Dr.- Ing. Andreas Hendricks

Land consolidation and land development – more than reorganizing land property

Tartu, May 2015
Structure

- Structural data
- Objectives
- Procedures
- Main stages and features
- Costs and financing
- Land consolidation for large-scale projects (specifics)

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
Land use in Germany (2012):

- Total area: 357,169 km² or 35,716,900 hectares
- 4,822,500 ha settlement and traffic area (13.5 %)
- 10,797,000 ha forest (30.2 %)
- 18,646,500 ha agricultural land (52.2 %)
- 863,400 ha covered by water (2.4 %)
- 587,500 ha of other areas (1.6 %)
Agrarian structure (2010) in the newly-formed German states

- agricultural land (a.l.) 5.5 Mio. ha
  - 3.500 successor companies of former agricultural production cooperatives (LPG) a 800 ha (= 52 % of a.l.)
  - 3.200 Business partnerships a 400 ha (= 22 % of a.l.)
  - 7.700 Full-time farming operations a 150 ha (= 21 % of a.l.)
  - 10.100 Part-time farming operations a 30 ha (= 5 % of a.l.)

- Activities on the land market (Ø-Price: 4.000 €/ha)

- Share of leaseholds: around 85 %

- around 15 % of the a.l. are divided in fields of more than 100 ha, apart from that 5 – 50 ha depending on the location

- Conclusion: No consolidation necessary!
Structural data

Agrarian structure (2010) in the old German states

- Decrease of current 257,000 farming operations (3 % per year)
  - around 65 % of the farmers have no successor ->
  - around 30 % of the a.l. will be available in the medium or long term
  - Ø-Size of full-time farming operations will increase from 50 ha to 100 – 150 ha

- Low activities on the land market (Ø-Price: 16.000 €/ha)

- Increase of area only by leaseholds (Share of leaseholds: 50 %)

- North-south divide concerning field size and size of farming operations

- Conclusion: Consolidation urgently necessary on 75 % of the a.l.!
Agrarian structure: Field size in Bavaria and Baden-Württemberg

Source: Dissertation Doris Schäuble, 2007
Structural data

Need for action in Bavaria:

- average field size: 1,5 ha (2000) – 1,7 ha (2010)
- farming operations > 100 ha: 2,5 ha
- 95 % of agricultural land: Field size < 5,0 ha
- 75 % of agricultural land: Field size < 2,5 ha

Objective:

- **Field size** of at least 5 – 10 ha, better 15 – 20 ha
- **Field length** of 400 – 600 m
L. c. mediates between different interests

Land consolidation
- considers all existing sector plans
- integrates measures
- implements measures based on financial and chronological synchronisation

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. improves agricultural income

Fragmentation of land plots **before** land consolidation

- High labour input
- High costs of production
- Low labour productivity
- High fuel consumption

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg

Professorship for Landmanagement – Dr.-Ing. A. Hendricks
L. c. improves agricultural income

Fragmentation of land plots **after** land consolidation

- Lower labour input (reduced preparation, turning and transport time)
- Higher labour productivity
- Reduction of machine costs and working time
- Reduced fuel consumption
- More effective fertiliser and pesticide application

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. enhances the natural ecosystems

Unstructured landscape **before** land consolidation

- Large-scale unstructured landscape
- Fragmented and isolated habitats (ecosystems, biotopes)
- Loss of species
- Unattractive landscape scenery

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. enhances the natural ecosystems

New habitats in a diversified landscape **after** land consolidation

- Landscape diversified by the planting of vegetation strips along roads, creeks and ditches
- Networks of habitats
- Improved ecological quality
- Improved design

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
**L. c. supports infrastructure development**

**Without land consolidation:**
- Loss of land for the land owners who are immediately affected
- Expensive access roads and oddly shaped remaining areas
- Insufficient legal security with disadvantages for the land owners
- Long lasting legal disputes

**With land consolidation:**
- Comprehensive public participation
- Loss of land is shred by all participants in the land consolidation area
- Other areas owned by the public can be exchanged
- Access roads can be limited to a minimum
- Legal security for land provided for infrastructure measures
Large-scale construction measures such as roads cause:

- Fragmentation of fauna and flora habitats and existing road and ditch network
- Detours and incomplete access to farmers
- Uneconomically shaped agricultural and forestry plots
- Some farms subjected to significant land loss

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. for large-scale enterprise developments achieves:

- Reduction of damages by dissection and consolidation of dissipated plots
- Adequate road-bridges and subway crossings combined with a new design of road, ditch and habitat networks
- Distribution of land loss among a larger group of participants

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. improves livelihood in villages

- **Village community** (e.g. intensive public participation in planning and implementing development measures, new village squares)
- **Living conditions** (e.g. modernisation or new utilisation of old buildings)
- **Working conditions** (e.g. improvement of roads and access to farmyards)
- **Landscape and green areas** (e.g. green belts, village creeks or plantings on roadside strips)
- **Traffic security** (e.g. separation of different types of traffic, improves access to farms, construction of public side-walks and footpaths)

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
Professorship for Landmanagement – Dr.-Ing. A. Hendricks
L. c. contributes to soil and landscape protection

- **Reduction of land consumption** (e.g. recultivation of unused former traffic areas, allocating land for nature and landscape protection)
- **Soil protection** (e.g. replanting roadside and field border plantations and hedges, conservation of terraces, plantation of windbreaks)
- **Prevention of erosion** (e.g. regulation of hydrology, vegetation stripes along waterbodies, facilitation of contour cultivation)

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. supports water conservation

- **Water retention** (e.g. allocation and conservation of surface water retention areas, design of groundwater infiltration areas)
- **Environmentally friendly water resources development** (e.g. nature oriented development of creeks, ditches, lakes and ponds, installation of bridges)
- **Water conservation and flood control** (e.g. development of protected water resources areas, floodwater retention areas)

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. creates installations for leisure and recreation activities

Land consolidation offers a wide variety:

- Cycling trails
- Horse trails
- Hiking trails
- Soccer fields
- Playgrounds
- Fire places
- Car parking
- View points
- Rest areas
- Protection huts
- Information boards
- Benches

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg
L. c. renews the public registers

The renewal of public registers
- improves the quality of cadaster and land register
- increases the legal security of land owners
- improves the quality of maps and is basis for GIS
Procedures according to the L. C. Act

Standard land consolidation procedure (Art. 1 ff.):

- Comprehensive solution and support to conserving, designing and developing economic, housing and recreational functions of rural areas
- Measures of rural road construction, village renewal, water resources management, soil protection, nature conservation and landscape maintenance can be realised
- Main advantage: spatial and temporal concentration of all measures needed
- Important special types of the standard land consolidation procedure: Procedure for vineyards, Forest land consolidation, Ecological procedure, Village consolidation
Simplified land consolidation procedure (Art. 86):

- Land development aiming at improved agrarian structure, village rehabilitation, environmental protection, water conservation, nature conservation and landscape management or the improvement of village and landscape scenery.
- At the same time this procedure allows to minimise disadvantages for agriculture and landscape and to resolve land use conflicts.
- The simplification of the procedure consists basically in the omission of an integrated plan for communal and public measures (plan of pathes and waterbodies).
Accelerated land consolidation procedure (Art. 91 ff.):

- For rapid improvements of production and working conditions in agriculture and forestry
- Realising necessary measures of nature conservation and landscape maintenance without the necessity of a new road network (no plan of paths and waterbodies)
- If possible consolidation is based on exchange of entire plots, generally by mutual agreements
Voluntary land exchange (Art. 103a ff.):

- A rapid and simple procedure for the improvement of the agrarian structure if plots are exchanged voluntarily between few landowners.
- If the solution requires only limited surveying and subsequent measures, it is especially suited to solve land fragmentation.
Land consolidation for large-scale projects of public interest (Art. 87 ff.):

- Measures such as highways, railways, navigation canals, water retention basins
- Objective: Distribution of loss of land plots among a larger number of land owners and to avoid disadvantages for agriculture and landscape
- Condition: the legal procedure for public works planning is conducted
- The implementing agency cover costs for adequate mitigating measures for habitat fragmentation and other costs associated with the legal procedure
- Compensation is paid for the required land and other disadvantages
Main stages and features

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg

before land consolidation...

Orientation and information to the public

Soil and land valuation...

...Landscape valuation...

...as basis of land consolidation

Professorship for Landmanagement – Dr.-Ing. A. Hendricks
Main stages and features

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg

...after land consolidation

Professorship for Landmanagement – Dr.-Ing. A. Hendricks
Main stages and features

Plan of paths and waterbodies

- contains a map and written proposals for the omission, modification and new installation of communal and public installations (e.g. paths, roads, waterbodies, water management installations, landscape elements)
- is established in consensus with the board of the body of participants
- is subject to an Environmental Impact Assessment
- is the framework for the design and re-allotment of the new plots
- includes: cost estimates, financial plan, timetable
Main stages and features

The board of the body of participants

• The land owners form the body of participants and they elect the board
• The board is partner of the Land Consolidation and land Development Authority
• participates in all important stages and decision-making
• knows local conditions and perceptions
• represents the body of participants in planning, financing, implementation and at court
Main stages and features

The land consolidation plan

- summarises the results of the land consolidation process
- contains all regulations of the project (old plots with the respective rights and duties, new plots with the respective rights and duties, cost regulations)
- produces the same results as a communal statute for parts of the regulations
- replaces land and cadastral register until these are renewed
Costs and financing

Costs of procedure

Personnel and other institutional costs of the State Office are borne fully by the State
• salaries of the employees
• costs of experts and consultants
• costs of office buildings, office material, production of maps, etc.
Costs and financing

Costs of implementation

Depend on the type of procedure, local conditions and the expected measures

Example:
1.25 million EUR

- Road construction: 600,000 EUR
- Hydraulic works: 150,000 EUR
- Soil improvement: 50,000 EUR
- Landscape management: 100,000 EUR
- Reorganising property: 200,000 EUR
- Administration costs of the body of participants: 150,000 EUR

Total: 1,250,000 EUR

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg

Professorship for Landmanagement – Dr.-Ing. A. Hendricks
Financing of the costs of implementation

-Example-
1.25 million EUR
Costs of implementation

- Subsidies from EU, Federal Government and State (Land)
- Own contribution of participants

Area with costs: 
500 ha
Implementation costs: 
2,500 EUR/ha
Total implementation costs: 
1,250,000 EUR
Subsidies: 
75%
This corresponds to a contribution of participants of: 
625 EUR/ha

Source: Information of the Ministry for Food and Rural Area Baden-Württemberg

Professorship for Landmanagement – Dr.-Ing. A. Hendricks
Requirements for the Land Consolidation Decision:

Contentwise:

• The project affects agricultural land on a large scale (at least 5 hectares)
• It is permissible to acquire the land by compulsory purchase (expropriation)
• The loss of land is to be apportioned among a larger number of owners and/or disadvantages for the general use of the land are to be avoided

Formwise:

• The Plan Approval Procedure for the project has been initiated
• Application of the authority responsible for the expropriation to initiate the land consolidation
• The rate of apportionment of the loss of land shall be agreed upon in consultations with the Farmers’ Association
• The land consolidation procedure shall be explained exhaustively and in an appropriate manner to the affected land owners
Boundary of the land consolidation area:

- The loss of land has to be distributable among a larger number of owners and must be acceptable for each owner (generally smaller than 5%) or
- Purchase of additional land by the project developer
- Reduction of damages by dissection and consolidation of dissipated plots is possible
- Generally from one to two field lengths
L. c. for large-scale projects (specifics)

Boundary of the land consolidation area:

Source: Presentation of Th. Maier within the Geodetic Colloquium at the University of Stuttgart, 2013
L. c. for large-scale projects (specifics)

Boundary of the land consolidation area:

Bought plots

Allocation of the developer

Source: Presentation of Th. Maier within the Geodetic Colloquium at the University of Stuttgart, 2013
Provision of land for the project:

- By the participants relative to the value of their old parcels in relation to the aggregate value of all the parcels of the land consolidation area
- Purchase of additional land by the project developer
- A participant may, subject to his agreement, be compensated in whole or in part with money instead of land
Payments of the developer:

• Compensation for the land provided by the participants
• Share of the cost of implementation that has been incurred as a result of the contribution of the allocated surfaces and the construction of the common facilities due to the project (assessed by the higher consolidation authority)
• Share of the costs of procedure occasioned by him (assessed by the higher consolidation authority)
• Compensation for disadvantages (e.g. loss of plantings or use restrictions)