Land Consolidation Experiences of Turkey

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About Turkey…

Total Land: 78 Mil. Ha
Agricultural Land: 24 Mil. Ha
Total Irregable Land: 8.5 Mil. Ha
Total Grazing Land: 15.5 Mil. Ha
Total Consolidation Area: 14 Mil. Ha
Total Farmer: 3 Mil.
Avarage Farm Size: 6 Ha
Fragmentated 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 million Ha per year
- Total budget per year has improved to 200 Million USD per year

WHAT IS THE LAND CONSOLIDATION?
Ex Ownership
Irrigation canals
Former and new plots
Integration of 7 plots
The shape after the consolidation

THUS, IRRIGATION RATE HAS EXCEEDED OVER 80'S %
The new parcels

Roads

Terracing

Irrigation channel

Open drainage channel

Center of Village

Rippering

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.

The Map After the Consolidation

The number of the new plots:
2,745 pcs.
Every Phase of the Projects are Negotiated With Farmers
Participatory approach
Public Investment With Land Consolidation

The basic problem:
- Higher costs of expropriation
- Lack of budgets
- To object expropriation values
- Delay investments

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

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

TRANSPORTATION AND LC

- Motorways and highways are made with consolidation projects
  - Ankara-Niğde highway 327 km
  - Istanbul-İzmir highway 75 km
  - Malatya ring road 45 km.
  - Airport roads
  - ...

- Tresure 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 together as much as possible.
FRAGMENTATION OF AGRICULTURAL LAND HAS BEEN PREVENTED BY INHERITANCE LAW (2014)

<table>
<thead>
<tr>
<th>Existing Situation</th>
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</thead>
<tbody>
<tr>
<td>Cadastre parcel</td>
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<tr>
<td>Agricultural parcel</td>
</tr>
<tr>
<td>Agricultural holding</td>
</tr>
<tr>
<td>The average land size per capita</td>
</tr>
<tr>
<td>Number of parcels per farm</td>
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<tr>
<td>Number of shareholder</td>
</tr>
</tbody>
</table>

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.
Existing Situation

May 2014

Agriment time

1 year

May 2015

Sue time

Warn time

3 month

Sanction

Expropriation

450,000 dead

260,000 agri-land owner

Population Database

Agricultural Holding Database

Cadastral Database

Land Banking/Land Consolidation?

• Agricultural Holdings : 3.1 million
• Avarage land size : 6 ha
• Parcels per holding : 11

Land Consolidation

Land Consolidation is Inavitable ! Cannot Put a Solution For Heritage

• Agricultural Parcels : 32.5 million
• Total shareholder(owner) : 40 million
• Active business : 3.1 million
• Shareholder not cultivated land : 37 million

Transfer of shares is compulsory to active business by means of Land Banking (Land Office)

Prevent of fragmentation is required for farmland by inheritance Law

Land Banking
What is TVK?

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

Citzens:
Can query all project informations and the conclusion of land consolidation for his/her parcel

Consultant Company:
- Reporting
- Comments
- Corrections
- Redlining
- Data control
- Approve in every phase
- …

Contractor Company and Subcontractor:
- Data download
- Producing new data
- Uploading Construction Draws
  - Data upload
  - Official letters
  - Working program
  - Payment Request Reports
  - …

Land Consolidation Head od Department:
- Approving the e-documents
- Approving the projects
- Finale Data control
- Official letters
- Payment
- Contract management
- …

Work Flow Management

- Project Preparation
  - Bid
  - Approximate Cost
  - Contract
  - Contractor
  - Bill of Quantities

- Site and Office Works
  - Correspondence
  - Minutes

- Geographical Data Upload
  - File Upload
  - Data Control
  - Progress payment affairs
  - Fund Transfer
  - Time Extension

- Building audit organization
  - Office Delivery
  - TKGM Data
  - Correspondance

- Consultant / Administration Control/ Approval Mechanism

- Temporary Acceptance
  - Final Account
  - Final Acceptance
  - Contract Transfer
  - Withdrawal Settlement

Work Experience / Audit Records
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
  - TAKBIS
  - KVK
  - Meteorology
- Geographical Data
  - Base Map
  - Soil Data
  - Project Border
  - Proprietorship data
    - Takbis Data
    - KVK data
  - Hydrologic Data
  - Block 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)
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 TİGH Projects
- Web Based – Works anywhere with Internet access
- Open source software and compatibility to data standards
- Can read and write directly all of the data formats
- Irrigation and Drainage Projects Process Management Application with Land Consolidation and TİGH Projects

Users

TVK

Primary

Other Institutions

Consultancy Company

Officers

Constructor Company
**Main Functionality**

TVK is open source software and the property belongs to **GENERAL MANAGEMENT OF AGRICULTURAL REFORM**

- Project Management
- Control
- Tracking
- Evaluation
- Correspondences
- Progress Payment

**Consultancy Company**

- Reporting
- Control
- Data Display
- Correspondences

**Contractor**

- Correspondences
- Progress payment
- Data Loading
- Tracking

**Institution**

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<thead>
<tr>
<th>Institution</th>
<th>Consultancy Company</th>
<th>Contractor</th>
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<tr>
<td>• Project Management</td>
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**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 the 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
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
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.)