The Land Consolidation Implementation Studies In Turkey

Fatma Tüz Zehra GÜLSEVER, Osman ÖZKAN and Uğur BüYÜKHATİPOĞLU, Turkey

Key words: land consolidation, inheritance law, expropriation, fragmentation

SUMMARY

In this review, land consolidation and land consolidation implementations conducted by General Directorate of Soil Water (1961-1984), Undersecretary of Land and Agrarian Reform (1973-1984), General Directorate Rural Service, General Directorate of Agrarian Reform (1984-) and General Directorate of State Hydraulic Works (2009-) were presented. This review also included the objectives of the laws used in the implementations, implementation results, the problems during the implementations. Furthermore, the studies of the executive agency which is General Directorate of Agrarian Reform, were explained. As a conclusion, an assessment were given based on experiences of implementation practices.

ÖZET

The Land Consolidation Implementation Studies In Turkey

Fatma Tüz Zehra GÜLSEVER, Osman ÖZKAN and Uğur BÜYÜKHATİPOĞLU, Turkey

1. AGRICULTURAL LANDS AND LAND CONSOLIDATION REQUIREMENT IN TURKEY

Turkey is one of the earliest inhabited geographies and being home to several civilizations since the early ages of history. These lands, that have served mankind throughout history with its fertile, generous grounds and with its favorable climate, topographic and geographical structure, is getting more valuable through modern agricultural technologies, young population, potential labor force in agriculture, and the investments made recently.

Turkey is regarded as being one of the most important trade centers in the world due to its geopolitical position which is the closest common location between the continents of Europe, Asia and Africa. Turkey, with its climatic feature, variety of products ranging from olive to hazelnut and fruits, utilizing the highest quality, modern agricultural technologies, and significant potential market power has an important potential worldwide.

However farm enterprises size scale is the biggest constraint in agriculture. According to 2001 General Agricultural Counting (GAC) results, in Turkey, the average fell per business is 4.1 parcels, and the average plot size is 1.5 hectares. According to 2014 Farmer Registration System (FRS), total number of registered farmers is 2,206,874 and cultivated land is 14,927,689 hectares. As to these data the average farm size is 6.76 hectares. This data reveals the structure of lands is in pieces and the farms are on small scale in our country.

Agricultural Enterprise Structure Survey conducted in 2006, shows the fragmentation of agricultural land is still continued. The main factors determining the efficiency of agricultural enterprises in Turkey is agricultural enterprises being small-scale and the land belongs to them being fragmented.

The fragmentation of agriculture enterprises in our country can be stated in three ways:

- The fragmented cadastral parcels, scattered small structure (heritage, trade, public investment, geographical reasons)
- Shareholding in Title Deed (heritage, trade)
- Fragmented usage (without a shareholding in title deed sharing among the inheritors, trading among farmers, renting, using fragmented parcel owner to diversification product, copartner ship, usage the parcel for fragmented product design, usage of parcel because of farmers not having enough mechanization.

The sustainability of agriculture is possible with the planning of arable land and rural habitats and agricultural industries area. Molen (2002) emphasis that land management system related to culture, history and human behavior. Land consolidation (LC) is one of the tools used for land management in rural areas in land management system, world and our country. There are
different applications from country to country in the LC studies. Likewise, in our country for example in the implemented projects in Konya Plain the wind erosion affects planning at some areas, while some measures are needed to be taken for the floods from the Menderes River in Aydin.

Especially, in order to increase the agricultural productivity and to use different opportunities as the most effective weapon (Thomas, 2006) is the land consolidation in our country as well as in the World. To improve the competitiveness of agriculture in the economy by taking the necessary precautions, one of them LC, is located in our country development plans. Furthermore, LC is a process which must be sustainable through the needs in time.

The needs for farm land development services (land leveling, field road, irrigation, drainage, stone collection etc.) and the land for public investments, including increasing the size of LC firms, are met to get savings from the time, fuel and labor. Additionally, solutions for the domestic infrastructural problems of rural settlement areas (sewage, drinking water line), environmental precautions studies and integrated rural development oriented multi-purpose LC implementations have been conducted.

1.1 Preventive Legal Measures for Fragmentation of Agricultural Lands in Turkey

According to the Cadastral Law, it is envisaged that the minimum area of each parcel allocated from an agricultural-qualified field would be 0.5 hectare until 2005. This amount is fairly small and it increases the fragmentation due to the inheritance law. The legal studies has started to change this implementation and the minimum land size is determined by the Soil Protect and Land Use Law no.5403 in 2005 (Demirel ve Gülsever, 2007). The minimum agricultural land size is decided by the Ministry with the considerations of social, economic, ecological and technical characteristics of regions and local areas. After reaching a determined minimum size of land, these lands have a characteristic of infrangible goods. According to the 5578 numbered law, the minimum size of a land is 2 hectares for absolute agricultural lands, marginal agricultural lands and special product lands; 0.5 hectares for planted agricultural lands; and 0.3 hectares for greenhouse agricultural lands.

In addition, in agricultural lands and distributed areas (distribution norm) falling of enterprise size below the determined size for that region, and dividing of lands by inheritance are prevented by Law no 3083 in the implementation area. (Demirel and Gülsever, 2007)

Turkish Civil Code generally rules equal sharing of the lands owned by the agricultural business as in other legacy issued commodities. By "Law No. 6537 Amending the Law on Soil Conservation and Land Use Law", published and enacted on May 15, 2014 brought in a measure for determining eligible heirs. Transferring and transmission process by inheritance of agricultural lands are done by the Ministry of Food Agriculture and Livestock (MoFAL) and sent over to the Land Registry Offices under the General of Land Registry and Cadastre Directorate (TKGM).

According to 8/k article of Law No. 5403, held under the title of agricultural land and acquiring business operations; “The Ministry takes the necessary measures to make the enough income agricultural land effective in maximum in terms of economic, ecological and social aspects and increase the size of agricultural land.” Land Acquisition Department is established to carry on the procedure specified by Law number 6537 within GDAR and under Ministry of Food, Agriculture and Livestock (MoFAL). MoFAL continues to work on to simplify the feasibility
of Land Acquisition business and operations on the identification of agricultural income value, the determination of land under enough income agricultural land size, the identification of buyers and sellers and lending.

In addition, by the Law number 6537, amount norms (enough income agricultural lands size) for the lands which are not covered in the 3083 numbered Law are determined based on provincial and district. The lands will not be divided under this specified size. Following the consolidation work performed out of the Law number 3083, the division of inheritance has continued but is limited by this law.

2. LAND CONSOLIDATION IMPLEMENTING INSTITUTIONS AND LAWS FROM PAST TO PRESENT IN TURKEY

The consolidation works that have started in 1961 with General Directorate of the General Directorate of Soil and Water (abolished) have been done by General Directorate Rural Services (GDRS) (abolished) and General Directorate of Agrarian Reform (GDAR) until 2005.

The first LC implementation was started in Konya province Çumra District Karkın village in 1961 under the Civil Law. A joint operation related to land consolidation was conducted in Antalya in 1964 by SPO with along the United Nations Food and Agriculture Organization (FAO). About 61 000 hectares area was taken under LC implementation with land development services to improve irrigation and increase agricultural production in Manisa, Salihli and Turgutlu plain with the first "Land Consolidation Statute", which came into force in 1966.

During this period, a step was taken for a farmers’ organization but it was not implemented. The first LC application didn’t reach to the required consolidation ratio because of not moving from one class to another class in LC area (Takka, 1993; Yıldız, 1983; Ercan, 1970). Under the Agrarian Reform Law No. 1757 applications were made by Soil and Land and Agrarian Reform Undersecretary, General Directorate of Water and Soil between 1973 and 1978 years. Once this law legislated away, with the "Land Consolidation Regulation", enacted in 1979, the works out of “Agricultural Reform Implementation Field” were carried out until 2005 by GDRS, which was abolished. The total LC implementation area done from 1961 to 2005 was 540 thousand hectares.

Provincial Special Administrations continued to the works under the same regulation from 2005 to the year of Law number 5578 was put into force. In these applications, the exchange between classes became possible thus increased consolidation ratio. The land consolidation works in the areas, which declared under Agricultural Reform Applications, have been carried out by General Directorate Agrarian Reform according to the "Agrarian Reform Law on the Land Arrangement in Irrigation Area" adopted in 11.22.1984.

On the other hand land consolidation, which was began 2005 with 12 projects at 40 985 hectare areas within the context of ARIP project financed by the World Bank, had completed by GDAR. (Demirel ve Gülsever, 2007) 03.07.2005 dated Soil Conservation and Land Use Law 5403 (TKAKK) Article 17 relates to land consolidation and deployment.

The Ministry of Agriculture and Rural Affairs was given authority to work on land consolidation by this law. By Law Number 5578 coming into force of in the 26429 numbered and 09.02.2007 dated Official Gazette Public Institutions under the control of MoFAL became capable of doing "Private Land Consolidation". The General Directorate of State Hydraulic
Works (DSI) have started to work for 37 LC project on the area opened to irrigation under private land consolidation by confirmation of GDAR (Agricultural Reform) and approval of the Council till now. DSI implementation on 277.706 hectares area with 31 projects has been continued up to now. 6 projects were completed and 41.176 hectares area have been registered. (DSI, 2016) Special Provincial Administrations did 6 projects while one consolidation of private land implementation was done by Baklan City Hall.

Nowadays LC is being carried out by different public services with Law No. 3083 and 5403 under the control of MoFAL (GDAR). GDAR works with 81 Directorates of Provincial Food Agriculture and Livestock and 919 Directorates of District. It completed LC implementation in 4.601.513 hectares area, and with 188 LC Project at 1.697.640 hectares areas implementations in 4.115 accommodation unit, which are basin based and multipurpose, have been going on in 56 provinces since the end of 2015. (GDAR, 2016) Aim of MoFAL is to complete LC implementations in 14 million hectares area until 2023.

3. IMPLEMENTATION STAGES FOR LAND CONSOLIDATION

GDAR performs LC project according to the “Agricultural Reform Applications” rules in the regions declared as application regions based on the cabinet decision of the government. The needed improvement services are identified for agricultural plots in terms of irrigation, drainage, roads, construction and soil; and the projects are designed in those declared regions accordingly. Cadastral data and land registry are supplied from the General Directorate of Land Registry (TKGM). The GDAR has a right to access directly to the land registry data. Orthophoto maps are used to see territory structures and to create a GIS for land consolidation for hydrology, soil map etc. The GDAR and the other public services that have investment plans in LC project areas designs LC reallocation plans. A large portion of LC work has been done across the country in areas in where the DSI opens to irrigation. Therefore, the main component of block planning is the DSI irrigation and drainage project planning data.

In the redistribution of land parcels, worth numbers of points for parcels are obtained as a result from soil survey, location and productivity points together with the evaluation of commission point given by the commission which is selected by directorate staff and parcel owners. The rating maps used for parcel worth number evaluation are made public in the villages, and then objections are received and are evaluated. The DOP (contribution reallocation plan) is cut from each owner equally as a participation share based on the area ratios of villages in the projects. The upper limit for the cut is 10%, and no payment is made to parcel owners for it. New distribution lists and parcel maps of the village are announced and made public for 15 days in the village. The Agricultural Reform assesses the objections if there is any. Final lists are sent to the TKGM for registration.

The agricultural data consolidation network software is established within GDAR in order to carry out consolidation projects quickly as well as to develop LC data archive and LC project monitoring and evaluation system. Due to fact that this is a delayed application in Turkey, collecting the necessary data, evaluation process of the data in a short period of time for the planning and implementation phases should be completed correctly.

The LC works are connected to an automation system step by step because of the expansion of the study areas, obtaining accurate information and too much personnel needs. The agricultural parcel information system was created by the MoFAL. A database is developed to track
transferring of agricultural plots and transactions of inheritance, purchase and sales of parcels in the near future. The FRS is another information system used for LC and land management in Turkey.

The LC implementations are carried out in two ways: on voluntary or on compulsory system according to the laws no 3083 and no 5403. In the voluntary basis process, owners give consent for LC implementation. In the case of owner does not give any consent, the administration can make a decision for the public benefit and make implement compulsory LC. This requirement is only concerned about taking decision to start the LC but the participation of farmers in the LC implementation process is essential.

Currently LC implementation studies take time for 3 or 5 years. The average LC project area is about 20,000- 30,000 hectares or less.

The demands for LC from farmers, municipalities, irrigation associations and public institutions are evaluated by the MoFAL. These demands are conducted according to the laws no 3083 or no 5403. LC projects and investigation studies in the parcels pointed by the law no 3083 are made by the institution personnel, however the implementation studies are conducted by the way of tendering mostly.

4. EXPROPRIATION PURPOSE LAND CONSOLIDATION

Economic and social gains by using LC as a tool at public investments and carrying out the public investments done for different propose with along LC with or without an expropriation carry a big importance for effected region population and our country. Starting the construction works without expropriation has affected public investments with the changes done in Expropriation Law 2942 in 2001. LC became an alternative at accelerating the public investments and decreasing the costs in the next process.

There is no systematic approach doing the public investments with consolidations in our country. On the other hand having irrigation investments done with along consolidation, necessary areas, for common usage on like domestic land transport routes, irrigation and drainage channels according to projects feature, can be provided from the lands belong to public and private legal entities by different methods as to current legislations (Law Number 3083-5403). (Türker, Gülsever ,2015)

LC authorization was given to administrations which work on expropriation by 5403 Number Soil Conservation and Land Use Law (Appendix 3 par: 31.01.2007 -5578 / 4 Sec.) (Article 17), and it was given to the General Directorate of Agricultural Reform by 3083 Number Agrarian Reform Law on the Land Arrangement in Irrigation Areas (the additional paragraph, 4626 - 13.02.2001 / Article 1).

All existing or probable public institutions and organizations in the region are informed and works are done to increase opportunities for cooperation before starting consolidation for the purpose of rising the expected benefits of LC, and protocols were signed between GDAR and other investor organizations. Especially at public investments for irrigation canals, roads, railways and pipelines getting the needed areas by LC in spite of expropriation accelerates the investments. On the other hand, it has prevented the rupture of the social aspects of land farmers.

4.1. Implementations of General Directorate of Highways on GDAR Consolidation Areas
Although General Directorate of Highway (GDH) was given the authorization of consolidation implementation with the 5403 numbered Law of Soil Conservation and Land Use, this authority has not been used because of the reconstruction studies (infrastructure work, technical staff, etc.) and the difficulties on implementations. Therefore, the practices have been done under the authorization of the GDAR on consolidation since 2010 according to the 3083 numbered Law of Agrarian Reform on the Land Arrangement in Irrigation Area. The protocols between GDAR and GDH have been signed in 2011, 2012 and 2013 in order to compensate the areas by consolidation on the route of highways and roads. Thus, taking under the extent of consolidation of the approved lands by Highway, State and Provincial roads and performing these projects by GDAR has begun.

Being left to the consolidation route of the treasury, external registration and pasture lands, which transferred to possession of GDAR, and the privately owned real properties, which remain within the consolidation area that taken out of the corridor, without the need for an expropriation are ensured by the Notice of Application.

The 11 land consolidation projects were designed for 223 km road route in Ankara Pozantı motorway by GDAR according to the 3083 numbered Law. Also in projects conducted in the South East Region, 50,910,918 m² real properties are left to the road without charge in 1,470 km. road route. (Türker, Gülsever, 2015)

The expropriation saving will be 1,721,875,275,00 TL for motorways of 543 km length with 51,043,125 m² area when Gebze-İzmir motorway (Uluabat section) with 75 km, Ankara-Pozantı motorway with 223 km and Şanlıurfa-Habur motorway with 245 km are included. (GDAR, 2013)

In addition, GDAR still continues its studies on Ankara-Kırıkkale and Kırıkkale Delice motorway, Aydın-Denizli motorway, Uşak ring road, Konya ring road, Tatvan-Bitlis ring road, Antalya ring road projects.

The expropriation saving will be about 2.4 billion by the 2013 prices when the route of 2,343 km length with 140,052,149 m² area is consolidated by LC projects for especially South East Region irrigation areas and various regions.

If taking the expropriation done by GDH for the average annual 47,000,000 m² and 26,000 parcels into account, the importance of consolidation works can be really realized. (Public Investment and Land Consolidation Workshop, 2014)
4.2. Irrigation Investment and Land Consolidation

Across the country a large part of the Land Consolidation work was done in areas, where DSI opened the irrigation and maintained. The irrigation and drainage lines between constructions shortened and investment costs were reduced with land consolidation plan as expropriation costs were decreased as lands for irrigation network was received by participation fee.

Other public institutions also had the authority to make LC to with the addition of “private land consolidation” substance to Law no 5403 "Soil Conservation and Land Use Law" in 2007. DSİ has been doing investments with consolidation in the areas that would be opened to irrigation in the recent years.

It reveals a very large proportion of savings achieved when total amount of integral parts payments, which were done because of common areas in projects made under DSI and the projects that are subject to study, compared to the real estate acquisition through expropriation of property in the same area.

DSI has completed expropriation work on 8724 hectares of land expropriation with 28,000 parcels with 1.302.000.000 ₺ allowance from 2014 budget appropriation for irrigation investments. In addition, about 77 million ₺ were paid to the farmers for costs or damages payments in consolidation area by the Agricultural Reform.(GDAR, 2016)

<table>
<thead>
<tr>
<th>Land consolidation</th>
<th>Project Number</th>
<th>Land Consolidation Cost (₺)</th>
<th>Forecast Expropriation Cost (₺)</th>
<th>LC cost /expropriation c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2014 DSI LC Projects</td>
<td>32</td>
<td>98 124 083</td>
<td>947 833 735</td>
<td>10.4 %</td>
</tr>
</tbody>
</table>

Table 1. Gain from Expropriation Irrigation projects realized with LC by DSI
Outlays for Land Consolidation activities as shown in Table 1, the projected cost of expropriation is corresponds to 10.4% saving only about 90% of the expropriation costs. In addition, by land consolidation at the construction costs of the irrigation investments savings can be made up to 40% (Öçalan, 2015)

**4.3 Applied Consolidation Studies by GDAR in the Context of Other Public Investment**

Merzifon Civil Airport Road within Amasya Merzifon LC and Field Development Project contract signed in 04.09.2013 and the necessary area has been met with LC project without expropriation.

The Agricultural Reform planned LC covering 2.200 hectares of land in Yalova Horticulture Agriculture Based Specialized Organized Industrial Zone Çiftlikköy County Laledere and Gacık village with Yalova Çiftlikköy LC and Land Development Project as another application. In this area 61,2 ha industrial area pieced together forming one parcel, and 4,5 ha area assigned to GDH and 20,8 treasury land is taken into OSB area.

Antalya wholesale market hall and a part of North Ring Road project has been carried out together with the LC project.

A protocol between General Directorate of Forestry and GDAR was made in 03.01.2013 to determine the border of forest in LC area.

Specified fields afforestation in the consolidation lands protocol was signed between General Directorate of Forestry, General Directorate of Desertification and Erosion Control, General Directorate of Nature Conservation and General Directorate National Parks and GDAR in 03.12.2013.

The reforestation of roads in agricultural areas, windbreaks, biological control for plantations against pests, soil conservation works that will be done in grasslands are scheduled by signing the protocol of Soil Conservation Works at Grasslands within the context of Afforestation Campaign in 17.01.2012.

By the protocol held between GDAR with Turkey Electricity Transmission Company Headquarters (TEİAŞ) in 22.04.2015 if the areas in the transformer center and immovable that corresponding the poles yet to be obtained by expropriation exist, about areas given in the plan by TEİAŞ will be left on behalf of Treasury or not registered area.

Common Data Generation, Sharing and Usage Protocol was signed in 16.01.2014 between General Directorate of Land Registry and Cadastre and General Directorate of Agricultural Reform.

Protocol regarding the cooperation between the GDAR and DSİ was signed on 01.08.2012

**4.4 Ballıkpinar Village Highway Expropriation Purpose Application Example**

Ballıkpinar Village is one of the 17 villages which take part of Ankara Gölbaşı LC and development services. Ankara Gölbaşı LC and development services Project implementation area takes 33 km. length of Ankara-Pozantı highway route with 223 km. length. A protocol on consolidation between TRGM and GDH has been signed for reorganization of highway route, which is in Gölbaşı LC Project implementation area, in 04.04.2013. It can be seen from Figure
2 that line of the highway wealth changes in the range of 100-120 m. Highway line divided parcels and parcels are located on both sides of the line. Highway line, which has done by expropriation, in the Ballıkpınar LC project area affects the 12 parcels directly. While little, fragmented and not economical agricultural parcels could have occurred by expropriation, the implementation was done without an expropriation work and the parcel number in project area dropped from 269 to 147. LC rate is 54%.

Figure 2: General situation of the LC project area and old cadastral plots.

Another block planning was implemented inside the area on highway route. The individual plots in this block implementation were exchanged with the state lands, which can cultivate utmost. The claims of the plot owners were taken into consideration and evaluated. DOP (contribution reallocation plan) the amount of deduction was about 1,5% in this study in Ballıkpınarı village Project. Drainage and ecological corridors are protected, and it is planned to keep a frontage on field road for every plot at the new formed block.

Figure 3. Land consolidation and highway block planning
There are total 183 hectares state land areas in LC Project area, which is 810 hectares. For the highway area 19 hectares state land was used.

Figure 4. Reallotment plan and highway route

5. CONCLUSION AND EVALUATION

In Turkey LC has been done by different institution and legislations from 1961 to 2016 without stopping and 7 million hectares area has taken under LC. Considering the presence of land in Turkey it is observed that the expected aim has not been reached in 2000s. In 1998 Buker and colleagues stated that the most important reason for this is to last projects for very long time and, along with other factors, projects depend on the abilities of the staff. However the other reasons for not reaching the expected intention are applying the projects on small areas, not having farmer awareness, completely being done by government and being given small allowances until 2000s. Especially after 2002 LC has taken among prior labors of MoFAL and continued with rising allowance by the years. Arrangements on facility of application on the legislation and laws are done, and within development plans generalizing the LC across the country is aimed.

Agricultural activities across the country display differences. The agricultural lands meeting different needs in different areas shows we need to use different steps on planning from the agricultural point and determine services with specific solutions at every region. The fact of using LC as a tool to solve different needs’ solution at the performing of these steps comes up. We don’t have to apply an application of consolidation principles in another area. However basically the purpose of LC is same. Even if an awareness of LC is formed among other state agencies and farmers by the implementations, increasing the information work will increase the participation and thereby accelerate the work. Participation can be increased with an organizational structure as unions. Establishing of this structure is need for monitoring and evaluation activities on field, too.

Splitting of agricultural lands by heritage is prevented and implementation of LC being done with land acquisition by enlarging the business scale provided with the fundamental changes made at Law number 5403 in 2014 in Turkey. Especially multi shareholding deed is knotted in
the agriculture area because of the heritage problem, and it causes land mobility to be very slow. We can allot the share in the plot with LC but sometimes it increases the fragmentation. However fragmentation can result in a good way in social aspect as women, especially in East and Southeast Regions, can get information about their shareholding in the deed through LC implementation. For this reason land acquisition arrangements, preparing the sellers and buyers lists before LC implementation is important, and amendment for this law in 2014 is important arrangement in agriculture area.

A database should be formed on LC, and the changes and product design should analyzed on the fields after LC by GIS. MoFAL has been carrying our works about it. In addition, market analysis should be done for changing product designs on LC areas and also enough number of storage processing plants should be planned.

Different areas for population working on agricultural section should be established where the employment excess is over on country conditions for agricultural sector. Implementation of integrated rural development projects that will develop and advance the rural areas not only on agricultural but also with other functions is seen as solution on these problems. (Demirel Z., Gülsever F. 2007)

While agriculture parcels are prepared, the arrangements of field road, irrigation network, resting areas, afforestation are planned by TRGM in LC fields. However there is not a legal regulation about this. A regulation on registration in the deed and cadaster of these ecological environmental protection areas should be done. Tree cutting at the LC works done until 2000s was done uncontrolled. Land leveling works, which were done without caring about soil depth, has affected the productivity in bad way. Leveling and tree cutting has been kept on minimum in the projects for last ten years, and reforestation activities have been carried out.

Priority at LC is currently on the areas which opened or will open to irrigation, and the aim is for all lands. GDAR is keeping its work based on basin. Also Law number 5403 has provided great opportunities on spreading of LC across the country with other investment institutions for expropriation purpose. LC will continue as a living process on 38.566.000 hectares agricultural area we have (2015 TurkStat) in Turkey. Although about 7 million hectares area has put into implementation, a second work will be needed, on the first applied agricultural areas. MoFAL 2023 aim is to complete LC implementation at 14 million hectares in agricultural area. Beside sustainable plans, which include measures to protect the soil, are done by MoFAL with along applying of increasing the enterprises scale as first priority for the whole rural area at LC a new comprehensive LC law is needed to be made.

REFERENCES


Thomas, J. 2006. What’s on Regarding Land Consolidation in Europe XXIII. FIG Congress, Munich, Germany.


www.tarim.gov.tr

BIOGRAPHICAL NOTES

Fatma Tüz Zehra GÜLSEVER

Academic Experience: Dipl. Yidiz Technical University Geodesy and Photogramatry Engineering Department, General Directorate Rural Servis 1998-2005, General Directorate of Agrarian Reform-Ankara 2005-

Practical Experience: Land Consolidation, Village Development, Cadastral Surveying

Osman ÖZKAN

Academic Experience: Dipl. Atatürk University Agriculture Engineering Department, General Directorate of State Hydraulic Works, General Directorate of Agrarian Reform-Ankara 2016-

Uğur BÜYÜKHATİPOĞLU

Academic Experience: Dipl. Atatürk University Agriculture Engineering Department, General Directorate of State Hydraulic Works, General Directorate of Agrarian Reform-Ankara 2016-

CONTACTS

Fatma Tüz Zehra GÜLSEVER

General Directorate Agrarian Reform, Ministry of Food Agriculture and Livestock

ANKARA

TURKEY

Tel. + 090 312 258 89 62
Fax + 090 312 258 86 33
Email: ftzgul@yahoo.com
Osman ÖZKAN
General Directorate Agrarian Reform, Ministry of Food Agriculture and Livestock
ANKARA
TURKEY
Tel. +090 312 258 89 62
Fax + 090 312 258 56 33
Email: osmnozkan2016@gmail.com
Uğur BÜYÜKHATİPOĞLU
General Directorate Agrarian Reform, Ministry of Food Agriculture and Livestock
ANKARA
TURKEY
Tel. +0312 258 80 04
Fax +0312 258 80 60
Email: ugurbho@gmail.com