ABSTRACT

The present study has accomplished an empirical verification of the hypotheses. The study has identified the generative or positive role of Zahedan city in its rural region. Zahedan is a primate city with a small population of 5.7 Lakhs. It is only the large city up to a radius of 900 km in the southeastern part of Iran. This indicates an overall absence of urban gravity in the southeast. The whole province of Sistan and Baluchestan is a rugged mountainous area. Within the province, Zahedan region is topographically a semi-mountainous region of small and isolated plains. Climatologically, it is an arid region with very low rainfall and extreme seasons. Culturally, the region is inhabited by different tribes who have cross-border relations and contacts because of their proximity to Afghanistan and Pakistan.

Under these broad outlines, the present study has examined the impact of Zahedan city on the rural development levels in the Zahedan Region. To examine the city impact on its surrounding region, it is important to study the city size and function, rural-urban linkages, infrastructural facilities, rural settlement hierarchy and the distance of the villages from the city. The demographic and cultural personality of the villages also plays a significant role in their interaction with the city. An evaluation of all these characteristics gives us an empirical understanding of the City and the City Region.
A region is an integrated system of social, economic and physical relationships. It is not merely an agglomeration of scattered and unrelated settlements. The socio-economic personality of Zahedan region is largely a product of the forward and backward rural-urban linkages and the infrastructural facilities. These relations are established through rural – urban interaction which allows rural areas to get benefited from city services, infrastructural facilities, and economic activities in cities. These linkages determine the regional accessibility or isolation. The accessibility or isolation also define and determine the changing contours of the socio-economic landscape of the region.

We cannot consider urban and rural areas separately. In the assessment of the impact of urban area on rural infrastructure and land use, we should emphasize on those cases that besides retaining rural –urban relationship also lead to the mutual development.

The interior, dry region of Zahedan has recently passed through a decade-long drought. Despite the vagaries of nature and environmental uncertainties the rural areas are still sustainable and stable with a population growth rate of 4 per cent comparative to 2.7 per cent in the province and –0.44 per cent at the national level in 1996 to 2006. A good number of them are growing in their size and function despite a pressure on their natural potential and on their agricultural sector. This rural growth in the command area of the region could be attributed to the good urban support and catering of the rural services. Hence, it is the urban gravity of the dynamic city of the Zahedan which renders the region
sustainable even under adversaries. Although Zahedan region is comparatively a little more developed region as against the other regions of the province, still, however, the people of Zahedan, its legislative members and the other administrative authorities assess that the Zahedan region has quite a low level of socio-economic rural development as compared to several other regions in other provinces of Iran. They also point out to several venues of deprivation which the rural Zahedan region faces in comparison to deprivation level in other provinces.

This politico- administrative location has given special political situation to Zahedan region both in past and at the present because it lies on the main cross-roads leading from north to south and east to west national and international level also. Based on the administrative division in 2006 the region has been divided into four districts namely Markazi, Mirjaveh, Kurin and Nosratabad and 8 tehsils namely Horamk, Cheshme-ziyarat, Ladiz, Tamin, Kurin, Shuro, Domak and Nosratabad. The Zahedan region covers a surface area of 36,518 sq km or 19.5 percent of surface area of province and also 2.2 percent surface area of country. Zahedan city is far away 1,655 km from Tehran the capital of Iran by road and 1.35 hour distance by plane.

The population of Zahedan region is 681,460 persons or 28.3 percent of the provincial population. It is about one percent of country's population by 2006 census. Population plays a dominating role in determining the nature of human settlements and ultimately the landscape of an area. The spatial variation in the
distribution, density, composition and growth of population has a direct bearing on the utilization of resources and the levels of development of a region.

The Male population of Zahedan region is 3,49,825 and Female population is 331.6 thousands. Although, this region has 1,31,635 with the average size of household about 5.2 persons as compared to 5.12 persons in the province and 4.3 persons in the country. Urban population of Zahedan region covers 5,85,842 and the rural population figures at 95,620 persons. The spatial distribution of population, their growth and composition, density and occupational structure reveals that their distribution and growth is mainly related to the social, economic and topographic features of the region.

The age structure is an important indicator of the ratio of the juvenile and senile population of region as compared to the adult population of the working age group. Age structure is also an important determinant of the dependency ratio. The juvenile population in the Zahedan Township is on the higher side at 38.98 per cent. It is slightly higher than the provincial juvenile population percentage. It is unfavorable to note that the juvenile population in the Zahedan is considerably higher than the national juvenile figure of 25.1 per cent.

It is crucial to note here, that there is a close inverse relationship between the juvenile and the senile population percentage. The high juvenile percentage shows a greater degree of dependency. Hence, the old age people are neglected. Therefore, the longevity is lower. The low longevity is also a sign of poor health
care infrastructure. It reveals a low level of socio-economic well being in the Zahedan region.

Literacy is a major indicator of social transformation. Literacy is also an important determinant of fertility, mortality and morbidity. Literacy and education is an important indicator of the employment potentials, income levels and the purchasing behavior. It reflects the socio-economic and cultural set up of a class or a community. It also accelerates the process of economic change and occupational mobility from primary to secondary and tertiary sector to social transformation. Literacy is an essential factor and measure of socio-economic development, of any region. Literacy unlocks the potentials of an individual.

The total literacy of Zahedan Township, 74.5 per cent is considerably lower than the national literacy average 88.74 per cent. The male literacy rate 79.6 per cent in the Zahedan Township is greater than the general literacy of the township. The average rural literacy is 61.2 per cent as against the national rural literacy of 75.09 per cent. The female rural literacy is still lower at 52.4 percent against the national female rural literacy of 68.89 per cent.

One of the most important indicators in the sustainable development of any region is the occupation and employment. Out of 502,090 of 10 and more year total population of the region, 151,159 persons or 30.11 per cent are occupationally engaged. The rate of occupation is different in the rural and urban areas and among male and female. The rate of occupation in the urban areas is 30.45 per cent and rural areas 27.87 per cent. These accounts in
comparison of the country are lower than 34.19 per cent in urban areas and 34.84 per cent in rural areas. This situation has its roots, in the cultural characteristics. This is because in Iranian culture and particularly Baluch culture, woman didn’t have any specific outdoor duty.

Zahedan region is one of the most important regions which accepts and absorbs many immigrants annually. Among this, Zahedan city enjoys an upper situation. Based on census, 2006 during the last decade (1996-2006), about 92,456 persons have come to the different parts of region. They have mostly settled in the urban areas as a number of 81,825 persons or 88.5 per cent of the entire immigrants. Out of 92,456 migrants, a total of 50,206 persons or 54.3 per cent were male and 42,250 persons or 45.7 per cent were female.

The geographical condition of Zahedan city connects it with most provinces' towards the central parts of Iran by a few grade-one linking axes and also by roadways and airways. Because of its' especial cross-way condition, the city of Zahedan can act as a linking bridge between the country's capital, trading port (harbor) of "Chabahar", "Mashhad" and countries of Pakistan, Afghanistan and central Asia. Eastern and western countries can also be connected by linking Kerman railway to Zahedan railway which is already linked with "Quetta" in Pakistan. With the connection of Quetta-Zahedan railway line during First World War and its completion in 1922 by the English in Dozdab (former name of Zahedan), the growth and development of Zahedan city was started. With the help of a Pakistani engineer designed the first map in the present place of main
bazaar and began to meet the needs of planning in the construction. In due course of time, Zahedan hamlet containing a few families became a city with 17,495 populations by the first census in 1956.

Since 1988, at the time of the end of Iraq-imposed war against Iran, the period of construction began in the country, especially, in the deprived regions such as Sistan and Baluchestan. Since then, construction and development have given the city, a new flourish, and put its development in the frame work of comprehensive plan, so that, in continuation of this trend, in 2003, the city of Zahedan expanded about 6,865 hectares. Zahedan city has been divided into three wards or blocks which were named as region one, two and three, managed by central municipality with one branch of it in every region or block. Northeast and east of the city is surrounded by slums or suburban neighborhoods. These slums mostly belong to the immigrants from the province and Afghan refugees.

The most important of land use in this city is housing land use with about 1,815.3 hectares. Other land uses that are more extent in the Zahedan city are Administrative and police land use. This land use possesses 282.9 hectares. Marketing land use is one of the popular land uses that everybody tries to have some part of his territory to it. This land use also is dispersed in different parts of the city with 71.2 hectares. Highest density of it lies in the center which is called Bazar and Rasuli cross section. Highest density of it lies in the center which is called Bazar and Rasuli cross section. The other considerable land use in this city is cultural and religious land use with 52.3 hectares. Recreation and
green space is a necessary land use in the cities especially in the arid zones. Previously, Zahedan city was poor regarding this land use because, its water recourses were salty. After the arrival of fresh water from Chah-Nimah in Sistan region to Zahedan city in 2001, the condition of greenery has changed and several parks and playgrounds have been built with most important of them are Laleh Park, Sanaz Park and Family park in the new parts of city and Baluch, City and Qods parks in the central and ancient parts of the city. Total areas of this land use are 75.2 hectares.

Zahedan city with 5,67,449 persons comprising 1,09,486 households has 23.6 per cent of the total population of province and 47.6 per cent of total urban population in Sistan and Baluchestan as well as 83.3 per cent of the total population and 96.9 per cent of total urban population in Zahedan region.

Cities usually have multiple functions which depend on their geographical, socio-economic and other conditions. In adaption with every circumstance, cities can take some roles which certainly a few of them are more dominant and have more influence and affected on itself and its hinterland development. Zahedan city plays not only important role in all dimensions of development in the region but in whole of province also.

First five year plan of economic-social and cultural development of Islamic Republic of Iran began in 1989, after the end of Iraqi imposed war against Iran. Now, the fourth plan is being carried out. During these years, the region of Zahedan and most of villages of the province have been benefited from a lot of
developmental services, so that in 2009, there was no village having up to 20 household, without electricity-supply throughout the country. Additionally, based on 2006 census, there have been 836 rural health shelters, 2,282 villages enjoying drinking water, 3,378 villages having telephone centers and 2,505 km asphalt road in the province. These values for Zahedan region were against the corresponding 55 health shelters, 197 villages with safe drinking water, 374 rural telephones and 349 km asphalt road.

Out of a total number of 243 villages which have 20 households and more in the Zahedan region, 54 villages or about 22 per cent of these were distributed in the Markazi district and it's both the tehsils. Mirjaveh district has 107 villages or about 44 per cent of them in the Zahedan region. As well as Nosratabad district with two tehsils has only 35 villages or about 14 per cent. Other district named Kurin also has 47 villages or around 19 per cent of total villages of Zahedan region.

The geographical of distribution of rural settlements reveals a highly uneven regional sustainability. For example, Nosratabad district has the largest geographical extant of 15,350 sq.km. It comprises 42 per cent of the total geographical area of the Zahedan region. But Nosratabad has the lowest 14 per cent rural settlements of 20 and above households. This indicates that Nosratabad district, particularly Nosratabad tehsil is the most desolate area of Zahedan region. There is acute scarcity of infrastructural facilities in Nosratabad. Vast areas are without settlements. Rural settlements are distributed
along a narrow northward corridor of road transportation in Nosratabad tehsil. Mirjaveh, on the other hand, has the smallest geographical area of 5,925 sq. km. Mirjaveh district comprises only 16.2 per cent of the total geographical area of Zahedan region. This district comprises the largest number of 107 rural settlement of higher category in the entire Zahedan region. Mirjaveh, southeast of Zahedan city indicates a better index of connectivity. It reveals good infrastructural facilities in the district.

The 90 sample villages of the region were selected in a manner to cover relatively all general the peculiarities. Some characteristics of sample villages were described on the basis of the descriptive statistical results. The survey has been done as recent in 2008. Out of a total number of 90 sample villages, as many as 53 villages or 58.9 per cent of them were dispersed in the plain areas or low land and a total number of 37 or 41.1 per cent of rural areas have been located in the semi-mountainous or hilly areas of the region.

The Nearest villages to Zahedan city are Daei and Mojtame-e- Gowdaran with 3 km and remotest village called Motor-e- Gami with 150 km. The average distance of villages to Zahedan city is 84.3 km. The distance distribute shows a total number of only 15 villages with a distance of 1-35 km from Zahedan city. There are 20 villages at a distance of 36-70 km. And 26 villages are located at a distance of 71-105 km from Zahedan city. The largest numbers of 29 villages are located at a distance of 106 km or more from Zahedan city. In this village distribution pattern there is an apparent impression that as the distance from the
city increases the number of big size villages of 20 and more household has also increased. This linear distance effect is paradoxically a camouflaged impression. Because, if we plot the distribution pattern of rural settlements in a concentric ring Model of the given distance and then measure the number of rural settlements against per sq. km. area in each concentric ring then the distribution of rural settlements would attest to the distance-decay theory. In the concentric ring Model every outer ring because of its increasingly larger area would depict a sparser distribution of rural settlements. Hence, there would be decreasing number of villages per sq. km. with increasing distance from Zahedan city. This proposed scenario would conform to the distance-decay theory or the gravity model of geographical inquiry.

Out of the 90 sample villages, as many as 89 villages have electricity connections. Only 1 village is devoid of electricity. This village would also have electricity connection sooner than later. Electricity facility has played a crucial role in enhancing the agricultural operations and modernization of the rural sector.

Another basic communication facility is the rural telephone connection in the region. Out of 90 sample villages, 84 villages or 93.3 per cent of them have telephone connections and rural cell phone facility. The telephone and cell phone facilities in the rural Zahedan are playing a positive role in the agricultural growth, marketing incentive and price control. Social services such as health shelter, primary school, rural corporations and rural councils play a
vital role in promoting the rural awareness and development levels. Out of 90 sample villages, 45 villages have health shelter facilities. Another 94.4 per cent of the rural areas or 85 villages have access to primary schools.

Regarding the status of rural employment and literacy among the sample population, the average rate of employment is 24.65 per cent among rural population with minimum rate of employment 2.2 per cent to maximum rate of employment which is 64.4 per cent. There is an inverse relationship between the percentage employment and the dependency ratio. Occupation greatly varies amongst male and female. The average rate of employment among female is only 4.13 per cent and between male is 46.3 per cent as well as, literacy rate have the same condition so that, the average rate of literacy is about 65 per cent with minimum rate about 27.3 per cent and maximum rate 88.5 per cent.

In connection with the situation of agriculture, these rural settlements have 6,177 hectares of cultivable land out of which average about 3,345 hectares are cultivated annually. Thus the percentage cultivated land to total cultivable land is a very low 54.15 percent only. Hence, there is a great potential for agriculture and rural development. The average mean of total agricultural land per village is 68.63 hectares as against it the average mean of the total cultivated land per village is 37.17 hectares. It is significant to note that the number of livestock exiting in these rural areas, include 62,555 goats, 39,390 sheep, 15,708 cows and 3,743 camels. The numbers of livestock suggest a fairly higher
proportion to the rural economy, which largely appears an economy of animal husbandry.

Out of a total 90 sample villages, only 10 villages or 11.1 per cent of them qualify to the group of infrastructurally developed villages or enjoyable group in the services and infrastructural facilities. Infrastructural D.I. of these categories is different which ranges between 1 for Tamin village in Tamin tehsil with a rank of 1 and it is at a distance of 135 Km from Zahedan city to a value of 0.78 for Shourshadi village in tehsil Kurin. Its development rank is 5 and it is located at 104 km distance from Zahedan city.

In the category of infrastructurally developing villages, there were a total number of 39 villages. In this developing category Seyahjangal village in tehsil Ladiz has a D.I. of 0.7 and stands in the high range of development and rank of 6 in this category. Motor-e - Firuz village in tehsil Ladiz has a D.I. of 0.4. Its stands a development rank of 16 in this category and distance 119 km from Zahedan city. Both of these villages are in Mirjaveh district. In the category of infrastructurally deprived or under-developed villages, there are maximum 41 number of villages out of the total 90 sampled village in Zahedan city region. These deprived villages have a very low D.I. range from 0.08 to 0.38. Here, Chahzard village in tehsil Domak has the highest D.I. of 0.38. It stands a development rank of 17. It is located at a distance of 62 km from Zahedan city. Khaspari village in Ladiz tehsil has lowest D.I. of 0.08 in this category. It stands
a development rank of 30. It is located at a distance of 96 km away from Zahedan city.

In terms of agricultural development out of total 90 sample villages in Zahedan region, a number 17 village (18.9 per cent) has been enumerated as the agriculturally well provisioned or developed villages. Range of D.I. in this level varies between 0.36 for Allahabad-e-Domak in Domak tehsil with a distance of 68 km from Zahedan city up to 0.52 for Sharifabad in Ladiz tehsil with a distance of 97 km from it. The ranking of these villages is different i.e. 1 to 11.

A total number of 53 villages or 58.9 per cent classified themselves into developing villages. This group of villages also is different as D.I. from 0.18 for Zourabad-e-Minavi village which is located in 73 km from Zahedan city up to 0.35 number for Motore-Hajiabad at 70 km far from Zahedan. The rank of this group is from 12 up to 29. And 20 of the villages (22.2 per cent) are deprived villages. Among this level, D.I. varies from 0.01 for Rowshanabad in Kurin tehsil at 116 km from Zahedan city to 0.17 for Mowlavi Abdollah village in 66 km from Zahedan city.

By utilizing the method of “Morris” and by estimating development index (D.I.) of each one, D.I. of each village’s economic development was finally attained. Thus, considering the three levels of development, the situation of villages in relation to development of this factor in the region of Zahedan, was achieved. D.I. of economic development among the villages ranges between the numbers of 0.08 to 0.69. Out of included in group of economically developed
villages. D.I. of this group is 0.49 for Islamabad-e-Padaki of Domak tehsil which is at 70 km distance from Zahedan city up to 0.69 for Motor-e Gorgij from Nosratabad tehsil which is at a distance of 83 km of it.

A total number of 51 villages or 56.7 per cent are classified into the level of developing villages. Among these villages, D.I. is different which varies between 0.29 for Towhidabad in Ladiz tehsil at 61 km of Zahedan city and ranks 33 up to 0.47 for Fathabad of same tehsil at 100 km distance from city and ranks 15. About 24.4 per cent of the total or 22 villages are considered as deprived villages. Among them, Hajiabad-e Fajr village of Cheshme-ziyarat tehsil, 52 km away from Zahedan city has the lowest level with D.I. 0.08 and ranks 45. Kharestan-e-Paein from Tamin tehsil which is at a distance of 120 km from Zahedan city with D.I. 0.28 and ranks 34 is above the level in this group.

Socio-culturally out of the total 90 sample villages, 24 villages or 26.7 per cent are developed villages. In this category Chahnali village in the Kurin tehsil with D.I. 0.71 and rank number 1 is on top and Shuro village in the Shuro tehsil with D.I. 0.49 and rank number 14 is on down the order. Both of these villages are in Kurin district with 75 and 110 km distance from Zahedan city respectively. Most number of villages, representing 49 ages or 54.4 per cent are classified into the category of developing or semi-developed rural group. This D.I. ranges between 0.48 for Lare-paein village in Hormak tehsil at 25 km from Zahedan city with a rank of 15 to 0.27 for Gourband-e-avval in Cheshme Ziyarat tehsil with a rank 35 at 12 km distance from Zahedan city.
A total of 17 villages comprising 18.9 per cent of the total, are in deprived group with D.I. range of 0.26 for Motor-e-Firuz in the Ladiz tehsil is on top to 0.04 for Sharifabad in same tehsil which is at the lowest level. Both of these villages are in Mirjaveh district and have varying rank of 36 and 48 with a distance of 140 and 80 km from Zahedan city respectively. These rankings and their locations depict that there is no definite distance-decay pattern in the levels of socio-cultural development. This is because the Zahedan Township Region is not an isotropic surface.

Development index (D.I.) of Curative-Sanitary development among the villages ranges between a minimum value of 0.01 to a maximum value of 0.96 and they ranked from a development level of 1 to 51 out of a total 90 sample villages, only 9 villages or 10 per cent of them qualified in the group of developed villages. Among this group Mojtame-e-Gowdaran village in Cheshme -Ziyarat tehsil had the highest D.I. of 0.96. It ranks at position number 1 at the top level. This village is only at a distance of 3 Km from Zahedan city. It indicates a nearest-neighbor position of advantage. On the other hand, in the developed category, Manzelab village in Cheshme -Ziyarat tehsil has minimum D.I. of 0.66. Its development rank is 7 and it is also at a short distance of 15 km from Zahedan city. This indicates that the distribution and diffusion of curative-sanitary services is mainly up to a shorter distance from the gravity of Zahedan city.
Among the developing villages in terms of curative-sanitary services, there were highest 47 number of villages or 52.2 per cent out of the 90 sample villages in the Zahedan region. The curative-sanitary services values range from a minimum development value of 0.33 to a maximum development index of 0.64.

Among the developing villages in terms of curative-sanitary services, Sarjangal village in Kurin tehsil has the highest D.I. 0.64. Its development rank is 8 within the category. This village is located at a distance of 104 km from Zahedan city. Azizabad village in Domak tehsil has the lowest D.I. 0.33 in this category. Its development rank is 30. Azizabad village is located at a distance of 60 km from Zahedan city.

Among the deprived villages in terms of curative-sanitary services, there were as many as 34 villages out of the 90 sample villages in the region. In this category, the curative-sanitary services ranged from a minimum development value of 0.01 to maximum development value of 0.31. Among the deprived villages in these services, village Qaderabad in Cheshme-Ziyarat tehsil has highest D.I. of 0.31. Its developing rank is also 31. It is at the distance of 6 km from Zahedan city. While, village Chah Rahman in Nosratabad tehsil has a minimum D.I. of 0.01. Its development rank is 51 and located at a farther distance of 146 km from Zahedan city.

By using the Morris' method, a total development index (D.I.) of each village was attained and eventually overall rural development situation was
distinguished. The researcher was able to distinguish three levels of overall rural development because; variation of D.I. is low in Iran. The total development index (D.I.) of the rural areas varies between the D.I. of 0.13 to 0.63. Among them, Tamin village in Tamin tehsil with D.I. 0.63 is on the top level and ranks 1. It is located at a distance of 135 km southeast of Zahedan city. And Hajiabad-e-Fajr village with D.I. 0.13 is at lowest level and ranks 40. This village is in Cheshme Ziyarat tehsil. It is located at a distance of 52 km west of Zahedan city.

Out of a total 90 sample villages, 24 villages or 26.7 per cent lie in the category of developed villages. Among them Tamin village in Tamin tehsil with D.I. 0.63 is on the top and first ranking. It is located at a distance of 135 km southeast of Zahedan city. And Motor-e-Gorgij village in Nosratabad tehsil with D.I. 0.48 is in low level and ranks 12 in this category. It is at a distance of 83 km northwest of Zahedan city. The largest 41 number of villages or 45.6 per cent are classified into the category of developing villages or semi-developed village group.

Among the developing villages, Islamabad-e-Padaki in Nosratabad tehsil with D.I. 0.47 and ranks 13 is on the highest level. It is at a distance of 70 km west of Zahedan city. Bog village in Hormak tehsil with D.I. 0.31 and ranks 27 is in low level of this category. It is situated 30 km northeast of Zahedan city. There are 25 villages include 27.8 per cent of the total sample villages are in the deprived category villages or under-developed group.
In this overall deprived category, also Shourchah village with D.I. 0.30 and ranks 28 is on the top level. It is from Domak tehsil. It is situated 65 km west of Zahedan city. The village Hajiabad-e-Fajr with D.I. 0.13 and ranks 40 is at the lowest level. This village is in Cheshme Ziyarat tehsil. It is located at a distance of 52 km west of Zahedan city.

The major emphasis in the present research has been first to identify the levels of rural development in the region and then to ascertain the impact of Zahedan city on the levels of rural development. The study also enquired the role of Zahedan city that whether it is the generative or parasitic in this regard. For achieving this purpose, the researcher has employed descriptive and analytic methods with statistical techniques, together with the primary and secondary data.

Zahedan City has played a positive role in the rural and regional development. Hence, the city has played a generative role rather than the parasitic role. Zahedan is more than a developing region, because 45.6 per cent villages are in the developing category, 26.7 per cent villages are in the developed category. These two categories together represent 72.3 per cent of the total villages. The remaining 27.7 per cent villages are in the deprived category. Shuro tehsil in Kurin district stands out at the highest rank of overall rural development and Tamin tehsil in Mirjaveh district lies at the lowest rank. At the district level of analysis, Kurin district stands out at the highest rank of overall
rural development levels and both Markazi and Nosratabad districts lie in the lowest rank.

Distance - decay pattern in terms of concentration of villages shows that their density is decreasing while their spacing in the concentric rings is increasing from 1 village per 257 sq. km. in the inner ring to 1 village per 1244 sq. km. in the outer ring. This shows that the distance – decay pattern is accepted in general. But since the cultural gravity of the dynamic desert tribes is stronger in this region than the geographical law of distance the number of developed villages has also increased from 2 villages in the inner ring to 9 developed villages in the outer ring.