XXV FIG Congress
KUALA LUMPUR 2014 "Engaging the Challenges, Enhancing the Relevance" 16 - 21 JUNE 2014, MALAYSIA

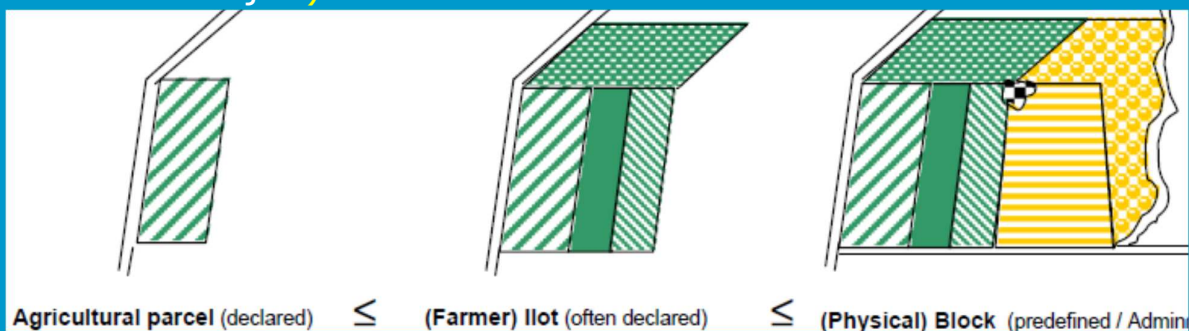# Management of Farmers' and Farmland Information: A Case Study in Turkey

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http://harita.erciyes.edu.tr

EU Common Agricultural Policy (CAP)
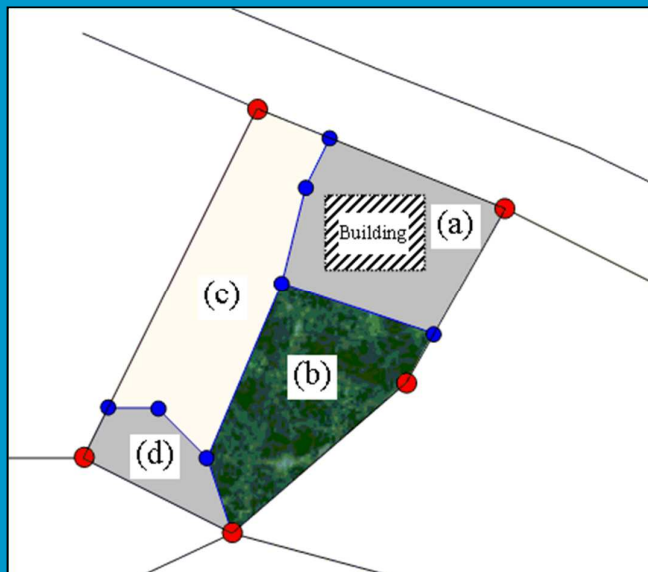## The Rationale for the Project

- Integrated Administration and Control System (IACS)
  - Land Parcel Identification System (LPIS)
    - Different Spatial References (Land Parcels)
    - Different Land Use / Cover Classes
    - Different Agricultural Product Classifications
    - **Different National Needs** (The basic reason for the Project)

Agricultural parcel (declared) ≤ (Farmer) Ilot (often declared) ≤ (Physical) Block (predefined / Admini

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Spatial Reference System
## Sub-Parcel Data Structure

● Based on Cadastral Land Parcels

(a) and (d): Non Agricultural Area
(b): Planted Agricultural Field
(c): Cultivated Agricultural Field
● : Cadastre Parcel Corner Point
● : Sub Parcel Corner Point

Cadastre Parcel*: The area composed of connecting Cadastre Parcel Corner Points.
Sub Parcel*: Each area composed of connecting Cadastre Parcel Corner Points and/or Sub Parcel Corner Points. The total area of sub parcels equals to the area of the cadastre parcel.

* Parcels are defined by boundaries, which are specified by connecting corner points.

Study Area (approx. 4000 ha total area)
Three Rural Districts in Kayseri Provice
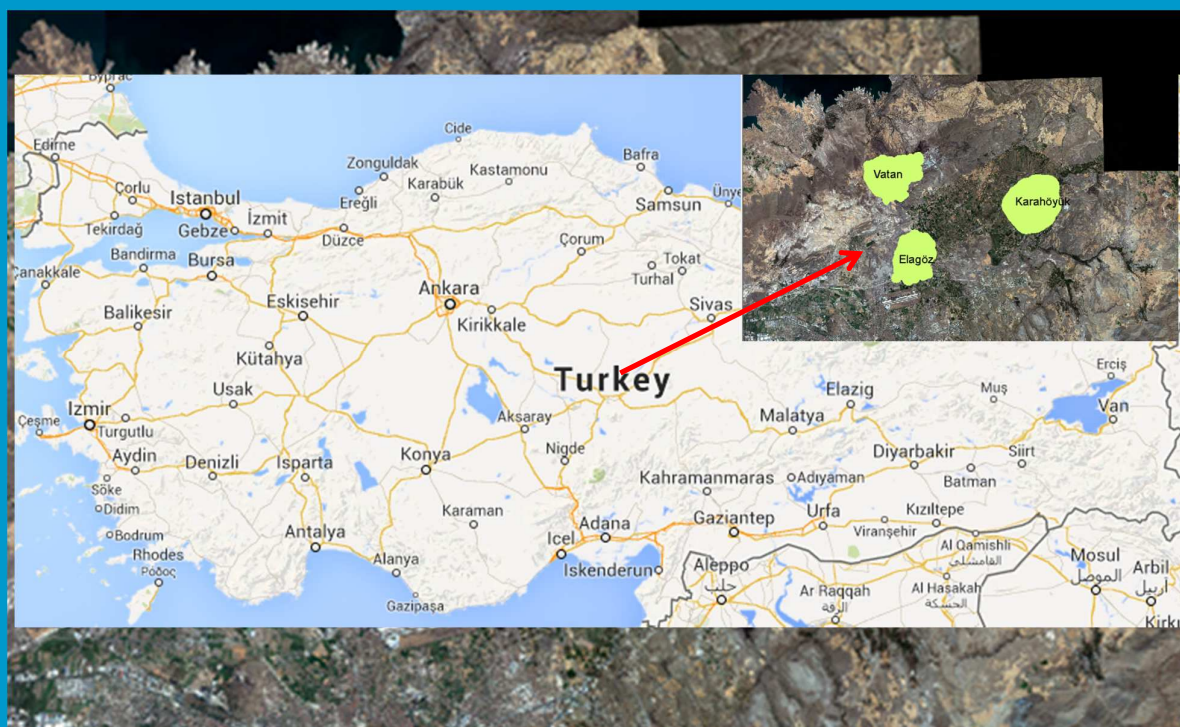
Data Model Development (Beginning)
Basic Properties (some examples)

- The model spatially represent different land use/cover classes within a land parcel.
- Temporal changes should be traced and necessary update operations should be carried out.
- Data redundancy should not be caused for cadastral land parcels including only one land use/cover class.
- Farmer declarations should, spatially, be managed in sub-parcel level which reveals undeclared land.
- Land use rights should be managed as declarations. Harsh/rigid legal checking procedures should be removed. Inquiries should be done only when it is necessary. So, informal land use rights should be considered in some cases.
- Land use/cover and agricultural product classification information should be shared in different generelised classes.
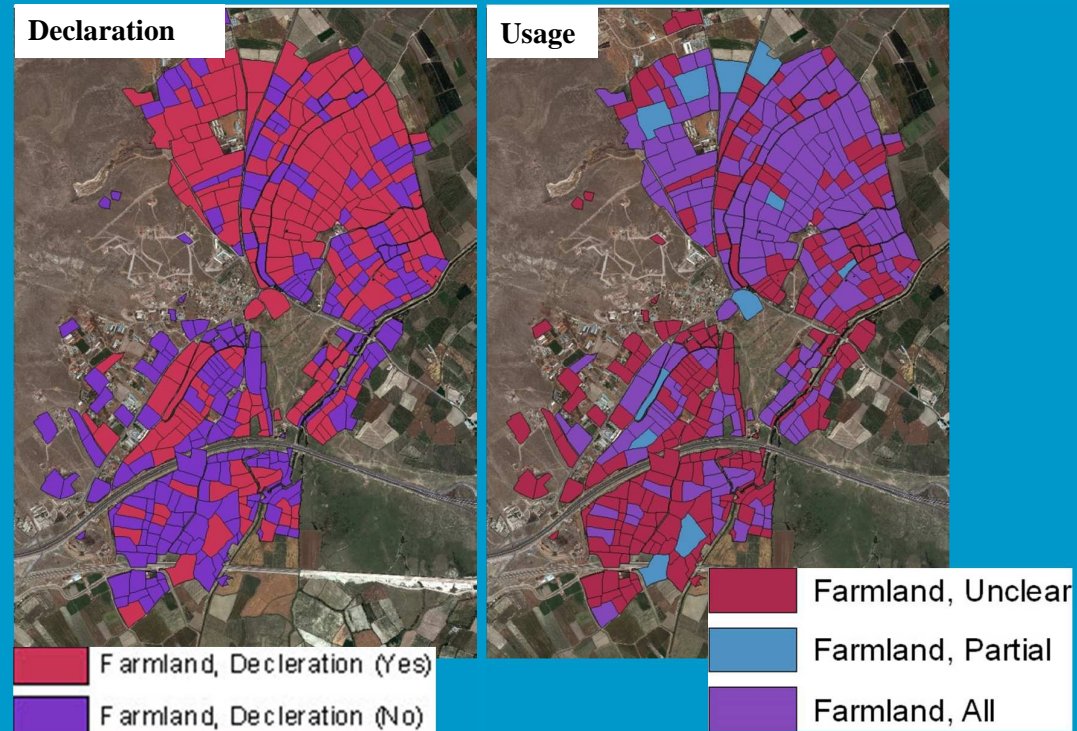- …

Data Model Implementation
Data Sets

- Satellite Imegery (VHR)
- Land Registry Data
- Cadastre Data (parcel boundaries)
- Farmers Declarations Data
- Address Data (administrative)
- Address Data (spatial)
- Land Use/Cover (sub-parcel) Data

Implementation (Sample Applications)
Association between Declarations and Sub-Parcels

Declaration
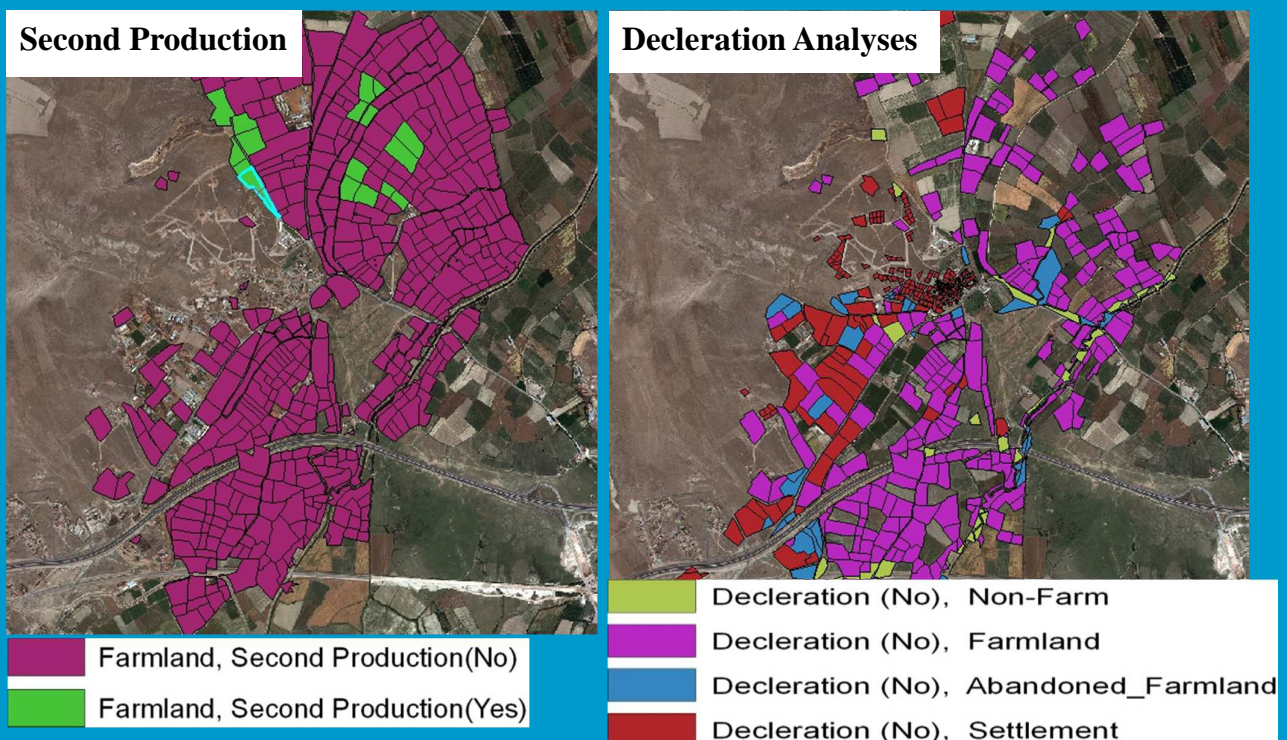
Usage

Farmland, Decleration (Yes)
Farmland, Decleration (No)

Farmland, Unclear
Farmland, Partial
Farmland, All

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Implementation (Sample Applications)
Association between Declarations and Sub-Parcels

Second Production

Decleration Analyses

Farmland, Second Production(No)
Farmland, Second Production(Yes)

Decleration (No), Non-Farm
Decleration (No), Farmland
Decleration (No), Abandoned_Farmland
Decleration (No), Settlement

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Implementation (Sample Applications)
## Association between Declarations, and Land Use/Cover and Agricultural Product Classification
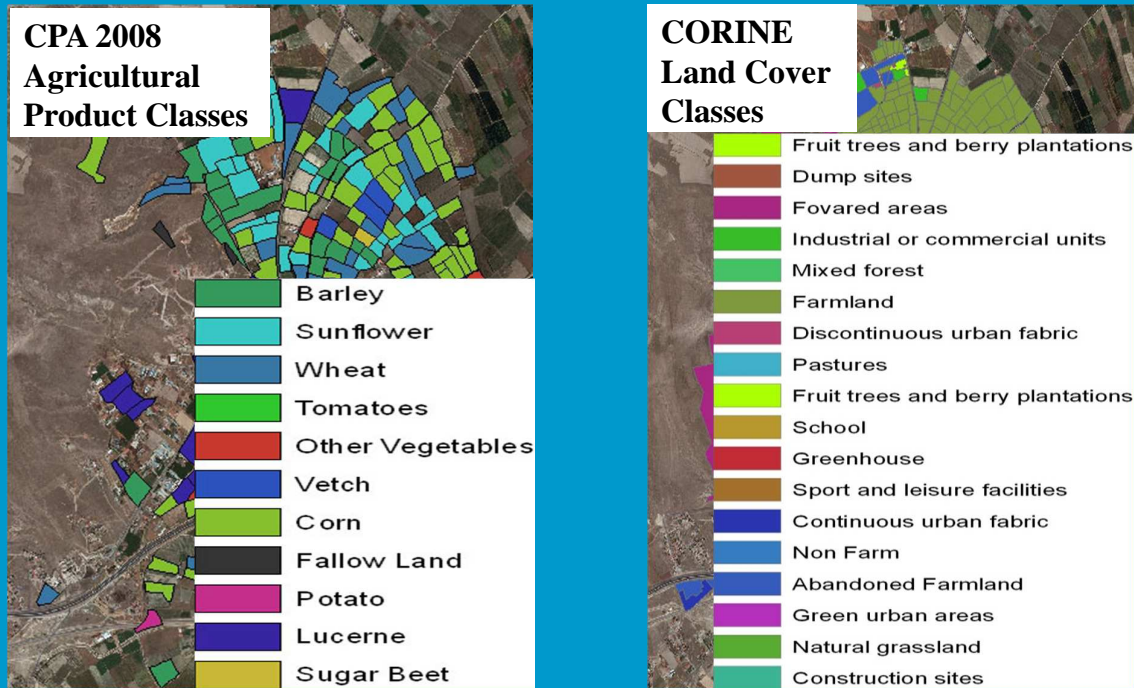
CPA 2008 Agricultural Product Classes

- Barley
- Sunflower
- Wheat
- Tomatoes
- Other Vegetables
- Vetch
- Corn
- Fallow Land
- Potato
- Lucerne
- Sugar Beet

CORINE Land Cover Classes

- Fruit trees and berry plantations
- Dump sites
- Fovared areas
- Industrial or commercial units
- Mixed forest
- Farmland
- Discontinuous urban fabric
- Pastures
- Fruit trees and berry plantations
- School
- Greenhouse
- Sport and leisure facilities
- Continuous urban fabric
- Non Farm
- Abandoned Farmland
- Green urban areas
- Natural grassland
- Construction sites

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Implementation (Sample Applications)
Towards Web Services for Different Foundations

Presentation of different land use/cover classes (In the form of agricultural land or not):

http://cbs.kayseri.bel.tr/proje/Tarim_Potansiyeli.html
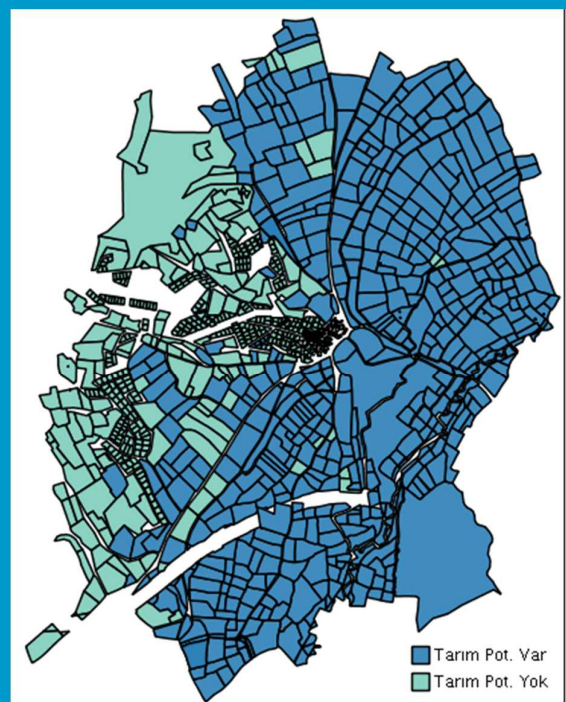
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Implementation (Sample Applications)
Towards Web Services for Different Foundations

- Presentation of different product classes (field crops, horticultural crops, forage crops):

http://cbs.kayseri.bel.tr/proje/Urun_Sinifi.html
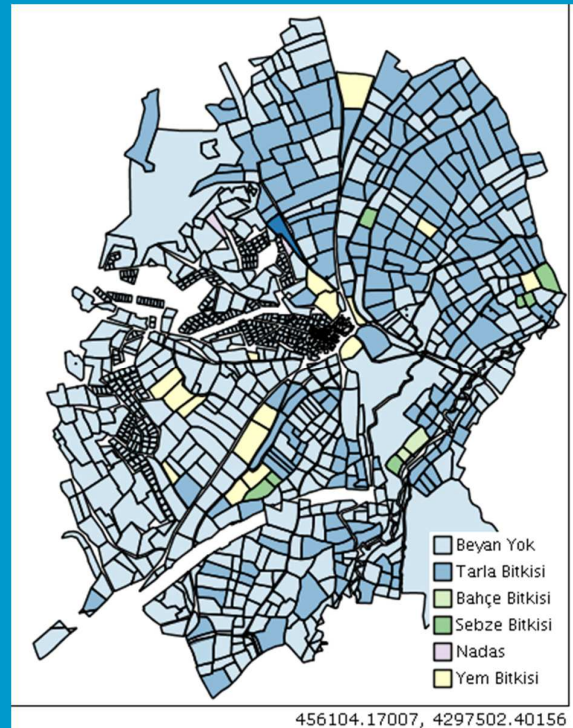
Implementation (Sample Applications)
Towards Web Services for Different Foundations

- Presentation of declaration has already made on or not based on cadastral parcels:
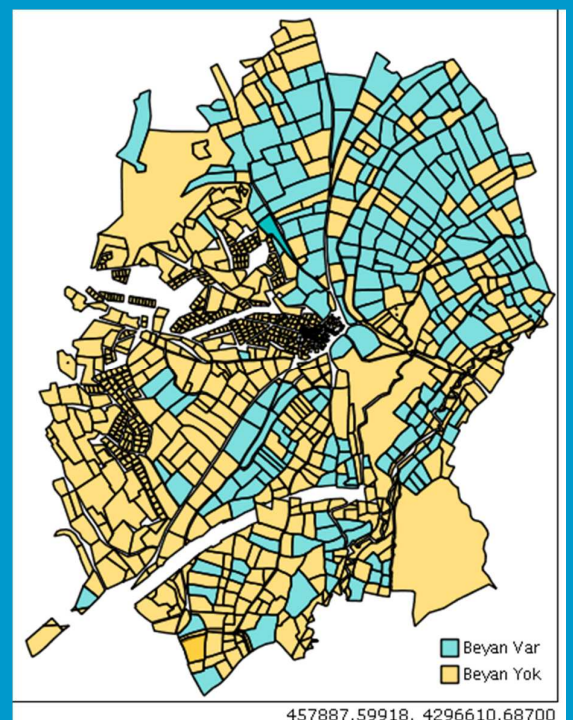
http://cbs.kayseri.bel.tr/proje/Beyan.html

Results

- The project (data model) is basically focussed on an integrated approach in order to meet similar yet different needs of different institutions/foundations.
- Implementation of data model is in its initial phase.
- The model will include/represent all natural relations among farmer, farm land (agricultural field classification in sub parcel level) and agricultural product classification data in very well defined hierarchical data levels (detailed + generalised ones).
- A full implementation will not possible in terms of complex natural relations and ever changing/developing data sources.

Thanks...

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