

# Land Consolidation Experiences of Turkey

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Ankara, Turkey 2015



## About Turkey...

Total Land: 78 Mil. Ha  
Agricultural Land: 24 Mil. Ha  
Total Irrigable Land: 8.5 Mil. Ha  
Total Grazing Land: 15.5 Mil. Ha  
Total Consolidation Area: 14 Mil. Ha  
Total Farmer: 3 Mil.  
Average Farm Size: 6 Ha  
Fragmented Parcels : 11 Parcel/Farmer



### Consolidation Situation:

- Total Consolidated Area 5 Mil. Ha.
- On Going Land Consolidation Area is 2 Mil. Ha.
- Our goal is to finish 9 Mil. Ha. till to year 2023



## Evaluation of Land Consolidation...

1961-2008

- Land consolidation executed in the simple sense
- Simply tractor ways between parcels was building
- Project generation was very slow. It was 30.000 Ha/Year

Improvement  
Management

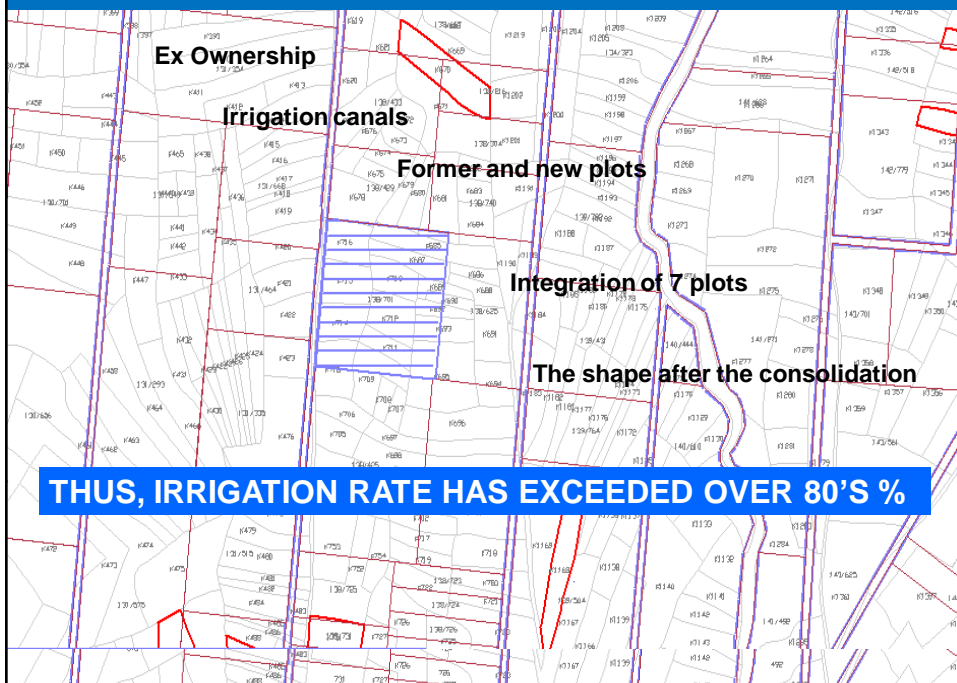
- Regulations about legal procedures
- Started to use High Technology (Softwares, Photogrammetry, GPS etc.)
- We had given educations to technical stuff for improving the human sources
- Created Public Awareness by using media and extensions
- Creating New Financial Sources from National Budget

2008-2015

- Basin based land consolidation projects has started
- Multi purpose land consolidation has started (ecology, hydrology, historical places, public investment, state investments etc.)
- Project area has been improved to 1 milliyon Ha per year
- Total budget per year has improved to 200 Million USD per year



## WHAT IS THE LAND CONSOLIDATION?





## The infrastructures.

All development activities are being completed with LC.



### The Cadastral Map Showing the Previous Situation

The number of former plots  
11 342 pcs.



27 Parcels

### The Map After the Consolidation

The number of the  
new plots:  
2745 pcs.



1 Parcel



sattelement

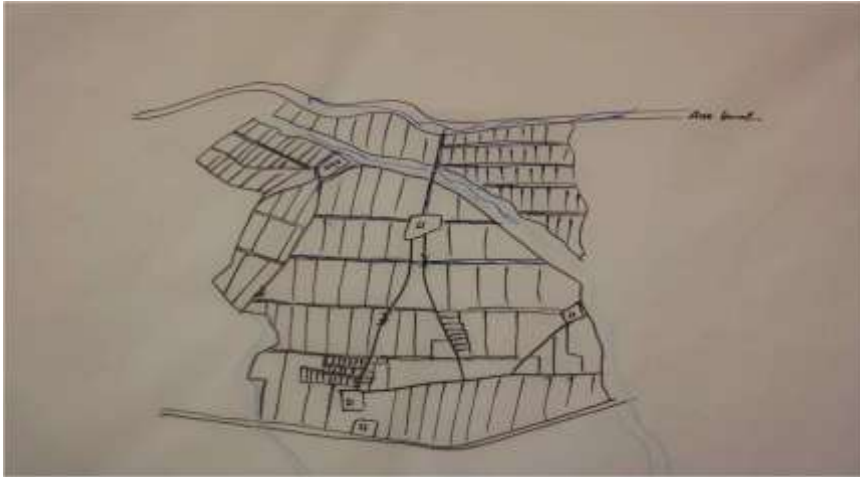


Every Phase of the Projects are Negotiated With Farmers





## Participatory approach





## Public Investment With Land Consolidation



Irrigation scheme



Highway - road



Airport

### The basic problem;

- Higher costs of expropriation
- Lack of budgets
- to object expropriation values
- delay investments



highway intersection

### With consolidation;

Reduction of investment costs (40%) and, accelerating investment are possible

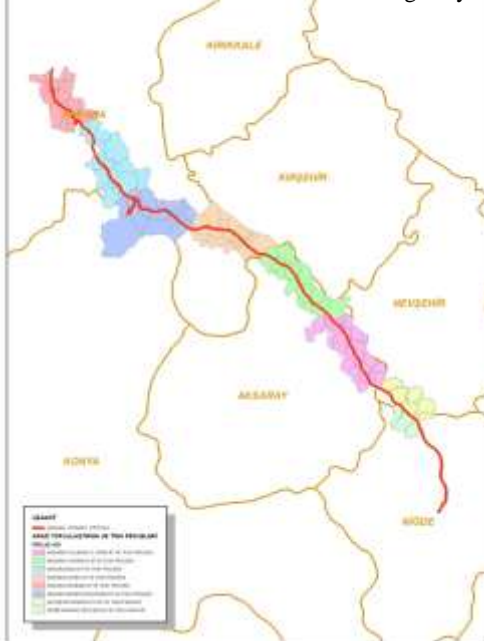


Rail road

- Shares of common usage (% 10)
- Swap with treasure lands,
- Physical investment savings,
- Less expropriation,



### General Directorate of Highways



### TRANSPORTATION AND LC

- Motorways and highways are made with consolidation projects

- Ankara-Niğde highway 327 km
- İstanbul-İzmir highway 75 km
- Malatya ring road 45 km.
- Airport roads
- ...

- Treasure land is used as a generally
- The edges of the roads are reserved for the local farmers market and afforestation



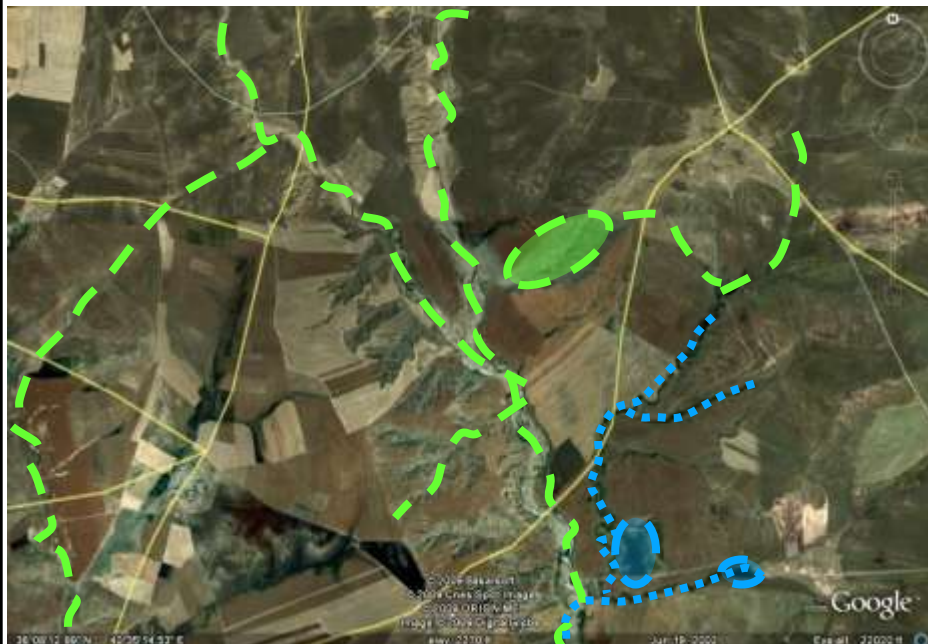


## We Care About Ecology

- All Land Consolidation Projects have been prepared by planning the ecological areas,
- These areas must be connected to gether as much as possible



## Development of an ecological network





## We Care History

Determination and inventory  
of historical and cultural places



## FRAGMENTATION OF AGRICULTURAL LAND HAS BEEN PREVENTED BY INHERITANCE LAW (2014)



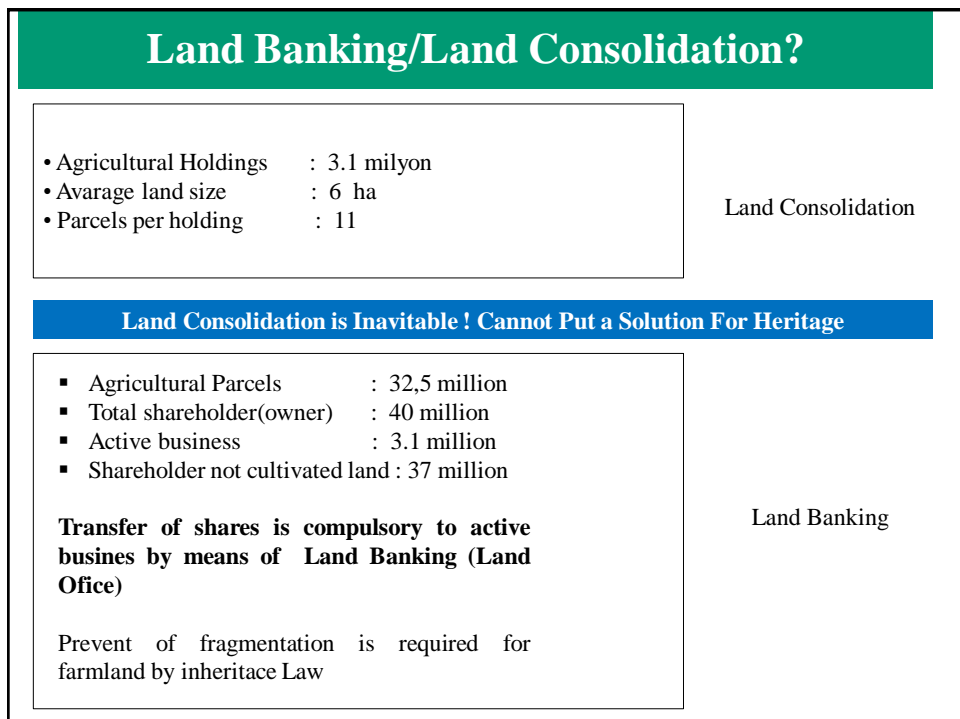
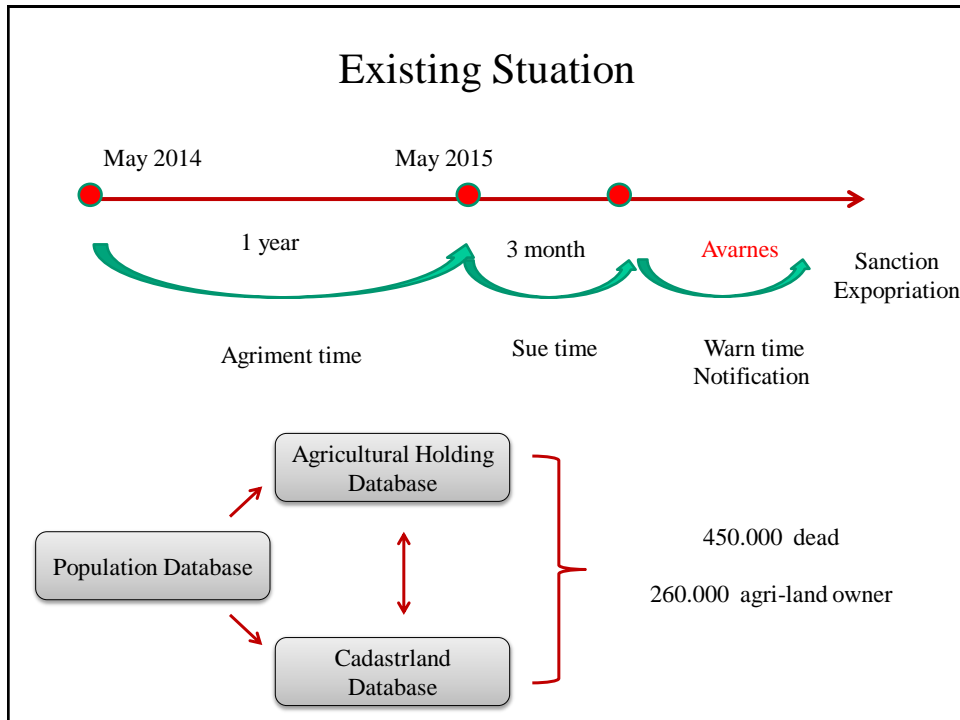
Existing Situation	
Cadastre parcel	23,1 Million
Agricultural parcel	32,5 Million
Agricultural holding	3 Million
The average land size per capita	6 hectar
Number of parcels per farm	11 Parcel
Number of shareholder	40 Million

**Only one farmer uses land which has 13  
shareholders farmer**

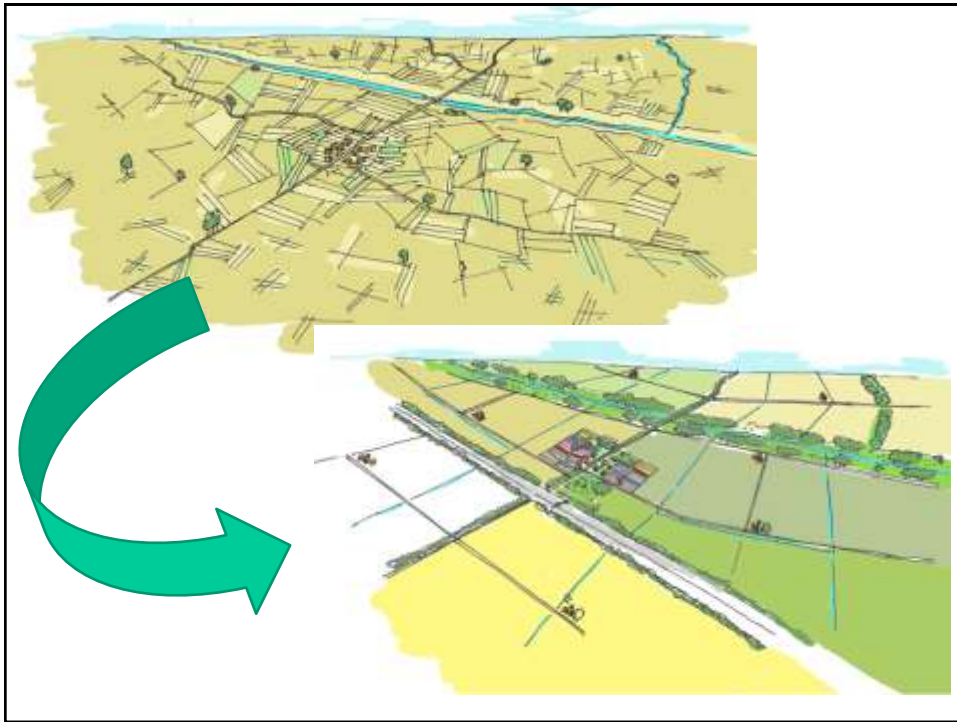
**83 % of all farmers  
have less than 10 hectare**

“Indivisible Parcel Size” was determined.  
«Indivisible land size» was calculated in the 81 province 920 city level..  
Fragmentation by inheritance is not allowed under this size  
Credit will be given to farmers who want to expand their land  
**Land Banking** studies are going on.









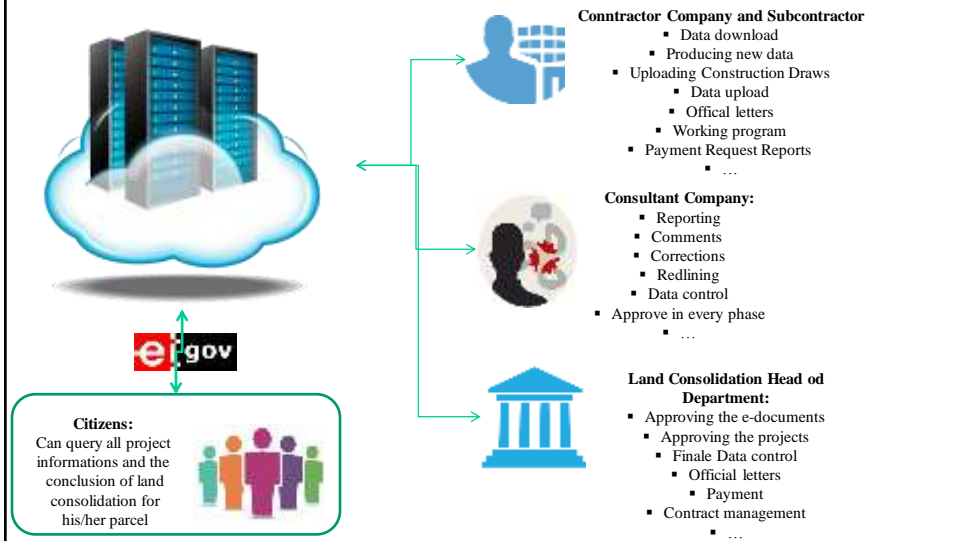
# Land Consolidation Automation System

October 2015

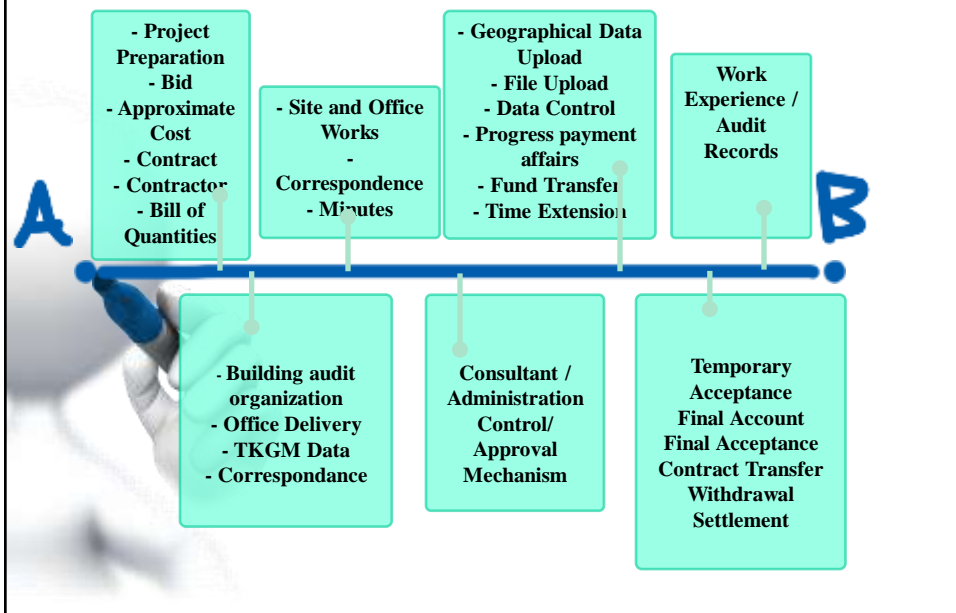


## What is TVK?

- TVK is a Web portal that all land consolidation process have been executing over a central database



## Work Flow Management





# Lifecycle Model

In Land Consolidation Projects, Model is generated by daily life activities.

All off the workflows are defined by natural project management activities.

Therefore we can manage many controls. For example:  
A company who requires progress payment has to upload all of his data to the system.



Construction draws, without being uploaded to the system and approved by consultancy and head of department, will not be in the approved state in the system.

All of the data upload activities are integrated with workflows. For example if ownership data is not in the system then the company can not make block planning.

System knows if there should be a revision in a work item to be paid.

A Project without any fund can not continue to Construction Works, so can not request any progress payment.

# Inside of Database

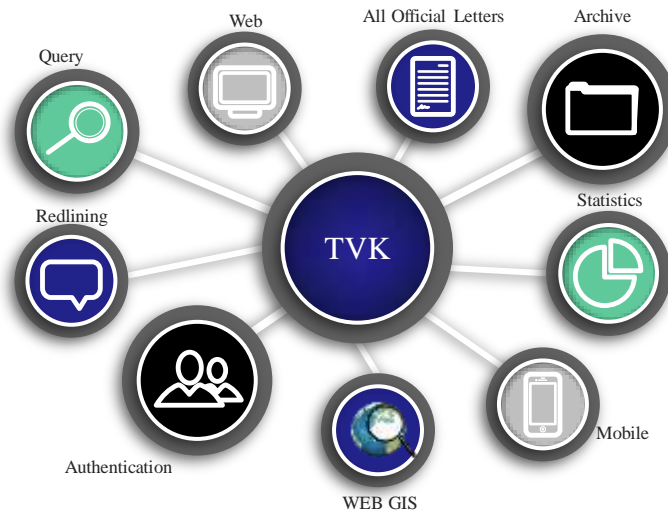
- ✓ On-line Data
  - TAKBİS
  - KVK
  - Meteorology
- ✓ Geographical Data
  - Base Map
  - Soil Data
  - Project Border
  - Proprietorship data
    - Takbis Data
    - KVK data
  - Hydrologic Data
- Blok and Subdivision Plan
- Practice and Application Projects
  - Road
  - domestic water
  - waste water
  - Irrigation
- ✓ Orthophoto
- ✓ Satellite Imaging



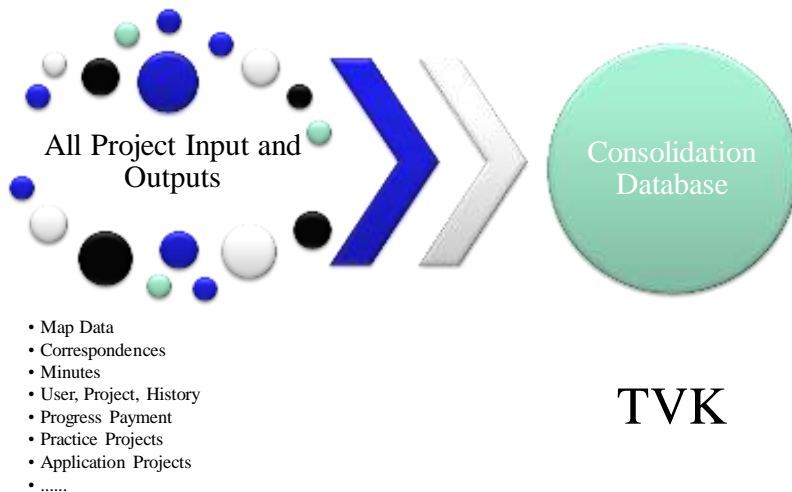
- ✓ Correspondences
  - All Correspondences within the scope of project
    - ✓ Files
      - Lists
      - Documents
      - Minutes
  - Reports ( Social Structure of Village, Soil Survey Report, Block Plan Report, Subdivision Plan Report, Consultancy Firm Report)



# Contents



# Consolidation

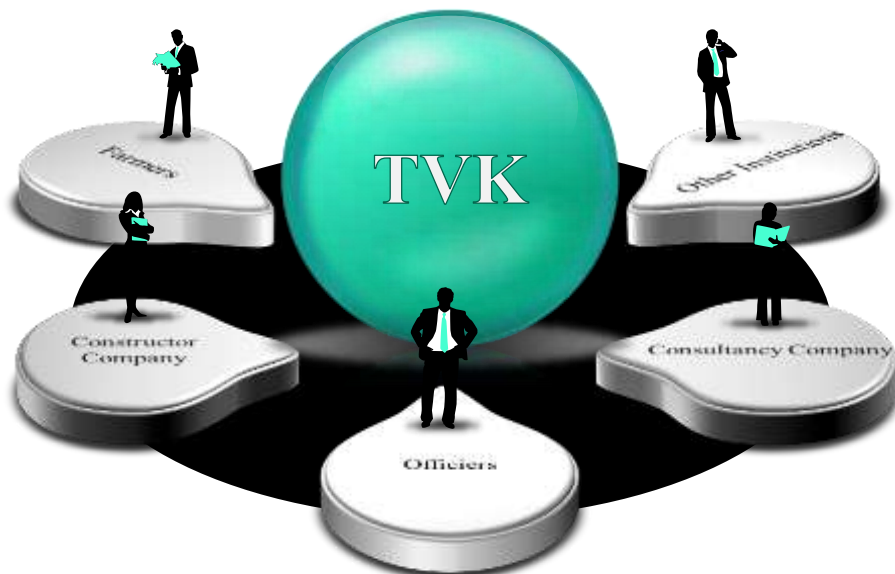




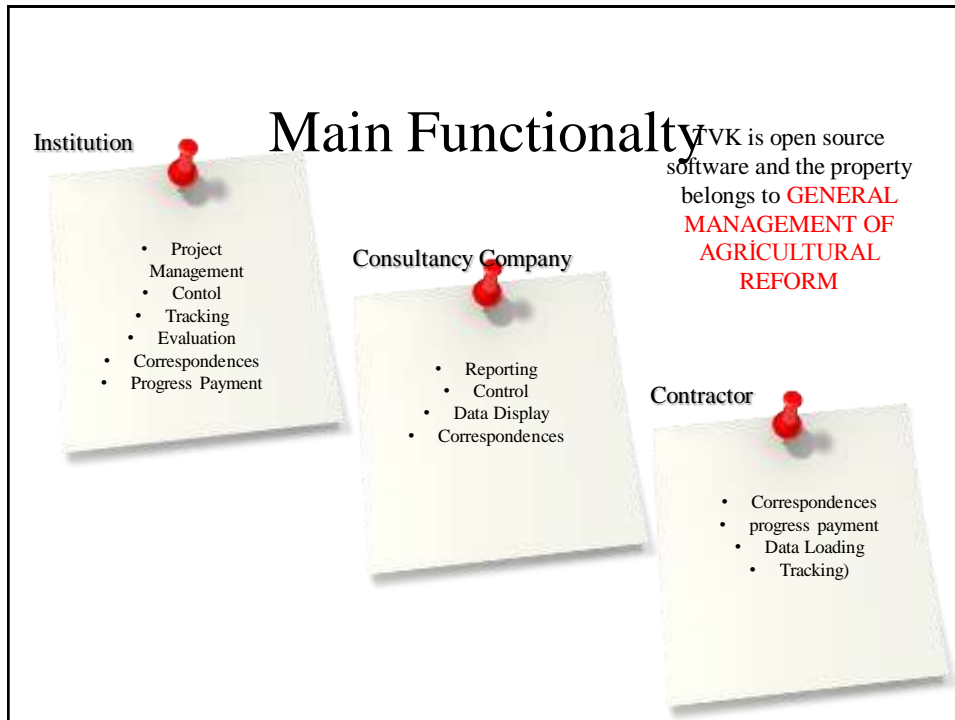
## What Was The Objections

Project and progress payment tracking system	Mobile access
Online data sharing with external institutions	BI applications
Correspondance and document management system	
Access to all of the required queries and reports	
Irrigation and Drainage Projects tracking and evaluation system with Land Consolidation and TIGH Projects	
Web Based – Works anywhere with Internet access	
Open source software and compability to data standards	
Can read and write directly all of the data formats	
Irrigation and Drainage Projects Process Management Application with Land Consolidation and TIGH Projects	

## Users








## Goals

- All of the Land Consolidation activities in our country are combined in one database.
- Work done can be monitored and tracked easily.
- Next generations can see how we made Land Consolidation.
- Audit, tracking evaluation is very transparent, and can be made easily in one screen.
- Document search activities from archive decreases, all of the documents to be paid and informations and geographical details can be kept in the system and are always accessible.
- Code of accounts, Bill of Quantities, Work Done, Revised Prices, Work Augmentation, etc. All of the details are now unique and prevent us to make a mistake.
- Data Services can be made accessible to the external institutions and contractor companies. Data can be read from every software module.
- Land registry cadastre data (20 minutes delayed) is easily accessible.
- Data upload operations can be made easily.





# Basic Features of Application

Land Consolidation and Irrigation Projects with TİGH Projects and Business Processes within the scope of Drainage Project

- Easily accessible and
- work oriented

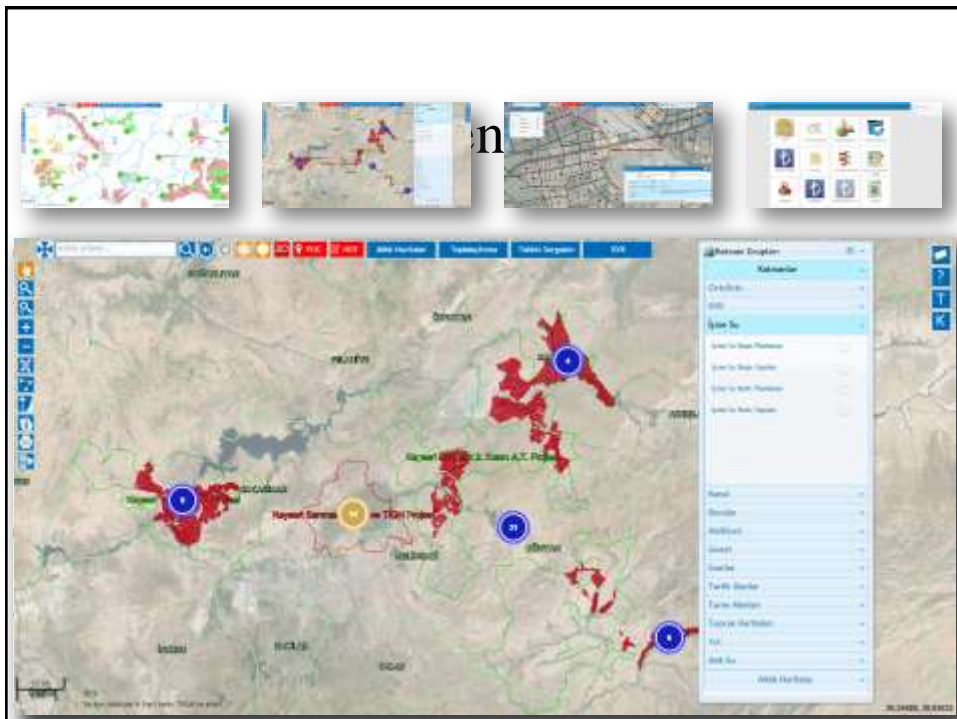
work flows designed and placed in the reason of access to data and report

Harita üzerindeki işlemler

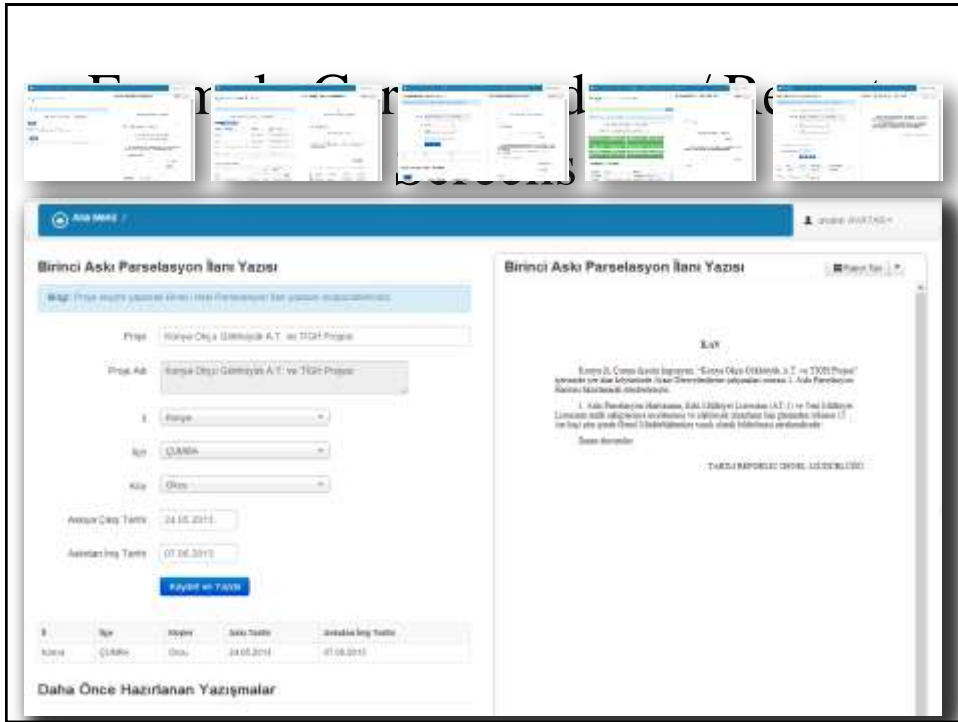
Proje izleme ile ilgili çizelgeler ve grafikler

Ödemeler ve Yazışmalar ile ilgili işlemler

Mevzuat ile ilgili dokümanlar







## Control Mechanism Examples

### Surface Analysis

Using map we can control parcel, road, river, centre of population and fields without registration

### Road distance per land

In map ensures control of road distances per land and all distance of roads, road and projects total area via block, roads after consolidations using road and road axis data

### Parcelling Control

Examining parcels created after Land Consolidation by their topology, average proportion size, irrigation mechanism and road side

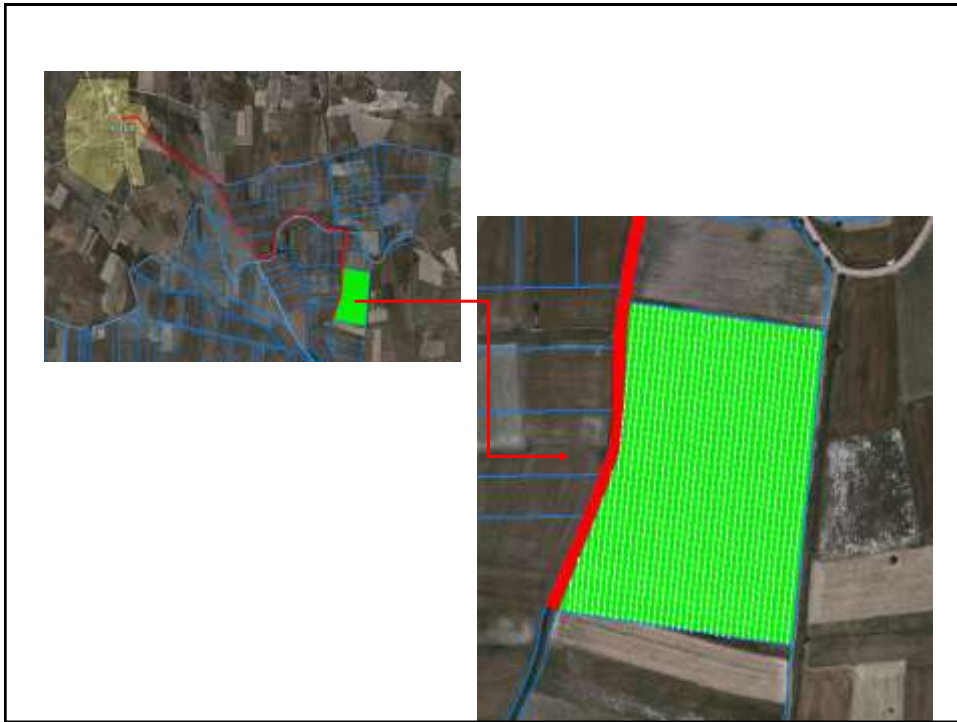
### Parcel Shape Analysis

In map layer, it is used for the control of «area» specific cadastre and/or block specific parcel datas geometric shapes

### 4. Parsel Şekli Analizi

İlçe	PARSEL DİĞERİ		PARSEL DİĞERİ	
	Parcel Sayısı	Oran %	Parcel Sayısı	Oran %
Kare	54	%2,76	77	%3,32
Üçgen	756	%29,81	312	%11,68
Çizgi	51	%2,71	16	%0,38
Çizgi	402	%22,29	317	%27,30
Çizgi	199	%23,87	403	%23,63
Toplam	1421	%100,00	1174	%100,00





## TVK Mobile Features

- User can monitor detailed and statistical informations about projects via Android/iOS based phones.
- All of the phases of progress payment activities can be tracked from entry to approval.
- Maps used in the map (google maps, bing maps etc.) can be changed on request.
- Basic map functions are applicable anywhere where internet is via android/ios based phones. (length, area measurement etc.)

