3. Cherkasskii B.L. Osobo opasnye infektsii. – M., 1996. – 146 s.

4. Postanovlenie Pravitel'stva Rossiiskoi Federatsii ot 1 dekabrya 2004 g. N 715 g. Moskva «Ob utverzhdenii perechnya sotsial'no-znachimykh zabolevanii i perechnya zabolevanii, predstavlyayushchikh opasnost' dlya okruzhayushchikh».

5. Zubkova T.A., Karpachevskii L.O., Ashinov Yu.N. Pochva kak faktor zdorov'ya cheloveka // Prostranstvo i vremya. – 2013. – № 2. – S. 207-209.

6. Ashinov Yu.N., Zubkova T.A., - I.I., Karpachevskii L.O. Pochva i sotsium. – Maikop: OAO «Poligrafizdat «Adygeya», 2006. – 152 s.

7. Pochva v sovremennom mire. Opyt populyarnogo izlozheniya voprosov sovremennogo pochvovedeniya / L. Karpachevskii, T. Zubkova, N. Kovaleva i dr. – Maikop: OAO Poligraf-Yug, 2008. – 164 s.

8. Mazirov M.A., Ragimov A.O. Rol' pochvy v formirovanii mediko-ekologicheskoi struktury sotsiuma (na primere Vladimirskoi oblasti) // Vestnik Altaiskogo gosudarstvennogo agrarnogo universiteta. – 2013. – № 12. – S. 26-32.

9. Mazirov M.A., Ragimov A.O., Shenterova E.M. Kachestvennaya otsenka i dinamika agrokhimicheskogo sostoyaniya pochvennogo pokrova v raionakh Vladimirskoi oblasti // Vestnik Altaiskogo gosudarstvennogo agrarnogo universiteta. – 2013. – № 5 (103) – S. 33-39.

10. Koshkina E.A. Problemy alkogolizma i narkomanii v Rossii na sovremennom etape // Voprosy narkologii. – 1993. – № 4. – S. 65-70.

11. Levontin R. Chelovecheskaya individual'nost': nasledstvennost' i sreda. (Per. s angl.) – M.: Izd. gruppa «Progress», 1993. – 591 s

12. Avramenko A.I., Zil'berblat G.M., Chernyakhovskii I.A., Korotonozhkin V.G. Nekotorye sotsial'no psikhologicheskie faktory, vliyayushchie na rasprostranenie narkomanii // Vrachebnoe delo. – 1988. – № 1. – S.80-90.

13. Rol' sredy i nasledstvennosti v formirovanii individual'nosti cheloveka / pod red. I.V. Ravich-Shcherbo. – M.: Pedagogika, 1988.

✦ ✦ ✦

УДК 332.2(560)

Феррух ЙЫЛДИЗ, Экрем ТУСАТ, Ахмет Сами ЭРОЛ
Ferruh YILDIZ, Ekrem TUSAT, Ahmet Sami EROL

ОБЩИЙ ПОДХОД К УКРУПНЕНИЮ ЗЕМЕЛЬНЫХ УЧАСТКОВ В ТУРЦИИ

A GENERAL APPROACH TO LAND CONSOLIDATION STUDY IN TURKEY

Ключевые слова: *укрупнение земельных участков, проведение обследования, фотограмметрия.*

Исследование укрупнения земельных участков в Турции началось в 1961 г. В общей сложности 450 тыс. га укрупненных участков было изучено к 2003 г. В период с 2003 по 2013 гг. были исследованы укрупненные земельные участки на площади 3 млн 540 тыс. га. В настоящее время изучение укрупненных земельных участков проводится на площади 2 млн га в 55 провинциях Турции. Всего в Турции укрупнение земельных участков должно произойти на площади 14 млн га. Из этой площади земли под орошением составляют 8,5 млн га. В 2012 г. в Турции 23,6% работающего населения было занято в сельском хозяйстве. Количество земельных участков сельскохозяйственного назначения составляет 215 млн. Эти земли находятся в собственности около 3,1 млн предприятий. Представлена статистическая сводка изучения укрупнения земельных участков, проведенного в Турции за последние 50 лет.

Keywords: *land consolidation, surveying, photogrammetry.*

Land consolidation study started early in 1961 in Turkey and a total 450 thousand hectares of land consolidation study was conducted since 2003. Land consolidation study for total 3 million 540 thousand hectares of land was completed between the year of 2003 and 2013. At the present time, land consolidation study for 2 million hectares of land is carried out within 55 provinces in Turkey. Grand total number of land that has to be consolidated is 14 million hectares in Turkey. The irrigation land among this total area is 8.5 million hectares. As in Turkey, 23.6% of the working population is employed in agriculture by the year of 2012. There are 21.5 million piece of agricultural land in Turkey and these lands belong to about 3.1 million enterprises. In this study, a statistical summary will be given for the land consolidation study that conducted in last 50 years in Turkey.

ЙЫЛДИЗ Феррух, проф., доктор, отделение геоматики, инженерный факультет, Университет Сельчук, г. Конья, Турецкая республика. E-mail: fyildiz@selcuk.edu.tr.
ТУСАТ Экрем, доцент, доктор, Профессиональная школа Джумра, Университет Сельчук, г. Конья, Турецкая республика. E-mail: etusat@selcuk.edu.tr.
ЭРОЛ Ахмет Сами, преподаватель, Профессиональная школа Джумра, Университет Сельчук, г. Конья, Турецкая республика. E-mail: aserol@selcuk.edu.tr.

YILDIZ Ferruh, Prof. Dr., Selcuk University, Engineering Faculty, Division of Geomatic Engineering, Konya, Turkey. E-mail: fyildiz@selcuk.edu.tr.
TUSAT Ekrem, Assoc. Prof. Dr., Selcuk University, Cumra Vocational School, Konya, Turkey. E-mail: etusat@selcuk.edu.tr.
EROL Ahmet Sami, Lecturer, Selcuk University, Cumra Vocational School, KONYA, TURKEY. E-mail: aserol@selcuk.edu.tr

1. INTRODUCTION

Social and economic development of the country is dependent on properly planned activities especially in rural areas. In the present time, rapid population growth, industrialization, urbanization and environment-related issues affect the city that has been brought, and this transformation affects the cities as well as countryside. In our country, especially from the 1950s, mechanization in agriculture has been increased. Rapidly growing population led to the partition of the land through inheritance and developing transport facilities together with the labor needs of industrialization occurring in urban areas from the countryside to the cities has led to considerable migration. Experienced social and economic development, land partition has been caused by the continuously getting smaller and smaller. Despite these developments, reduction of rural population has increased the number of agricultural enterprises. However, in parallel with the increasing number of agricultural enterprises is seen that not to increase in agricultural productivity. Not to increase the agricultural yields, low income people have pushed the farmers to leave their villages and irrigated agricultural areas of the farmers had left unhandled, has remained idle fields. Both this low income, as well as the uneven distribution of land ownership and being partition of the agricultural land, climatic conditions and soil erosion people subsisting in agriculture has led to mass migration to the cities.

2. STATUS OF AGRICULTURAL ENTERPRISES

As a result of research that has been conducted in the past, Agricultural enterprises and the average farm size in Turkey are summarized in Table 1 as follows [Sönmez, 2012].

In the year of 1990, in Turkey the average farm size of 2.2 million agricultural enterprises is being around 100 thousand square meters, in the year of 2001 the number of agricultural enterprises was increased up to 3.1 million but as a result of the lands which is to be divided, the size of the agricultural enterprises was decreased to 61 thousand square meters.

In Turkey, the agricultural land was classified as to determine in terms of their properties. According to the legislation of "Land Conservation and Land Usage" dated in 2005, lands are classified as general agricultural land, private production land, cultivation land, marginal land, greenhouse production land as well as the others. The size of these lands is summarized in Table 2 as follows [Sönmez, 2012].

Among the most important factors affecting the agricultural land use in an efficient and sustainable manner, the scale of these enterprises with land and land partition status comes to the agenda. The land partition can be described as the land is divided as many parcels as all these parcels are located at various places.

Indicator of partition of agricultural enterprises is that of the average number of parcels which is belongs to one enterprise. When the Table 3 is analyzed in relation to issues provided and according to the results of 2001 General Census of Agriculture (GCA), an average of 4.1 parcels falling per farm and the average parcel size is 1.5 hectares, in Turkey. The average number of parcels according to enterprises size and the average parcel size are summarized in Table 3, as below [Sönmez, 2012].

Table 1

Agricultural enterprises and the average farm size in Turkey

Years	Total Population of Turkey (million)	Percent of Agricultural Population (%)	Population of Agricultural Enterprises (million)	The average of area for Agricultural Enterprises (thousand square meters)
1950	20.8	75	2.2	100
1991	56.5	41	3.9	59
2001	62.0	36	3.1	61

Table 2

The agricultural land classification in Turkey

TURKEY Lands (hectares)	General Agricultural Land (hectares)	Marginal Land (hectares)	Cultivation Land (hectares)	Greenhouse Land (hectares)	Total Area (hectares)
	11.613.090	12.135.961	2.883.105	878.594	27.510.751

Table 3

The average number of parcels according to enterprises size and the average parcel size in Turkey

Enterprises size (Hectares)	2001 General Census of Agriculture (GCA)	
	average number of parcel (numbers)	average parcel size (Hectares)
< 5	3,3	0,6
5,0-9,9	5,1	1,3
10,0-19,9	5,7	2,3
20,0-49,9	6,5	4,2
≥ 50	7,8	12,3
Total (average)	4,1	1,50

According to "Farmer Registration System" of the Ministry of Food, Agriculture and Livestock, the number of parcels was about 5.9 in 2002 and 6.9 in 2011 for an enterprise. The size of the land for an enterprise was to be about 68.1 thousand square meters in 2011.

According to information obtained from the "Farmer Registration System" of the Ministry of Food, Agriculture and Livestock, the average number and size of parcels are summarized in Table 4 [Küsek, 2008].

On the other hand, it can be seen in Table 5, a decrease is experienced in terms of enterprise size from the year of 1950 to 2000 when the size of the agricultural enterprises is concerned. As a result, the size of the farm was 7.7 hectares in 1950 and decreased down to 6.1 hectares in 2001. As a results of 2001 General Census of Agriculture (GCA), the number enterprise, the size of land and the size of average farms are summarized in Table 5 [Yoğunlu, 2013].

On the other hand, according to data obtained from countries in Europe Union (EU), the average size of the enterprises are 52.1, 45.7, 23.8 and 12.6 hectares in France, Germany, Spain and the average of EU countries, respectively (see Table 6), [Tar (2)].

Table 4

The statistics of agricultural land in Turkey

Years	Number of Parcels (P)	Number of Enterprises (3)	Area (thousand square meters) (A)	P/3	A/3
2002	15,332.976	2,588.666	164.960.378	5,9	63,7
2006	16,457.203	2,609.723	164.930.261	6,3	63,1
2011	15,856.663	2,292.380	156.287.667	6,9	68,1

Table 5

The number enterprise, the size of land and the size of average farms in Turkey

Years	Number of Enterprises (Thousands)	Total Agricultural Lands (thousands hectares square)	The size of the Farm (Hectares)
1950	2.528	19.452	7,7
1980	3.559	22.764	6,4
1991	3.967	23.451	5,9
2001	3.022	18.435	6,1

Table 6

The statistics of agricultural land in Turkey and European Countries

Country	Years	Number of Enterprises (Thousands)	Total Agricultural Lands (thousands hectares square)	The size of the Farm (Hectares)
France	2007	527	27.457	52,1
Germany	2007	371	16.800	45,7
Spain	2007	1.044	24.893	23,8
EU Countries	2007	13.700	172.620	12,6
Turkey	2001	3.022	18.435	6.1

All these figures are well above the average figure for Turkey which is about 6.1 hectares and in this case Turkey will have some problems in terms of international competition with the European countries.

As can be understood from the definitions above, Turkey has relatively small size enterprises in general; Turkey also has low level of average enterprise size and also has non-uniform land distribution.

3. TARGETS

Land consolidation study started early in 1961 in Turkey and a total 450 thousand hectares of land consolidation study was conducted since 2003. Land consolidation study for total 3 million 540 thousand hectares of land was completed between the year of 2003 and 2013 (see Table 7). At the present time, land consolidation study for 2 million hectares of land is carried out in Turkey [Tar (2)].

Total land that has to be consolidated is about 14 million hectares in Turkey. Total irrigation lands are 8.5 million in this consolidated land area (Table 8) [Tar (2), Tar (1)].

As in Turkey, 23.6% of the working population is employed in agriculture by the year of 2012. There are 21.5 million piece of agricultural land in Turkey and these lands belong to about 3.1 million enterprises. The targets are;

a- To complete the first phase land consolidation of Turkey up to the year of 2023 as doing land consolidation studies of 1 million hectares every year,

b- To decrease the partition of land

c- To comply regular and homogenous parcels geometries

d- To connect every parcels with roads and irrigation canal Networks

e- To save time and Money due to regular land transportation

f- To increase the cultivable land

g- To bring in the small size land to agricultural land

Table 7

Land consolidation study in Turkey

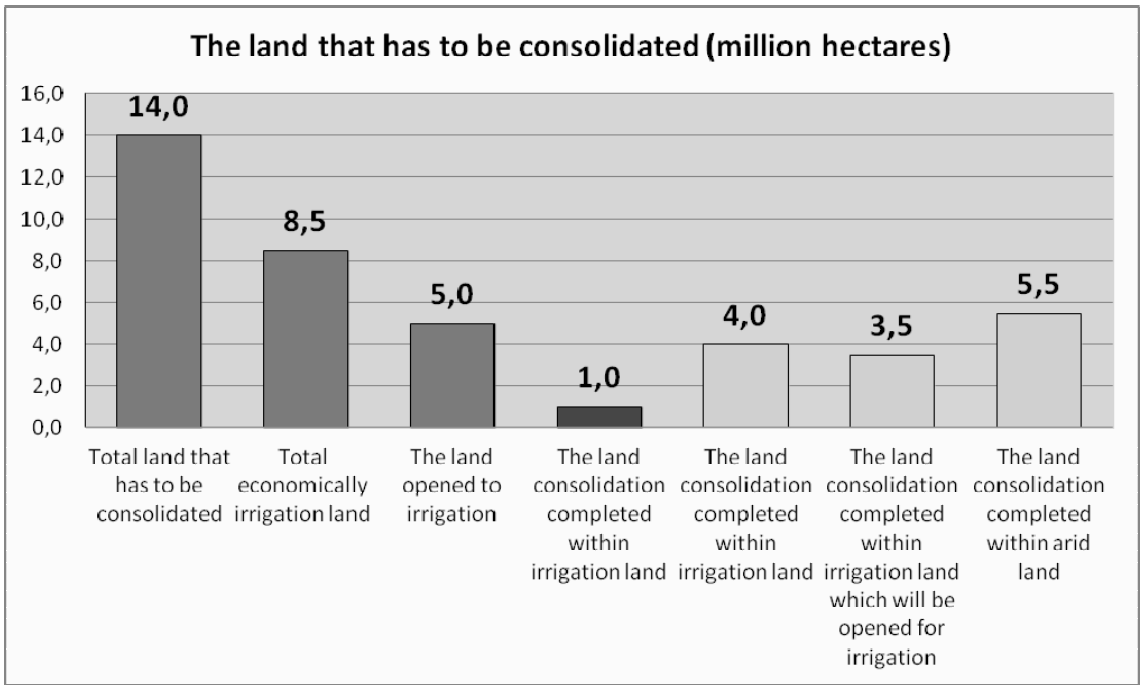
Years	Land Consolidation Area (hectares)
2003-2007	132,000
2008	430,000
2009	103,000
2010	26,000
2011	601,998
2012	1,210,604
2013	1,036,398
TOTAL	3,540,000

4. RESULTS

It is always possible to use the agricultural land as effective as making land consolidation study for these partitioned lands as to be providing irrigation and transportation to these lands. The world crowded with every passing day, the need for agricultural products is increasing. However, to respond to the food needs of a growing population level is the effective use of agricultural land.

Table 8

The land consolidation areas and irrigation areas in Turkey



Reducing the number of agricultural enterprises in rural areas of agricultural land, providing water and transportation facilities, land consolidation will be important part of rural development. The means of land consolidation is the regulation of economic activities in rural areas by the public and again to the land consolidation activities only assemblies of land should not be regarded as these activities should be noted as an important social project.

Finally, in order to determine all the consequences mentioned above, partition of agricultural land and the land as regards the kind of the savings shows that there are major structural problems facing in Turkey.

References
Библиографический список

1. Sönmez, B., 2012, "ONUNCU KALKINMA PLANI - TARIM ARAZİLERİNİN SÜRDÜRÜLEBİLİR KULLANIMI ÇALIŞMA GRUBU RAPORU", Ankara. (In Turkish).

2. Küsek, G., 2008, "ARAZİ TOPLULAŞTIRMASI", II.Kadastro Kongresi, TKGM-HKMO, Ankara. (In Turkish).

3. Yoğunlu, A., 2013, "ARAZİ TOPLULAŞTIRMA FAALİYETLERİ", "TRB1 Bölgesi, Fırat Kalkınma Ajansı, Elazığ. (In Turkish).

4. Tar (1), http://www.tarimkutuphanesi.com/ARAZI_TOPLULASTIRMASI_00160.html.

5. Tar (2), http://www.tarim.gov.tr/TRGM/Sayfalar/AnaSayfa.aspx.

✦ ✦ ✦

УДК 631.4.001.5:332.3(560)

Фатих САРИ, Экрем ТУСАТ, Фатих ЭР
Fatih SARI, Ekrem TUSAT, Fatih ER

РАЗРАБОТКА ИНФРАСТРУКТУРЫ ПОЧВЕННОГО ОБСЛЕДОВАНИЯ НА ОСНОВЕ ГИС ДЛЯ УКРУПНЕНИЯ ЗЕМЕЛЬНЫХ УЧАСТКОВ В ЦЕЛЯХ СЕЛЬСКОХОЗЯЙСТВЕННОГО ЗЕМЛЕПОЛЬЗОВАНИЯ (НА ПРИМЕРЕ РАЙОНА СЕЙДИШЕХИР)

DEVELOPING GIS BASED SOIL SURVEY INFRASTRCTURE FOR LAND CONSOLIDATION FOR AGRICULTURAL MANAGEMENT; A CASE STUDY SEYDISEHIR

Ключевые слова: *географическая информационная система, почвенное обследование, проектирование базы данных, укрупнение земельных участков.*

Укрупнение земельных участков является неотъемлемой частью устойчивого экологического и сельскохозяйственного управления в сельских районах. Представлено как перепланирование земельных участков с учетом их характеристик. Почвенное обследование является одним из основных этапов процесса укрупнения участков, поскольку оно определяет класс почв. Для связи результатов почвенного обследования и укрупнения участков требуются база данных и картографические инструменты для пространственного анализа. В настоящее время важная роль в управлении данными, подготовке инфраструктуры и визуализации данных укрупнения участков с учетом данных почвенных обследований принадлежит географической информационной системе (ГИС). Обсуждается проектирование базы данных почвенных обследований, которая позволяет управление данными на основе ГИС. Создаваемая база данных также будет использоваться для отображения и анализа результатов почвенных обследований как инфраструктурных данных для укрупнения земельных участков. Представлены техническая структура и детальное проектирование базы данных.

Keywords: *Geographical Information System, soil survey, database design, land consolidation.*

Land consolidation is an essential part of the sustainable environmental and agricultural management in rural areas. Land consolidation can be described as rearrangement of land of land areas considering the land attributes. Soil survey is one of the main processing step in land consolidation to determine the soil classes. Establishing relationship between soil survey results and land consolidation area is requiring a database and mapping tools for spatial analysis. At this point, Geographical Information Systems are playing an important role in the field of data management, preparation of data infrastructure and visualization in land consolidation considering soil survey data. In this study, a database design is constituted for soil surveys to establish a GIS based data management platform. Constituted database also will be used to mapping and analyzing of soil survey parameters as a data infrastructure for land consolidation processes. The technical structure and detailed database design is presented.