watered agricultural areas of the Jalgaon district. It has a total area 791.2 Sq.km. and comprises 115 villages. The present study is based on both primary and secondary type of data. The centrality of agro service centres has been calculated with the help of location quotient of Davis (1967). finally, sphere of influence of agro-service centre is determined by Prakash Rao's method. Analysis ravels that there are ten agro service centres on the fourth order, while five agro service centres are place on the third order of hierarchy. Two agro service centres are located on second order of hierarchy, while one agro service centres is at first order. Considerable overlapping in the zones of influence of the agro service centres has been observed in the region under study.

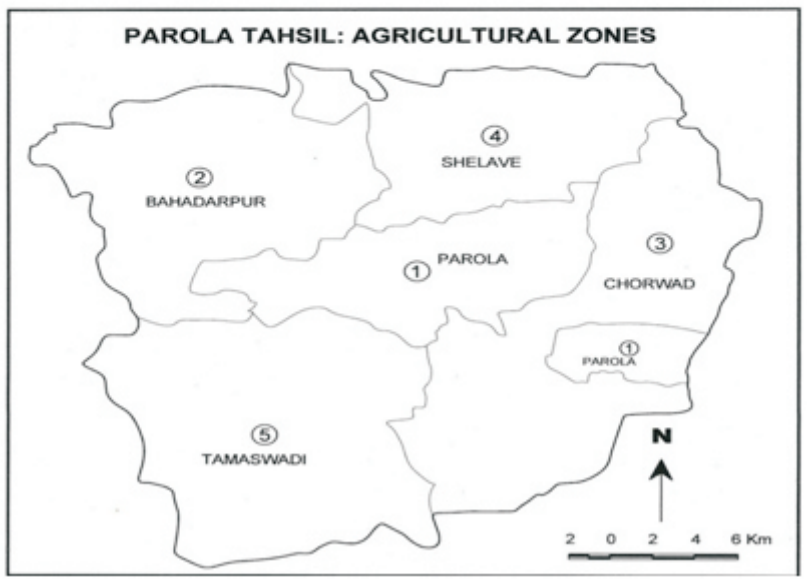
Keywords: Central functions, Centrality Score, Sphere of Influence.

INTRODUCTION:

Agriculture is the most basic of all human calling. It is a visible aspect of landscape on the earth surface. The prosperity of country depends largely on agriculture. In this regard agro service centres can play a very dominant role in accelerating the pace of agriculture production by providing farm machinery implements and other essentials input to the farmers. Agro service centres provide variety of agricultural functions or services to the agricultural population in the given and its vicinity area also. The agro service centres play an important role to transfer the advanced technology to the farmers and are providing the services and inputs for crops. They guide the farmers how and why the improved seeds, pesticides and so on should have been possible only due to agro service centres. Shortly agro services centres are useful to increase the agricultural production through increased consumption of fertilizers through balanced fertilization and proper use of other agricultural inputs. Such Agro-Service centres play an important role in modernization of agriculture. Hence, it becomes necessary to study the location of agro-service centres, their selection and sphere of influence. That's why, in the present investigation an attempt has been made to throws light on above mentioned aspects of agro-service centres in Parola tehsil.

2. THE STUDY AREA:

The area which is selected for the present investigation is Parola Tahsil. It is one of the Tahsil in Jalgaon district. The region under study lies between 20050' North latitude and 75003' East longitude. It is located to west of Jalgaon district and bounded on the north by Amalner and Dharangaon tahsil, East by Erandol and Bhadgaon tahsil, to the south by Chalisgaon tahsil and west by Dhule district. Its shape is roughly rounded. It has a total area 791.2 Sq.km. and comprises 115 villages. The total population of the study region was 1,69,919 in the year -2001. The Parola Tahsil is one of the most fertile and well watered agricultural area of the district. There is significant area under cash crop particularly, cotton. This has influenced the adoption of modern technology in the region. Moreover this region is untouched regarding such studies.



LOCATION OF STUDY REGION
Figure: 1.1

3. OBJECTIVES:

The main objectives of the present investigation are specified as follows.

1.To study the spatial analysis of agro-service centres in the study area.
2.To study the important function of agro-service centres in the study area.
3.To classify agro-service centres on the basis of their functions.
4.To determine the sphere of influence of agro-service centres in the study region.

4. DATA BASE AND METHODOLOGY:

The present study is based on both primary and secondary type of data. The primary data at village and administrative circle level have been collected through the interview and discussion with entrepreneurs. The secondary data obtained from socio-economic review, district census handbook, gazetteers, agricultural periodicals and crop reports published by the Department of Agriculture, Maharashtra State and some unpublished documents by Maharashtra Agro Industries Development Corporation and various reports of the Association of Maharashtra Agro Service Centre. Unpublished information collected from Agriculture and Animal Husbandry, Deputy Taluka Registrar office, Parola.

In the present investigation for selecting agro service centres from the entire region seven services forming six service groups have been taken into consideration. The centrality of agro service centres has been calculated with the help of location quotient of Davis (1967) Finally, sphere of influence of agro-service centre is determined by Prakash Rao's method and attempt is made to find out the intensity of service area of agro-service centre in Parola tehsil.

5.METHODS FOR IDENTIFICATION OF AGRO SERVICE CENTRES.

For selecting agro service centres from the entire region seven services forming six service groups have been taken into consideration.(Table:1.1) Instead of service groups, the individual services have also been taken into account for selecting the agro-service centres from the total settlements. The places which are termed Agro-service centres which possesses at least

four functions or services. As per the criteria adopted for the identification of Agro service centres for the present investigation, about 18 settlements are indentified as agro service centres (fig 1.2)

Table 1.1

Service and Groups	Services / Functions
I	Fertilizers, seeds and pesticides Distribution facilities.
II	Agriculture Cerdit Societies and J.D.C.C. Bank.
III	Veterinary Institutions.
IV	Extension services.
V	Markets.
VI	Agricultural Implements.

6.Centrality:

The centrality of agro service centres in the present study has been calculated with the help of location quotient of Davis (1967). The centrality score is taken into consideration while studying agro service centres in Parola tahsil. The following Central Functions and Services have selected for determining Centrality:

1. Agricultural Implements: a. Tractors,b. Ploughs,c. Seed drills,d. Spray Pumps
2. Agricultural Workers, 3. Irrigated Area. 4. Net Sown Area. 5. Agricultural Credit Society. 6. Fertilizers distribution facilities. 7. Pesticides distribution facilities 8. Seeds distribution facilities. 9. Banking facilities. 10. Extension facilities 11. Veterinary facilities. 12. Market facilities: a. Weekly markets. b. Sub-markets yards. c. Market yards.

A score of any single unit for function is calculated with the help of following formula.

$$C = \frac{t}{T} \times 100$$

Where, C = Desired centrality,
t = Centrality value of agro service centres
T = Total centrality of all agro service centres in the region.

With the help of above mentioned formula, centrality scores for all the functions have been calculated and sum of individual centrality scores of all functions at any agro service centres gives composite Locational Index. Table 1.2 explicitly shows the spatial distribution of centrality scores of each agro-service centre.

Table: 1.2
Centrality scores of Agro service centres calculated by Davis method

Sr. No.	Centrality Groups	Name of ASCs with Centrality Scores
1.	Above 15	Parola (17.32)
2.	10 to 15	Tamaswadi (13.08), Shelave Bk. (11.70),
3.	5 to 10	Undirkhede (9.03), Chorwad (7.56), Shirasmani (8.02) Bahadarpur (6.35), Deogaon (5.11)
4.	Below 5	Ambapimpri (2.10), Jirali (1.72), Mundane (1.65), Dhulpimpri (1.31), Rajwad (1.27), Pimpalkotha (1.09), Mondhale Pr., Utran (0.79), Shevage Bk. (0.54), Shivaredigar (0.53), Dalwel (0.51)

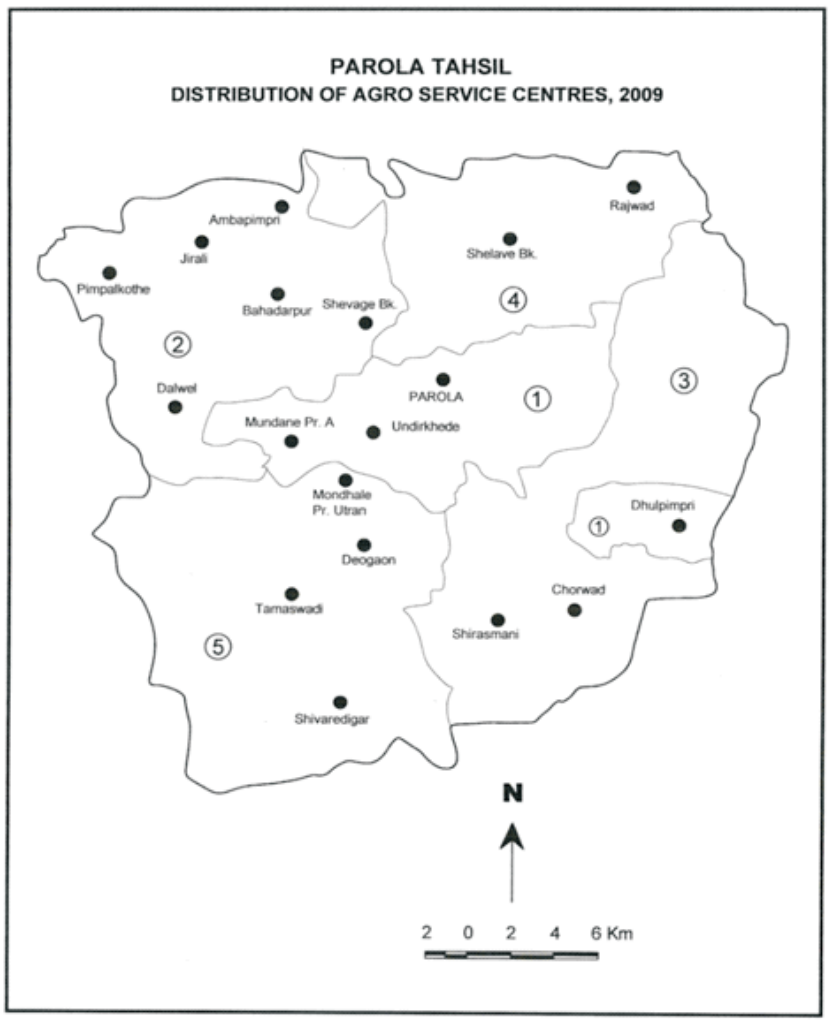


Figure: 1.2

7.DELIMITATION OF SPHERE OF INFLUENCE OF AGRO-SERVICE CENTRES:

Several geographers have used different methods for identifying service areas of service centres. In which method of identifying service area used by Dickinson (1934), Smiles (1947), Bracey (1953)3 and Green (1950), Newcomb (1933),

(Reilly, 1931) etc. are widely used. But in the present investigation Prakash Rao's method has used for determined the sphere of influence of Agro-Service centre in the study region. Prakash Rao has suggested a circular service area. Rao's method calculates the degree of influence of urban centres by considering the total number of urban population of the area and population of individual town. It is felt that a mere population of a town if considered, then the correct zone of influence cannot be delimited because the zone of influence of a town is not related with the population size of town, but it is related to the functional size of a town. Therefore, it was thought that in spite of taking only population of the town which is measured quantitatively in terms of centrality index the results may be more accurate and realistic. That's why, in this investigation Prakash Rao's formula has modified as follows and used to determine the sphere of influence of individual Agro-service centre. This formula has been modified as follows:

$$SI = \frac{TC \times A}{C}$$

$$R = \sqrt{\frac{TC \times A}{C}}$$

Where,

SI = Sphere of influence
A = Total area of the study region in sq. kms.
C = Total centrality value of all Agro service centers.
TC = Total centrality value of Agro service centers.
R = Radius of a circle indicating the sphere of influence.

All agro service centres were grouped according to their hierarchical orders into four groups. The weightages of all first order service centres were added up and the sum was divided by the total number of first order service centres to arrive at the average weightage of the first order service centre. Considering this value, the average radius for all first order service centres was calculated by using the above modified formula. In this way, average radii for all four order service centres were calculated. With the help of these radii values, circles showing the respective spheres of influence for all the orders of agro service centres were drawn (Fig. 1.3)

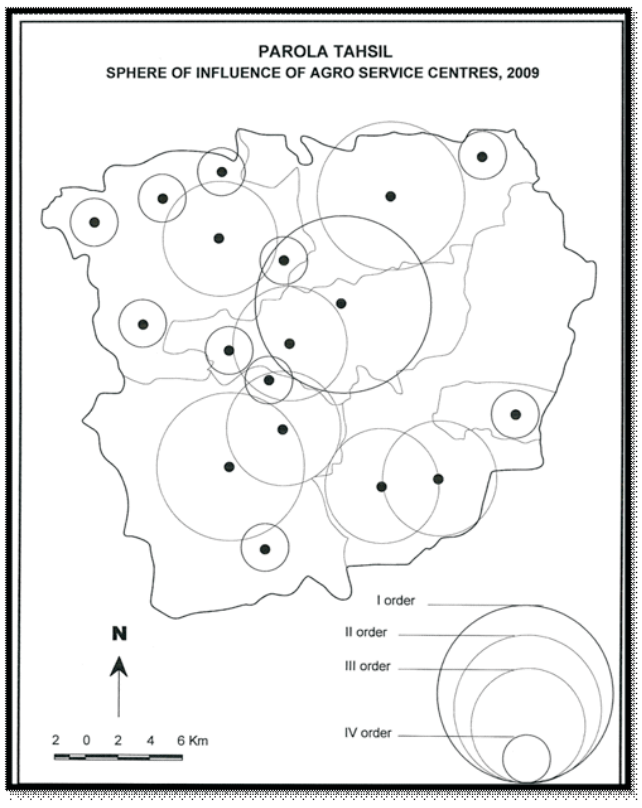


Figure: 1.3

8.Regional Analysis:

The sizes of circles depend on the centrality of the service centres. By drawing circles in proportions to centrality of agro service centres, service areas become unequal. In the study region, there are in all eighteen agro service centres out of which Parola service centre, placed at first order of hierarchy, has the largest service area. This place is situated in agriculturally prosperous area. Then there are two agro service centres namely, Tamaswadi and Shelave Bk. These agro service centres are large sized villages and have smaller area of influence as compared to Parola agro service centre. All these large sized villages have accumulated some agro services like distribution of fertilizers, seeds, pesticides, markets, veterinary institution, Primary Agricultural Credit Societies etc. These agro service centres have a good network and their service area is higher. In Parola tahsil, five third order agro service centres, which are not large in size villages but medium size villages and they have enough agro services to serve the surrounding area. These include Undirkhede, Shirasmani, Chorwad, Bahadarpur and Deogaon. These places have less population and so that the agro services also less. In the study region, there are ten fourth order agro service centres, which are also small villages. These are the lowest order of service centres. These places have low population as well as small agro services. Therefore, they have small service areas than other agro service centres in the study region.A glance on the map showing service areas of agro service centres in the study region clears the fact that, there is a considerable overlapping in the zones of influence of the agro service centres in the part of the study region where a large number of agro service centres have agglomerated. The analysis of service areas of the agro service centres reveals the four intensity service areas of agro service entres (Fig.1.4).

1. Fairly served area
2. Moderately served area
3. Poorly served area
4. Unserved area

8.1. Fairly served area:

The central and south central parts of the study region are fairly served by the agro service centres. It is observed that a large number agro service centres are located in these parts, and therefore, the circles of sphere of influence overlap each other. The service centres like Parola, Undirkhede, Shevage Bk., Mundane, Mondhale and Deogaon are located in this parts of the study region.

8.2. Moderately served area:

The moderately served area is observed around the fairly served area. The north-central and southeastern parts of the study region are moderately served by agro service centres. The concentration of service centres is less in these parts of the study region. The service centres like Bahadarpur, Shelave Bk., Tamaswadi, Shirasmani and Chorwad area located in these parts.

8.3. Poorly served area:

The northwestern, northeastern and southeastern parts of the study region area poorly served by agro service centres. The numbers of service centres are very less and the sphere of influence is also very limited. All the centres in these parts are of lower order of hierarchy of agro service centres. Pimpalkothe, Jirali, Ambapimpri, Dalwel, Rajwad and Dhulpimpri agro service centres are located in the areas of poorly served by agro service centres.

8. 4. Unserved area:

The areas devoid of any agro service centres are referred as unserved area. In the study region, eastern, southern and southwestern parts are observed as unserved areas. These parts of the study region have rough topography which is mostly occupied by crud forest. The density of population is very low in these areas. Low proportion of net sown area to total geographical area, poor transportation and low economic development have resulted into low per capita income and low purchasing power of the farmers. Therefore, these parts of the study region, have still remained as unserved area in respect of agro service centres.

9.CONCLUSION:

The central part of the study region is well equipped with transport and communication facilities, better agricultural practices, dominance of cash crops and better overall economic development. This has resulted in high per capita income and higher purchasing power of the farmers. Therefore, most of the higher order agro service centres with larger sphere of influence are located in the central part of the study region. On the other hand, the southwestern and eastern parts of the study

region have low density of population, subsistence type of agriculture, poor transportation and low economic development. All these factors are responsible for low per capita income and low purchasing power. Therefore, lower orders of service centres with smaller areas of influence are found in these parts. Majority of villages in these parts are unserved in respect of agricultural services

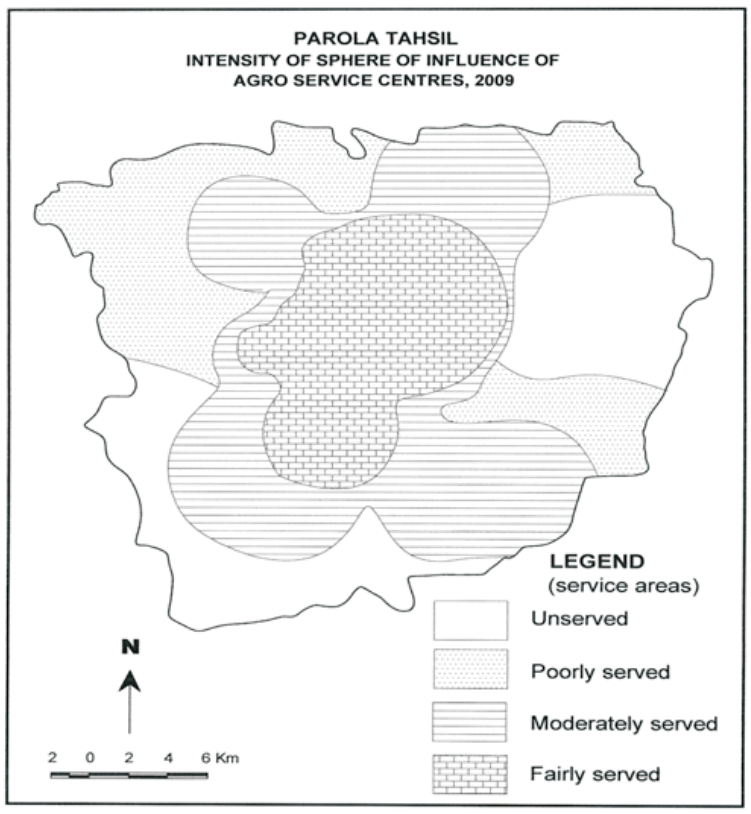


Figure: 1.4

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