

Geographical Factors Affecting Distribution of Population

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Abstract: The paper examines the potentials of creation a multi-center system of population settlement in Mongolia considering the current socio economic development where is been considered the mix of traditional life style of pastoral animal husbandry and sedentarized forms of lifestyle such village type of settlement (soum center). Under the three magnets law (Rudolphovich 1999) the mechanism of pull-push the process of urbanization is rapidly increasing (Dennis 1991) and as result of it the role and function some settlement has changed. The increase of population of the big cities has effect on increases the radius of influence of the settlement to surrounding area (Sukhbaatar 1971, Bazargur 2007). One of reasons of the migration among pastoral herder to settlement is increase of interested towards intensive farming systems (Bazargur 2007). Therefore there is urgent need to identify the proper planning of population of settlement. The study was conducted in area where rapid infrastructure development were observed and under which the intensive migration from and to settlement, clear distinguish of agriculture zones around the big settlement such as provincial capitals and in area where been observed establishment of chain of settlement network. Interviewing were conducted with the randomly selected respondents from "ger" districts of the rural settlement and herders.

Our study indicates that the population of settlement has increased in Gobi region where the mining activities develops. The population of small settlements is decreased under the influence of bigger settlement with market and better infrastructure. The roles of those settlements are to produce the agriculture products and same time to provide a new opportunity for migrant herders from periphery. However there are rural population that are in area/space that is not been covered by social and culture services. To full this fill the gaps, for many people centrality purpose deliver to social services, its preserve the central location in outsettled areas, value chain to create areas of the cities (sum centers) the specific role of the conditions of two bordering province first must to logically develop those areas (sum centers).

Keywords: Urbanization, rural settlement, settlement population

Introduction:

Mongolian millennium development goals are based on Comprehensive National Development Strategy regions and to develop the infrastructure and to reduce development disparities between urban and rural priorities was completed, but the first time to implement some of the measures are starting so. For the herders in countryside, one of reasons of the migration among pastoral herder to settlement is increase of interested towards intensive farming systems. Therefore there is urgent need to identify the proper planning of population of settlement.

The paper examines the potentials of creation a multi-center system of population settlement in Mongolia considering the current socio economic development where is been considered the mix of traditional life style of pastoral animal husbandry and sedentarized forms of lifestyle such village type of settlement (soum center).

Research method

- In this study, population growth and change studies are based on each soum's distance from the bigger settlement (province capital). These distance measurement calculation's are used by Reilly's law of retail gravitation.
- Settlement (Soum center) are categorized by their population big, middle, and small (Table 1)(Bayantor 2003). This classification's method taken from Mongolian National Atlas second edition of the "Urban village Classification".

Table 1. Classification of settlement (soum center)

Classification of settlement	Population of settlement
Small	Less than 1000
Middle	1000-3000
Big (province capital)	More than 10000

- Mongolian and provinces statistical yearbook 2000, 2013 and "In Mongolian population Settlements spatial patterns" as part of work on the material used in the fieldwork.

Study area

This research work has held at 4 provinces: Dornogobi, Dundgobi, Gobisumber and Umnugobi, and their 47 small soums.

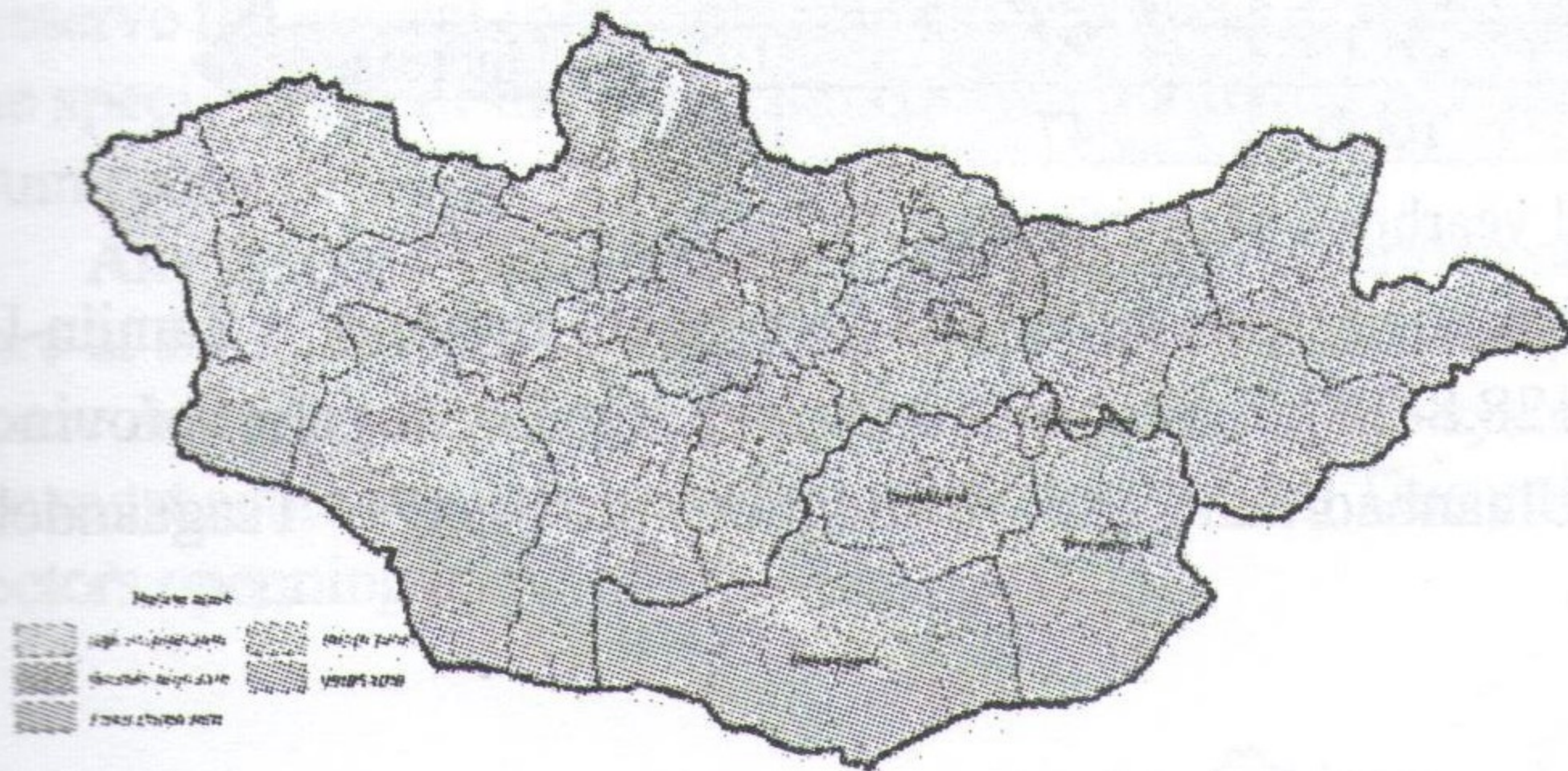


Figure 1. Study area (Source: Mongolian National Atlas)

Table 2. Administrative and territorial units

Provinces	Number of soums	Territory thous.km ²	Population density
Gobisumber	3	5.5	2.69
Dornogobi	14	109.5	0.57
Dundgobi	15	74.7	0.5
Umnugobi	15	165.4	0.41
Total	47	355.1	0.51

Source: Mongolian statistical yearbook 2013

These provinces' area is totally account for 23% of Mongolian total territory and there is better infrastructure systems such as the development of mining and other services and they have tar roads and railways as well as bordering China is also a key of the population attraction.

Findings 1. Population of settlement has increased in Gobi region

As you can see from the figure 2 and table 3, it indicates that the population of settlement has increased in Gobi region where the mining activities develops.

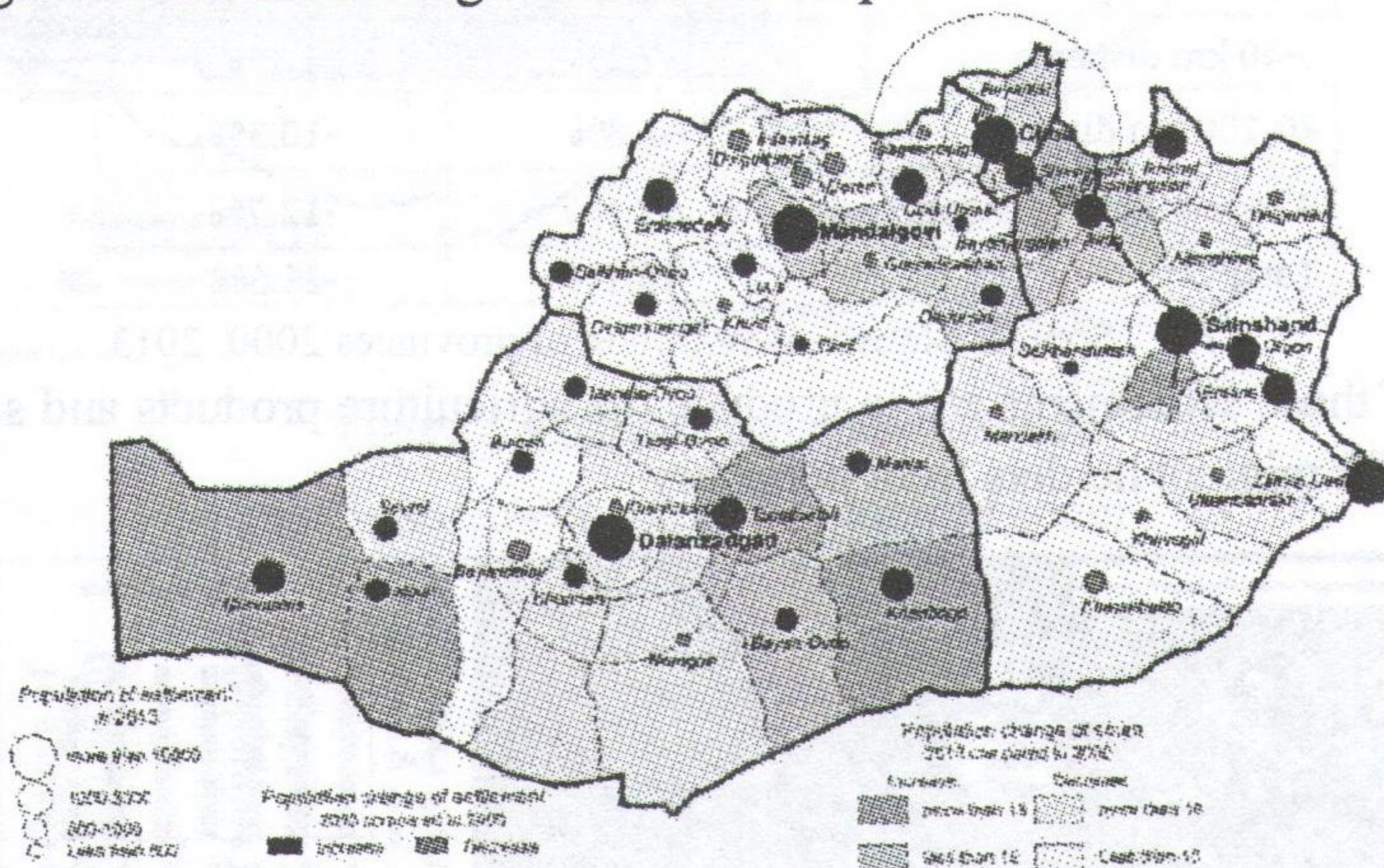


Figure 2. Population change of soum and settlement (Source: Statistical yearbook of provinces 2000, 2013)

Between 2000-2013, settlement's population of Zamiin-Uud and Choir growth shows strong increase and they were used to be 5000-10000 population, in the meantime 3 settlement's with over 1000 population number are decreasing during this rapid movement (table 3).

Table 3. Population change of settlement by classification of settlement

Population of settlement	2000		2013		
	Number of settlement	Percent	Number of settlement	Percent	
Less than 500	18	38.3	14	29.8	decrease →
500-1000	17	36.2	18	38.3	
1000-3000	7	14.9	10	21.3	
5000-10000	2	4.3	0	0	increase →
More then 10000	3	6.4	5	10.6	
Total	47	100%	47	100%	

Source: Statistical yearbook of provinces 2000, 2013

Umnugobi province's Tsogttsetsii, Khanbogd, Gurvantes, and Dornogobi province's Zamiin-Uud settlement's population increased by 128.8-280.6 percent. Meanwhile, Umnugobi province's Khankhongor, Dornogobi province's Ulaanbadrakh and Dundgobi province's Tsagaandelger settlement's population decreased by 27.7-74.8 percent, respectively.

Findings 2. Rural population of small settlement is increased under the influence of bigger settlement

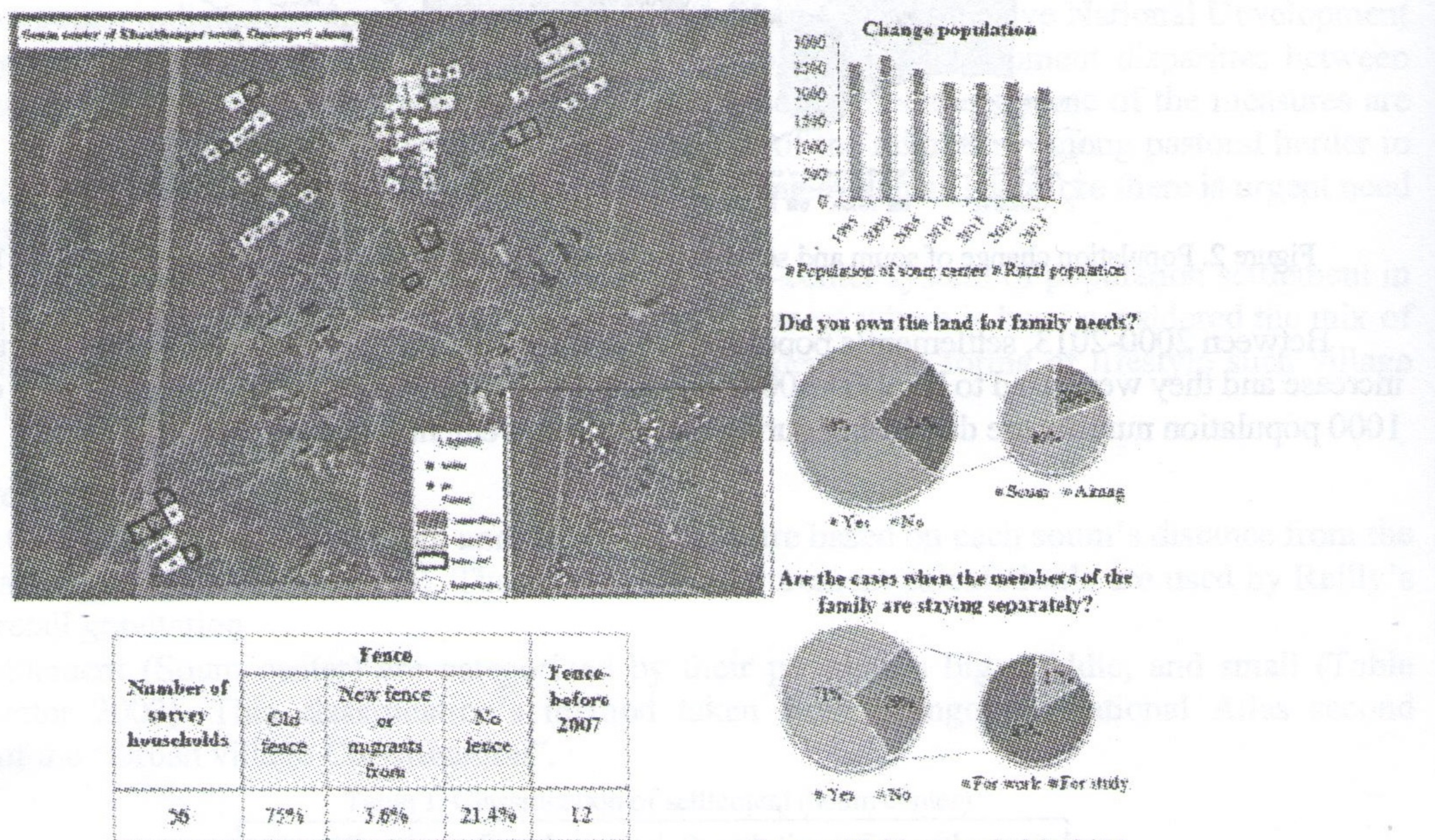
As you can see it on the table, bigger settlement neighboring soum Gurvansaikhan, Luus, Deren, Bayantal, Khankhongor soum's are showing big number's of rural population increase.

Table 4. Population changes depending on from the bigger settlement, percent (2000/2013)

Distance from the province capital	Population growth (percent)		
	Soum center	Rural	
Province capital	25.1%	4.2%	Increase →
0-40 km distance	-7.2%	1.1%	
40-100 km distance	-1.8%	-10.3%	
Above 100 km distance	52.5%	-12.7%	
Total	10.1%	-11.5%	

Source: Statistical yearbook of provinces 2000, 2013

The roles of those settlements are to produce the agriculture products and same time to provide a new opportunity for migrant herders from periphery.



Source: Field research data 2014

Figure 3. Case study: Khankhongor soum, Umnugobi province

As a result from field studies from Khankhongor soum, we studied 56 households living environment and conditions. About 75% of them has a old fences, 3.6% has new fences or moved

from different areas and 21.4% has no fence. Herders whom attend our survey answered that 23.8% of them owns land in settlement areas, and 14.2% of them owns their own houses and apartments. 29% of them are in the bigger settlement because they wants to educated their children and live closer to school and kindergarten (figure 3).

Findings 3. Chain of settlement network

However there are rural population that are in space that is not been covered by social and culture services. To full this fill the gaps, for many people centrality purpose deliver to social services, its preserve the central location in out-settled areas, value chain to create areas of the cities (sum centers) the specific role of the conditions of two bordering province first must to logically develop those areas (sum centers).

Any theory of the location of production and service center spread a concentrated range of services here at the space and scope of services with certain other properties divided by the scope of the center space describes the center as a central location in the system. Two central service areas of boundaries are most acute struggle between contacting points. This point is called the next potential central service sectors opening spot.

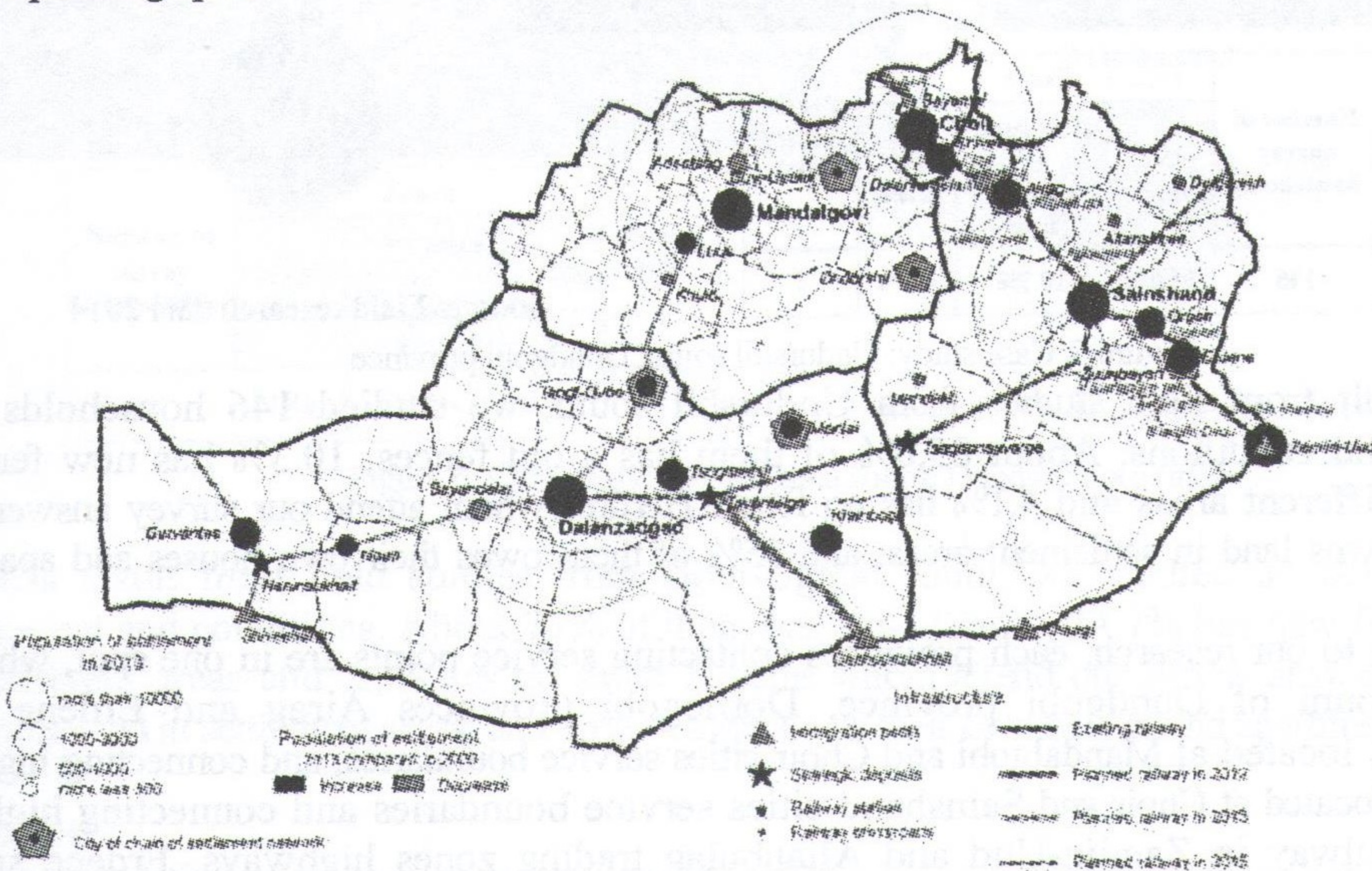


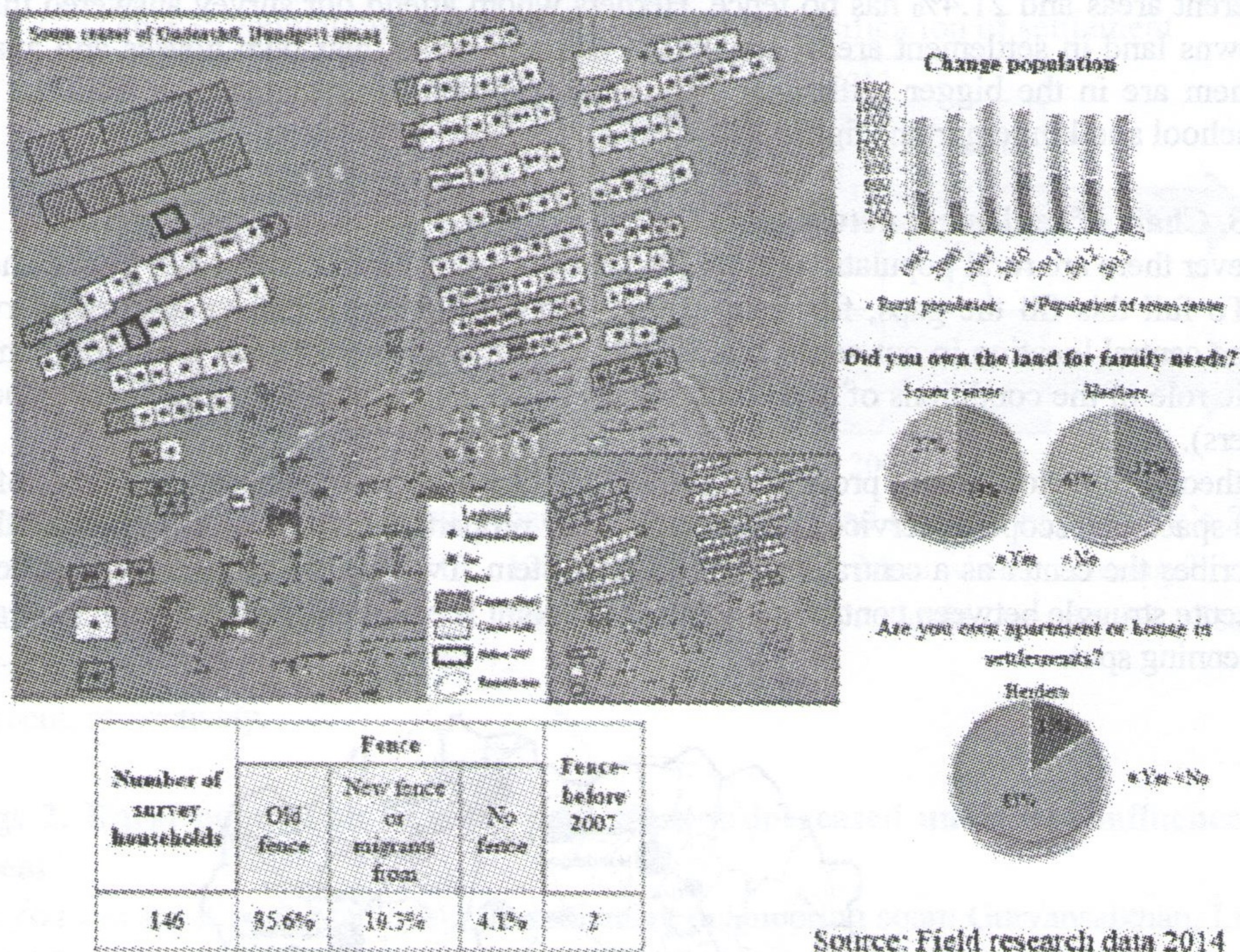
Figure 4. Chain of settlement network

Table 5. Socio-economic potential of soum

Soum	Population change of settlement (2000-2010)	Percentage of employed in population of working age	Ration for revenue expenditure*	Social services potential of soum			Change of households living in apartment house (2000-2010)	Infrastructure	
				General education schools	Kindergartens	Health		Road	Cellular subscribers (per 1000 population)
Tsogt-Ovoo	+	67.2>51.8	+	II	II	II	+	+	592>547.6
Manlai	+	72.7>51.8	+	III	IV	II	+	+	610>547.6
Undurshil	+	75.7>51.8	+	III	III	III	+	-	537<547.6

Source: Population and housing census of Mongolia in 2010, Statistical yearbook of provinces 2000, 2013

According to our research, in order to fill the social and economic services to fill the gap between distanced soums, we shall work on Umnugobi provinces Tsogt-Ovoo, Manlai, Dundgobi provinces Undurshil soum, respectively (figure 4). Tsog-Ovoo soum is on the way to the Mandalgobi, Dalanzadgad cities are connected with highway roads and Manlai soum is on the way to the Sainshand and Dalanzadgad cities highway. Also, Undurshil soum is on the way to to the Sainshand to Mandalgobi cities highway (figure 4, table 5).



Source: Field research data 2014

Figure 5. Case study: Undurshil soum, Dundgobi province

As a result from field studies from Undurshil soum, we studied 146 households living environment and conditions. About 85.6% of them has a old fences, 10.3% has new fences or moved from different areas and 4.1% has no fence. Herdres whom attend our survey answered that 35% of them owns land in settlement areas, and 15% of them owns their own houses and apartments (figure 5).

According to our research, each provinces contacting service points are in one spot, which are Gobi-Ugtaal soum of Dundgobi province, Dornogobi provinces Airag and Erdene soum. Gobi-Ugtaal is located at Mandalgobi and Choir cities service boundaries, and connecting highways, Airag soum is located at Choir and Sainshand cities service boundaries and connecting highways, Ulaanbaatar railway in Zamiin-Uud and Altanbulag trading zones highways, Erdene soum is located at Sainshand and Zamiin-Uud cities service boundaries, and connecting highways, Ulaanbaatar railway in Zamiin-Uud and Altanbulag trading zones highways, respectively.

Table 6. Socio-economic potential of soum

Soum	Population change of soum center (2000-2010)	Percentage of employed in population of working age	Ratio for revenue expenditure	Social services potential of soum			Change of households living in apartment house (2000-2010)	Infrastructure		
				General education schools	Kindergartens	Health		Road	Railway	Cellular subscribers (per 1000 population)
Gobi-Ugtaal	+	65.2>51.8	+	II	IV	III	+	+	-	618>547.6
Airag	+	74.2>51.8	+	IV	III	I	-	+	+	603>547.6
Erdene	+	44.5<51.8	+	II	III	III	+	-	+	545<547.6

Source: Population and housing census of Mongolia in 2010, Statistical yearbook of provinces 2000, 2013

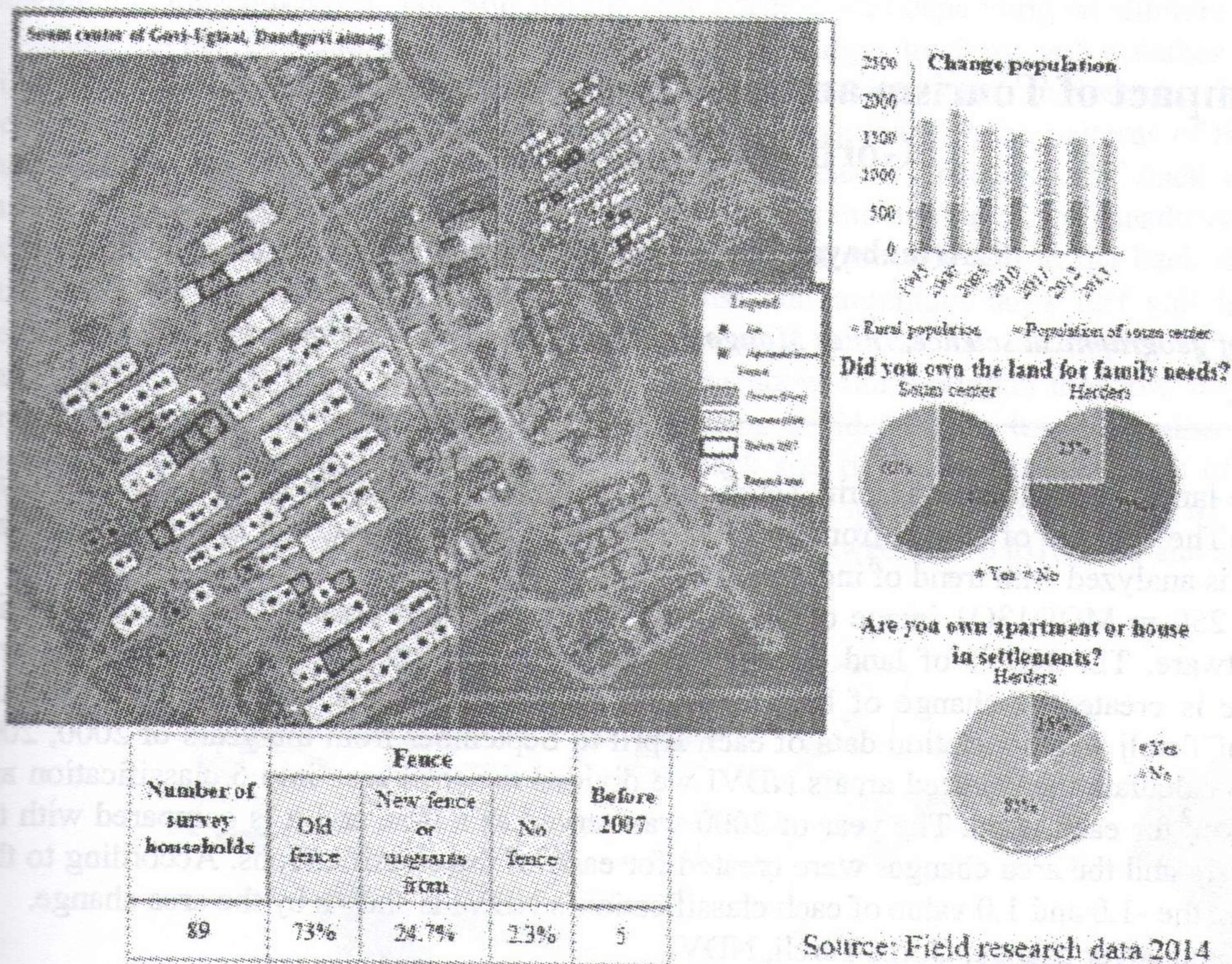


Figure 6. Case study: Gobi-Ugtaal soum, Dundgobi province

As a result from field studies from Gobi-Ugtaal soum, we studied 86 households living environment and conditions. About 73% of them has a old fences, 24.7% has new fences or moved from different areas and 2.3% has no fence. Herdres whom attend our survey answered that 75% of them owns land in settlement areas, and 15% of them owns their own houses and apartments (figure 6).

Conclusion

- The population of settlement has increased in Gobi region where the mining activities develops.
- The population of small settlements is decreased under the influence of bigger settlement with market and better infrastructure.
- In order to fill the social and economic services to fill the gap between distanced soums, work on Tsogt-Ovoo, Manlai, Undurshil soum.
- Contacting service points are in one spot, which are Gobi-Ugtaal, Airag and Erdene soum.

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