An Investigation of Reallocation Model Based on Interview in Land Consolidation

Tayfun CAY, Turgut AYTEN and Fatih ISCAN, TURKEY

Key Words: land consolidation, land allocation, land owner, interview

SUMMARY

Land reallocation is the most important activity in the process of land consolidation. In land consolidation, land planning and implementing is realized by land reallocation step. New parcels are settlemented by landowner wishes within blocks, which are constituted public facilities. In the other words, new agriculture parcels are constituted. Landowner wishes provide easiness in the reallocation.

In this study, farmers who live in Agalar country (Ilgın/Konya/Turkey) Village have been interviewed for determining of reallocation plan in land consolidation. We investigate to these questions; How can an interview be started? What is project engineer fell the need for interview? What are wishes of landowner, Which should be taken care? How does project engineer evaluated the interviews? Has project engineer used his initiative?

Landowner pleasures have been investigated for the reallocation model based on interview. Land areas in project zone have been grouped. According to these groups, wishes of farmer have been researched if they are happy for the project. Wishes of landowner are compared with application of the project engineer.

Arazi Toplulaştirma Projelerinde Mülakat'a Dayali Dağitim Modelinin İncelenmesi Özet:

Arazi toplulaştırmasının en önemli adımı arazi dağıtımıdır. Arazi toplulaştırmasında, arazi planlaması ve uygulaması dağıtım aşamasında gerçekleştirilir. Yeni parseller oluşturulan bloklara arazi sahiplerinin istekleriyle yerleştirilir. Bir başka deyişle, yeni tarım parselleri oluşturulur. Arazi sahiplerinin istekleri arazi dağıtımında kolaylıklar sağlar.

Bu çalışmada, arazi toplulaştırma uygulamalarında yeni parsel dağıtım planının belirlenmesi amacıyla Konya Ilgın Ağalar köyünde çiftçilerle mülakat yapılmıştır. Projede mülakata nasıl başlanıldığı, nelere ihtiyaç duyulduğu ve işletme sahiplerinden mülakat alınırken nelere dikkat edilmesi gerektiği incelenmiştir. Alınan mülakatların proje mühendislerince nasıl değerlendirildiği ve proje yürütücülerinin inisiyatif kullanıp kullanmadıkları tespit edilmeye çalışılmıştır.

TS 89 - Community Involvement and Land Administration   1/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

Mülakat esaslarına göre oluşturulan yeni parselasyon planından işletme sahiplerinin memnuniyetleri incelenmiştir. Proje sahasındaki parseller büyüklüklerine göre gruplandırılmıştır. Bu gruplara göre de işletme sahiplerinin isteklerinin ne oranda yerine getirildiği araştırılmıştır. İşletmelerin istekleri ile projecinin yaptığı uygulama karşılaştırılmıştır.Anahtar Kelimeler: Arazi Toplulaştırması, dağıtım, işletme(arazi sahibi), mülakat.

TS 89 - Community Involvement and Land Administration   2/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

An Investigation of Reallocation Model Based on Interview in Land Consolidation

Tayfun CAY, Turgut AYTEN and Fatih ISCAN, TURKEY

1. INTRODUCTION

Land consolidation studies, with the purpose of providing to develop land and water resources and to improve the agricultural structure in Turkey, have been done by rearranging possessions of lands in rural areas.

Land consolidation involves changing land ownership by redistribution so that individual farmers own fewer, more compact, contiguous and larger land parcels. The economic rationale for land consolidation has been recognised by many governments as the potential for improved efficiency and competitiveness has led politicians and planners to favour such schemes in many parts of the world. Many countries, including Turkey, enforce consolidation on farmers to mitigate the problems associated with the present spatial configuration of landholdings as a result of current inheritance laws. (Yaldir and Rehman,2002).

The literature review reveals a shift in goals and procedures in the application of land-consolidation policies in most countries: land-consolidation policies usually had agricultural goals initially, but have increasingly become instruments ofrural development (Crecente, Alvarez and Fra,2002).

Fresco(1994) attributes the growing challenges and difficulties in land use planning, "…notwithstanding the great technological advances and our increased knowledge of the natural resources base" to several factors, such as the diversity of land users; the diversity of goals in the planning process; future uncertainties and model limitations. Nevertheless, ex ante evaluation of Land Consolidation Projects can clearly benefit from simulation modelling tools to predict future land conditions from a range of invesment and management scenarios. These conditions imply some dynamic changes in bio-physical land properties that, together with social and economic factors, will lead to changes in agricultural croping patterns (Coelho et al., 2001).

Currently a conventional method which is depending on trial-error is used to obtain the preliminary reallotment plan of a land consolidation project in Turkey. The planner first determines the preferences of the land owners and then tries to prepare a plan which can fit to them. Collecting and processing of data and new data generation are mostly performed in automation in recent years. However it calls for the ability of the planner to choose the best reallotment plan among a number of alternative plans. Therefore, an efficient technique is required to make the necessary calculations related to reallotment plan in preparatory phase of a land consolidation project. Such a technique should best meet the prefesences of the land owners. The most common preference of the land owners is that their lands are kept non-

---

TS 89 - Community Involvement and Land Administration   3/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

exchanged. However, in the projects, at least one of the plots of a farmer having two or more plots is subjected to an Exchange (Avcı, 1999).

In this study how preferences, which are taken from farmers, are evaluated to estimate and prepare the first distribution plan, according to size of parcels and has been tried to find the results which have been obtained.

2. TAKING PRERFERENCES of FARMERS (INTERVIEW)

During the application of project, farmer's requests must be evaluated. During land consolidation projects which were done in the past and which are being done at present, taking farmer preferences and persuading farmers are phases which take long and have difficulty. (Banger and Doğan, 2005). New parcellation must be arranged according to farmer's preferences, holder of right, equal to total value of parcels and by taking into consideration important facilities like wells, buildings, vineyards and orchards…etc.

Farmers must be asked to choose parcel and there must be at least three alternative preferences for each parcel to choose to be performed healthily and to decrease farmer's objection to new parcellation, to provide the most suited and acceptable parcellation.

2.1. Subjects which must be paid attention during interview

Family members who have got lands in enterprise and to be determined the degree of relationship of them

- Family members are asked to prefer jointly owner or self ownership deed of lands

- Family members are asked that where and in how many pieces of lands of enterprise they want to gather

- Family leaders are asked in which blocks, where, they want to gather parcels beside which parcels according to order of preference

and order of preferences are determined.

Project engineers can provide to collect parcels at different places in a single parcel by persuading and directing the family leader .as possible as they can. Binding conditions, like certainly parcels must be collected beside the greatest parcel or parcels are given wherever they want, parcels will be left at their place must not be constituted, because in the event that promises or wishes during interview are not executed faced objection of farmers beside lost of confidence. It must not be forgotten that ¾ of success is based on psychology and diplomacy, ¼ of success is based on technique (Takka, 1993).

Short information about some subjects like how the preferences will be taken, who will prefer, from whom interview will be begun (from present elder people or according to numbers of enterprise.. etc.),how long it will be lasted to prefer and answer questions of farmers before interview by project engineer than interview is begun..

TS 89 - Community Involvement and Land Administration   4/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

Cadastral survey parcels of the farmer, who is being interviewed, are pointed out with colored thumbtacks on a colliding suitable scale map with cadastral survey and block planning which are colliding with each other and hanged on the wall and showed to the farmer his preferences are written in three alternatives for each parcel according to intensity of his parcels. After he finishes his preferences, written items are read him again, mistakes are corrected. After these operations, farmer signs under his name on this document. These operations are tried to apply to all enterprises.

Preferences of farmer, and blocks which farmer requests and the people whom he wants to be together must be clearly and completely written on interview forms.

Plenitude ratio is observed by painting preferred blocks on the new block map with colored pencils and preferences of other enterprises must be directed.

Participation of farmers to interview must be provided by announcing frequently by using loudspeaker .To have a high proportion of participation will increase the defensibility of the project which will be produced. Therefore interviews at high proportion will psychologically affect the producer firm, organization and also farmers essentially. By making appointment at least a week after the finishing date of interview participation of farmers which are out of the village must be provided (Cay 2001).

2.2. Making distribution and new parcellation plan according to interview

First of all the project area are divided in blocks by the help of roads and channels Parcel value number of all parcels and blocks are calculated by multiplying areas of cadastral survey parcels and blocks then dividing a hundred.

$$PDS = \frac{F * PE}{100}$$

F=Parcel area
PE=Land index
PDS= Parcel value number

By benefiting from these results the quantity of deduction (OTKPO) is calculated.

$$OTKPO = \frac{KPDS - BDS - THBS}{KPDS}$$

(KPDS)= Total value number of cadastre parcels
(BDS) = Total value number of blocks
(THDS)= Total value number of registration external lands

Net quantity which will be given to enterprises after deduction is calculated. After these operations distribution is done according to the first preference of the enterprise number one the first appropriation is finished which based on the first preferences of all enterprises. After this operation appropriation column of the owner of enterprises must be zero. Naturally there are excess and absence in blocks. Excess and absence in blocks must be equal. The second

TS 89 - Community Involvement and Land Administration   5/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

preferences of lined up interviews reexamined to finish blocks. The first preferences of farmers, who choose blocks that have great area, are cancelled. And if they request from the empty block in the second preference, these blocks appropriate to them Even if there are excess an absence in blocks the third preferences of enterprises are examined and same operations are repeated, too   After block distribution an output data of these studies are taken. By the help of these output data in virtual environment on the window which shows cadastral survey parcels, blocks and degrees, which collide with each other, transform PDS's to lands. Parcellation operation block by block is finished by using parallel and perpendicular division of lands into parcels according to the transformed areas.

After finishing new parcellation map, it is handover to responsible engineers for pre control. After necessary controls if there are some correction they will be done by the firm. After authorities sign related places the temporary approval of project has been done. Approval map and lists are posted at suitable places in the village. Posting of map and lists signed and submitted by committee. Posting map and lists are announced by using traditional methods.

Project is posted through fifteen days. During this period farmers examine the project, compare works with interviews. Farmers object by writing a clear and understandable petition to the related institutions to correct unsuitable distribution. Engineers responsible for this project and the authority who carries out project examined objection petitions together. After inspection "suitable" or "rejected" is written on petitions. The authority who carries out the project evaluated suitable petitions and does necessary corrections. New map and consolidation lists output data is taken according to these corrections. He brings output data to institution again and authorities check weather necessary corrections are done or not. If it has been controlled they signed to make project definite. Farmers are informed by responding all letters.

TS 89 - Community Involvement and Land Administration   6/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

3. APPLICATION

Agalar Village of Ilgın District of Konya city which has terrestrial climate is selected as application area (Figure 1) Wheat, barley and sugar beet are important crops. Sheep/goat and cattle are raised because of large postures in big proportions. Essential water resource is the channel system from the Lake Cavuscu, which is constructed by DSI (State Water Affairs).Watering method, is watering through open channels.
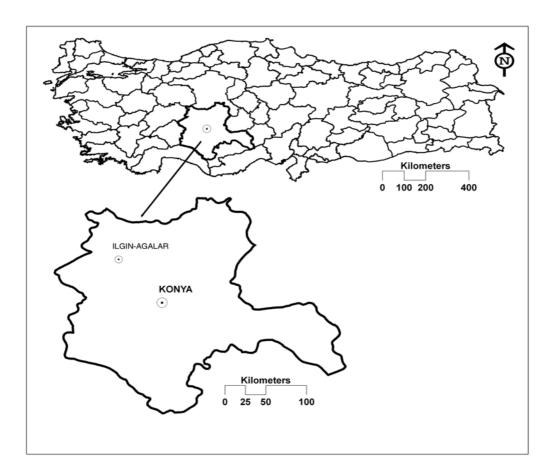

Figure 1. Study area

The area of land consolidation project in Agalar Village is 1403 hectares (Fig 2). 1114,2 hectares of this is agricultural area and 288,8 hectares is posture area. There are 748 enterprises (farmers)in land consolidation area. These enterprises have 1552 cadastral survey parcels. After consolidation 728 parcels in 128 blocks are formed. Participation portion ratio to common facilities is 0.017 %.Consolidation ratio is 50%. The original of Agalar land consolidation project is shown in (Fig 2) and the new situation of Agalar land consolidation project is shown in (Fig 3)
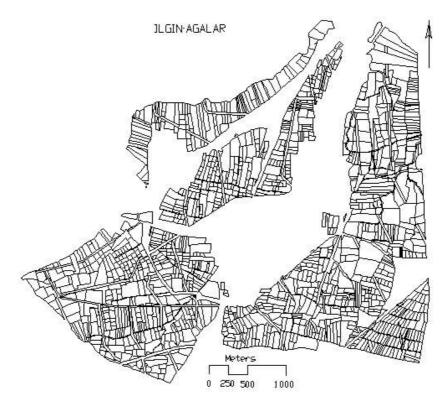
TS 89 - Community Involvement and Land Administration   7/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

Figure 2. Original situation of Agalar Village land consolidation project
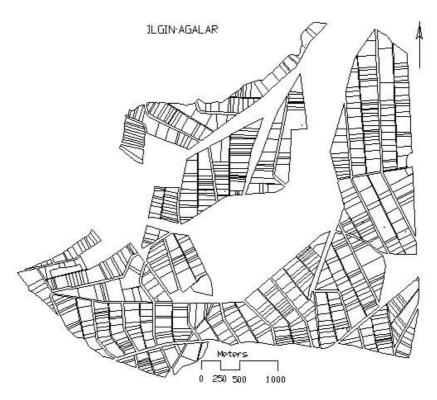

Figure 3. New situation of Agalar Village land consolidation project
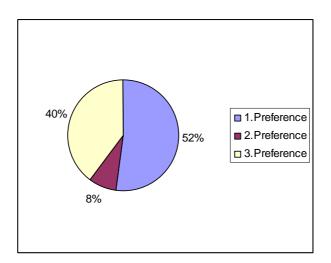
TS 89 - Community Involvement and Land Administration   8/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

In Agalar village 704 of 748 farmers were interviewed. It is 95 % and over the criteria that is requested by government Parcels in Agalar village classified into five groups according to their size and groups are evaluated in their class, 80 posture areas are left out of study in land consolidation area .
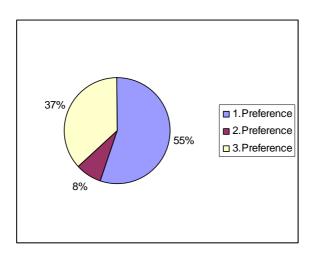
Values in Table 1 were obtained according to the interview results .Statistical evaluations are given in Graphic 1 .a,b,c,d and e.

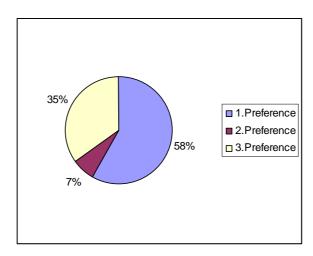Table 1. Interview Results According to Size of Parcels

Group Number	Size of Parcels (m^2)	Parcel Number	1.preference	2.preference	3.preference
1	0-2000	313	163	25	125
2	2001-5000	430	237	34	159
3	5001-10000	441	256	31	154
4	10001-20000	197	138	10	49
5	20001 and upper	91	61	3	27

Grap 1.a. Preference condition of landowner between 0-2000 m^2

Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
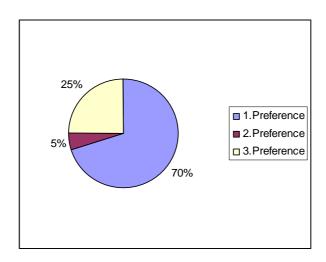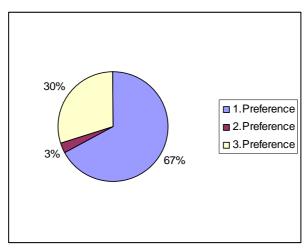Munich, Germany, October 8-13, 2006

Grap 1.b. Preference condition of landowner between 2001-5000 m^2

Grap 1.c. Preference condition of landowner between 5001-10000 m^2

Grap 1.d. Preference condition of landowner between 10001-20000 m^2

TS 89 - Community Involvement and Land Administration
10/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
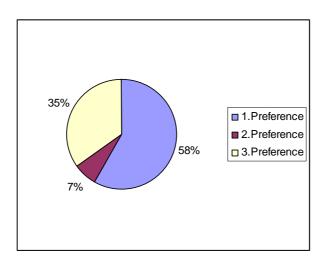Munich, Germany, October 8-13, 2006

Grap 1.e. Preference condition of landowner between 20001 and upper m^2

General condition in project area is given in Table 2. and Graphic 2.

Table 2. Interview results in project area

Parcel Number	1.Preference	2.Preference	3.Preference
1472	855	103	514

Grap 2. General condition of landowner preferences in project area

TS 89 - Community Involvement and Land Administration   11/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

4. CONCLUSION

In Konya-Ilgın Agalar village which was selected as application area, The ratio of the first preference is increased as the areas of parcels get bigger, the small area parcels solely given their the third preferences According to results, we guess that planner prefer to give the parcels, that have great area, from their blocks and planner did not take risks.

The secondary preferences of farmers are examined and it was determined that they are the most productive areas of project It was examined that farmers were emotionally find land consolidation project as an opportunity As it was understood from graphics the ratio of secondary preferences is very low..

The distribution of parcels which have small areas were done according to their third preferences because of this the most of objection petitions were written by owners of these parcels..

IN this project totally 46 people objected to distribution studies. This is 6% It is seen that 94 % of distribution which was done according to interviews. This ratio is 10 % in questionnaires which were done to evaluate the results of consolidation project with farmers The satisfaction ratio of this project is 92 %..23.objection petition were found suitable and their requests were done exactly, 4 of them were approximately done and 19 of them were rejected.

The owner of enterprises and administrative office were pleasure technically from the parcellation plan which was constituted according to interview basis..

REFERENCES

Avcı, M., 1999.New Approach Oriented To New Reallotment Model Based On Block Priority Method İn Land Consolidation,Journal Of Agriculture And Forestry 23 (1999)451-457 Tubitak,Ankara, 1999.

Banger,G. And Doğan, S., 2005. Arazi Toplulaştırma Projelerinde Arazi Bilgi Sisteminin Kurulması,10 Harita Kurultayı,Mart 2005 ,Ankara., 2005

Cay,T., 2001.Arazi Düzenleme Mevzuatı, Petek ofset Yayınları, Konya., 2001.

Coelho J.C., Pinto P.A. and Silvo L.M., 2001. A Systems Approach for The Estimation of The Effects of Land Consolidation Projects (LCPS): A Model and Its Application. Agricultural Systems, Volume 68, Number 3, June 2001, 179-195, ISSN 0308-521x., 2001.

Crecentea, R., Alvareza, C. and Fra, U., 2002. Economic, Social And Environmental Impact Of Land Consolidation in Galicia, Land Use Policy 19 (2002) 135–147., 2002.

Fresco, L., 1994. Planning fort he people and the land of the future. In: Fresco, L.O.Stroosnijder, L., Bouma, J., van Keulen, H. (Eds), The future of the land:

TS 89 - Community Involvement and Land Administration   12/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

Mobilising and integrating Knowledge for Land uses options. John Willey & Sons Ltd. London, p.p.395-398.,1994.

Takka, S., 1993. Arazi Toplulaştırması,Kültür Teknik Derneği Yayınları No:1,Ankara.

Yaldir, A.K. and Rehman, T., 2002. A Methodology For Constructing Multicriteria Decision Support Systems For Agricultural Land Consolidation Using GIS And API: An İllustration From Turkey. Computers and Electronics in Agriculture 36 (2002) 55 _ 78.,2002.

BIOGRAPHICAL NOTES

CONTACTS

Assis.Prof.Dr.Tayfun CAY
University of Selcuk
Faculty of Engineering –Architecture
Department of Geodesy and Photogrammetry
42075 Konya
TURKEY
Tel. +90 332 223 19 44
Fax +90 332 241 06 35
Email:tcay@selcuk.edu.tr

Mr. Turgut AYTEN
University of Selcuk
Kadinhani Vocational School of Higher Education
Mapping-Cadastre Programme
Kadinhani
Konya
TURKEY
Tel. +90 332 8340306
Fax + 90 332 8340305
Email:tayten@selcuk.edu.tr

Res.Assis.Fatih ISCAN
University of Selcuk
Faculty of Engineering –Architecture
Department of Geodesy and Photogrammetry
42075 Konya
TURKEY
Tel. +90 332 223 19 87
Fax +90 332 241 06 35
Email:fiscan@selcuk.edu.tr

TS 89 - Community Involvement and Land Administration   13/13
Tayfun Cay, Turgut Ayten and Fatih Iscan
An Investigation of Reallocation Model Based on Interview in Land Consolidation

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006