

*From chaos to
order...*

Adjudication and Land Consolidation the Swedish way of land reform

Presentation by Mats Backman at COST Action G9
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Land reforms in practice in the county of Dalarna

Adjudication



Land Consolidation



Cadastral characteristics of Dalarna

- ❑ Unique fragmentation of properties & parcels
 - ❑ small size
 - ❑ narrow & irregular shaped parcels
 - ❑ badly maintained boundaries
- ❑ Complicated ownership conditions
 - ❑ frequent joint properties
 - ❑ frequent co-owned properties



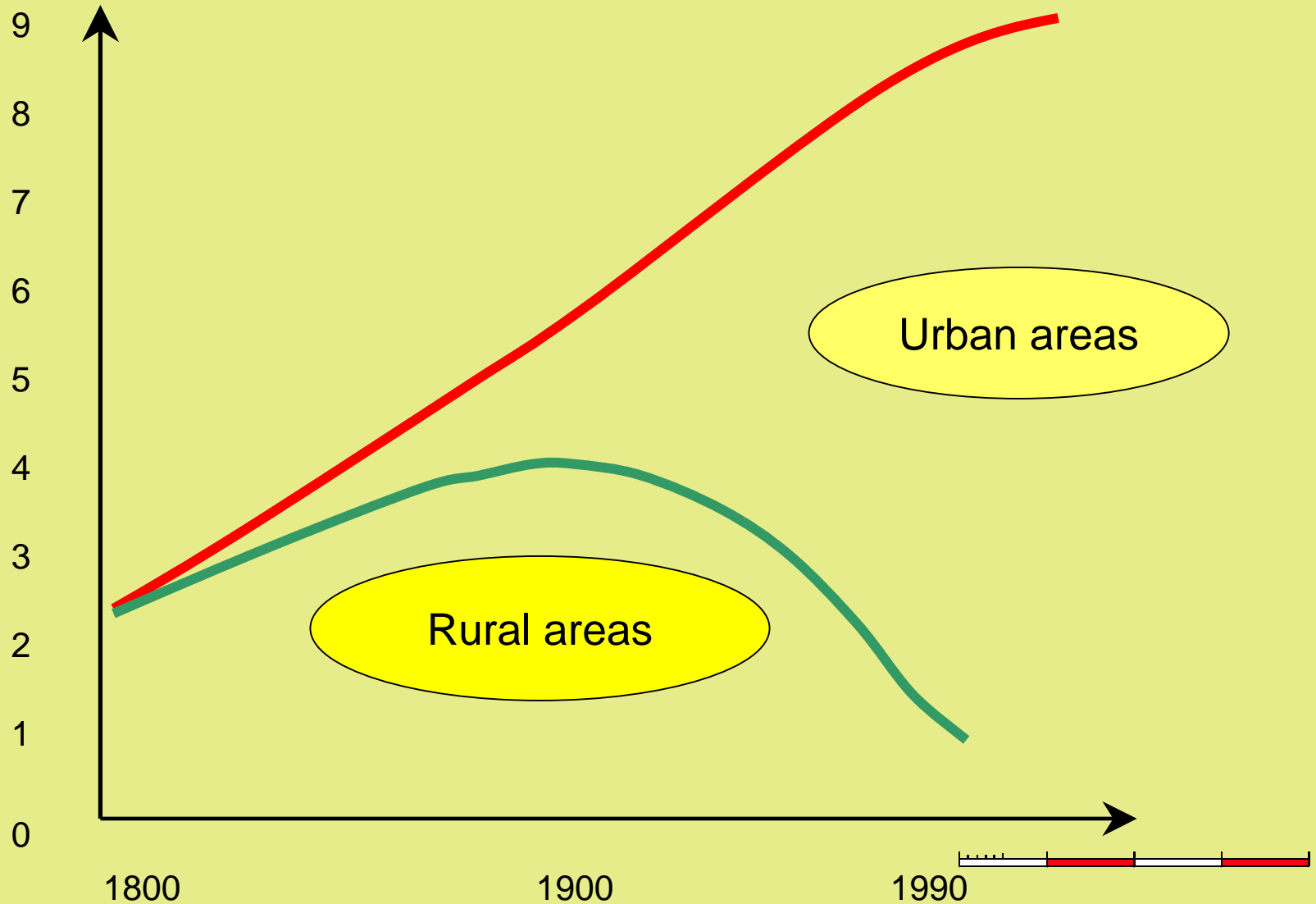
Historical Context

- ❑ Laws on Land Consolidation and Adjudication 1757, 1807, 1827, 1926 and 1972
- ❑ Land Consolidation of the whole nation 1803 - 1922
 - ❑ Consolidated area 20 M hectares
 - ❑ 287 000 holdings concerned
 - ❑ Resettlement for 83 000 farmers
- ❑ Private subdivisions after Land Consolidation during 19th century deteriorated the good result
 - ❑ Consequences: Bad fragmentation of properties and uncertain ownership conditions
- ❑ Adjudication in Dalarna 1962 - 2005
 - ❑ aprox..1 400 000 hectars
- ❑ Land Consolidation according to Cadastral law 1972 1972 -
 - ❑ aprox.. 200 000 hectars (implemented)
 - ❑ aprox.. 70 000 hectars (projects in progress)
- ❑ Land reforms – remaining needs in Dalarna
 - ❑ Urgent needs 400 000 hectars



Millions of
inhabitants

Development of population in Sweden



Land in Sweden, ownership

	<i>Area %</i>	<i>Value</i>
<i>Private owners</i>	50	>50
<i>Forest companies</i>	27	<27
<i>State, municipalities</i>	23	<<23



Agriculture in Sweden

- ❑ Arable land in Sweden 2,7 million hectares
- ❑ Number of farms 1999 aprox. 80 000 units
 - Full timers aprox. 23 000 families
- ❑ Statistics
- ❑ 2 - 10 ha 26 000 units
- ❑ 11 - 20 ha 17 000
- ❑ 21 - 50 21 000
- ❑ 51 + 16 000
- ❑ **Average area** 34 hectars arable land
per farm



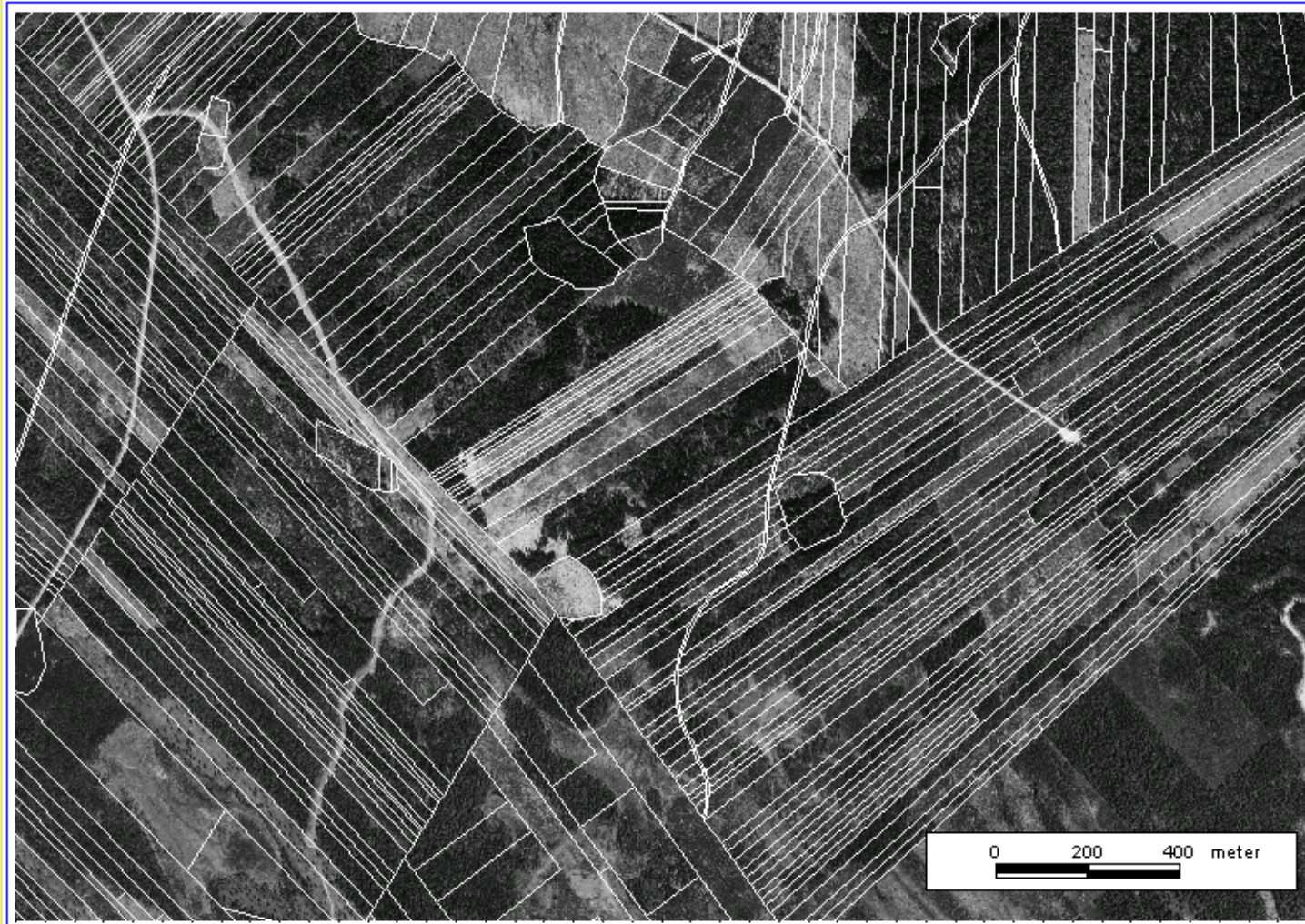
Political objectives for agriculture and forestry in Sweden

Promote a sustainable development, ecologically, economically and socially *in*

- ❑ agriculture
- ❑ production of food
- ❑ forestry
- ❑ rural areas



Fragmented forest area



Problems of fragmentation from the viewpoint of society

- ❑ High costs for
 - ❑ authorities
 - ❑ municipalites
 - ❑ National Road Adminstration
 - ❑ Telia and electric power suppliers
- ❑ Insufficient quality of information in property registers and cadastral index maps
- ❑ Retained activities and employment in forestry and agriculture



Mr Jonsson's fragmented property



Problems of fragmentation of farms from the viewpoint of the farmers

- ❑ Agricultural and forest management inefficient and difficult
- ❑ Uncertain boundaries
- ❑ Ignorance among the proprietors about rights and location of boundaries
- ❑ Disputes/conflicts regarding
 - ❑ Rights of co-owned properties
 - ❑ Location of boundaries
- ❑ Unsatisfactory use of land
- ❑ Unsatisfactory road network



Adjudication Background

- ❑ The 19th century - the consolidation era
 - ❑ most problems concerning partition and ownership eliminated
- ❑ Later - continuous problems
 - ❑ unrecorded transactions
 - ❑ unrecorded inheritances
 - ❑ unrecorded private partitions
- ❑ Uncertain ownership conditions
 - ❑ less value of the land
 - ❑ difficulties to get title and mortgage/loans
- ❑ New policies for real properties
 - ❑ most of Sweden was surveyed
 - ❑ title to land to all landowners
 - ❑ private partitions forbidden - invalid
 - ❑ compulsory connection: land register - cadastre



Legislation for adjudication 1962

- ❑ Applicable to large areas with problems i.e. Dalarna
- ❑ Society purposes
 - ❑ legalisation of private partitions
 - ❑ legalisation of unrecorded conveyances - title to land
 - ❑ investigation about ownership and private partitions
- ❑ Subsidies for adjudication procedure
- ❑ Legalisation law 1968 (small areas)
 - ❑ quick procedure
- ❑ Amalgamation of laws 1972



Qualification and initiative for adjudication

❑ Qualifications

- ❑ area of certain size
- ❑ ownership uncertain
- ❑ general lack of titles
- ❑ important from society's point of view
- ❑ need for a collective solution

❑ Initiative for procedure

- ❑ The county board
- ❑ Cadastral authority (when necessary for real property formation)
- ❑ Communication with Land Registration Authority

Adjudication procedure

- ❑ Preliminary investigation
 - ❑ official cadastre and cadastral maps
 - ❑ official land register
 - ❑ official tax register
- ❑ Announcements about procedure
 - ❑ newspapers
 - ❑ personal letters
 - ❑ official notice-board
- ❑ Meetings
 - ❑ first compulsory meeting
 - ❑ informal meetings
 - ❑ last meeting
- ❑ Notifications and measurements



Adjudication procedure (cont.)

- ❑ Decision about ownership
 - ❑ only one claimant - no need of documents to prove ownership
 - ❑ contradictory claims - the surveyor has to judge
 - ❑ list of claims to Land Registration Authority - titles
- ❑ Decision about legalisation
 - ❑ legalised subdivisions to the cadastre
 - ❑ legalised parts will afterwards get a unique designation
 - ❑ legalisation does not determine new boundaries - no demarcation required
- ❑ Right of appeal
 - ❑ claimants have right to appeal against decisions(in four weeks)



Land consolidation

Principal points

- ❑ Benefits
- ❑ Important factors for success
- ❑ Methodology of implementation
- ❑ Technical development of GIS
- ❑ Characteristics of the procedure
- ❑ The surveyor's role



Definition and objectives

Definition

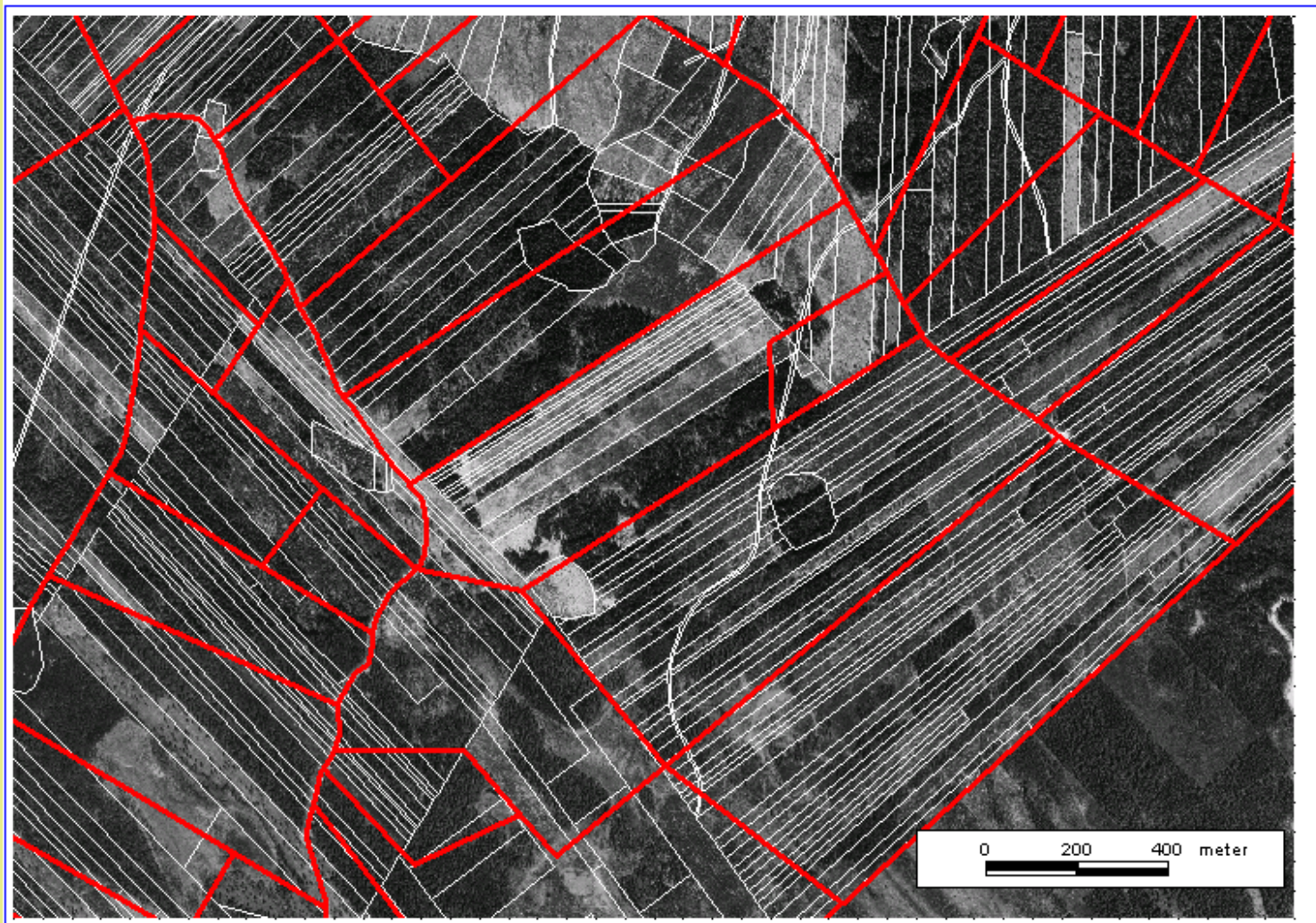
- ❑ Land Consolidation means the combination of redistribution of land, partition of co-owned properties, subdivision and supplement of land

Objectives

- ❑ Concentration of the parcels
- ❑ Reduction of co-owned properties
- ❑ Area increase of family farms



Consolidated forest area



Society benefits

- ❑ Decreased costs for authorities
- ❑ Decreased costs for land capture i.e. municipalities, National Road administration, Telia and electric power suppliers
- ❑ Decreased costs for society planning
- ❑ Higher quality in cadastre and cadastral index maps
- ❑ Increased activities and employment in forestry
- ❑ Increased tax revenues
- ❑ ***Subsidies are a very profitable investment for society!***



Bonäs -Våmhus Land Consolidation

Structural improvements on forest land

	"Before"	"Afterwards"
Property structure		
Properties	ca 6 000 st (7,4 ha/st)	430 st (103 ha/st)
Parcels	ca 21 000 st (2,1 ha/st)	800 st (55 ha/st)
Joint properties	1 300 st	5 st
Ownership structure		
Jointly owned prop.	ca 3 500 st	ca 170 st
Jointly owned parcels	ca 14 000 st	ca 300 st
Length of boundaries	ca 8 000 km	ca 1 000 km



Mr Jonsson's consolidated property



Which are the commercial and economic benefits for Mr Jonsson?

- ❑ Increased stumpage = more money in his pockets
- ❑ Reduced management costs
- ❑ 80 - 90 % reduced boundary length
- ❑ Clear and secure boundaries
- ❑ "Green" management plans for all forest owners
- ❑ Road construction - if needed
- ❑ Simple ownership conditions



Land Consolidation

-Environmental Effects

Concern about the environment

- ❑ Ecological analysis of the landscape
 - ❑ Secure of valuable nature- and culture areas
 - ❑ Reallotment design
 - ❑ "Green" forest management plans



Experiences of Land Consolidation since 1930

❑ *Voluntary Land Consolidation*

- ❑ Suitable for relatively small projects
- ❑ Suitable in moderately fragmented areas
- ❑ Based on agreements between proprietors
- ❑ Improved business economics
- ❑ Surveying and forest management plans not included
- ❑ No subsidies

❑ *Compulsory Land Consolidation*

- ❑ Suitable in badly fragmented areas
- ❑ Large projects 2 000 – 54 000 hectares
- ❑ Mediation/negotiation important elements in the procedure
- ❑ Radical improvements of division into property units and reduced length of boundaries
- ❑ Considerable benefits for both society and business
- ❑ Concern about ecology and environment
- ❑ Subsidies



Performance indicators

Promotion of land reform

- ❑ Investigation of land use
- ❑ Needs of land reform
 - ❑ Role and importance of agriculture/forestry
 - ❑ Extent of fragmented arable/forest land
 - ❑ Degree of fragmentation, joint properties, joint ownership
 - ❑ Characteristics of the farmers
- ❑ Interest among the farmers with regards to L.C.
 - ❑ Type of production
 - ❑ Possible needs of road construction
 - ❑ Choice of an appropriate L.C. procedure
 - ❑ Time/cost estimates



Land Consolidation

- Important Factors of Success

- ❑ Working concept
- ❑ Public opinion in land consolidation
- ❑ Stakeholders - partnership
- ❑ Methodology - the need of a cost-efficient procedure
- ❑ Powerful data support
- ❑ Costs & financing
- ❑ Political support



Issues of opinion

“top down ⇒ ⇒ bottom up approach”

- ❑ Influencing public opinion
 - ❑ **days of wishes** - documentation
 - ❑ experiences
- ❑ Local stakeholders
- ❑ Information efforts by regional authorities
 - ❑ general information
- ❑ Influence and participation by the owners
 - ❑ committees
 - ❑ **dialogue** on re-allotment design, valuation etc
 - ❑ investigation of opinion(late during the procedure)



Stakeholders - partnership

- ❑ Partnership for rural development
 - ❑ County authorities
 - ❑ Associations of farmer, forest owners and sawmills
- ❑ Local stakeholders
- ❑ Members of the partnership + local stakeholders
 - ❑ Strong influence on attitudes among the farmers



Methodology

- ❑ Information meetings with the owners
- ❑ Dialogue with the owners
- ❑ Preliminary re-allotment design
- ❑ Trial of Public opinion
- ❑ Field inventory
- ❑ Definite reallotment design
- ❑ Surveys of the "new" boundaries
- ❑ Decision making



Reduction of costs and time

- ❑ Project management
 - ❑ planning, budget
 - ❑ management
 - ❑ decision process
 - ❑ feed back
- ❑ Data support
- ❑ Efficient data capture
 - ❑ geodata bank (cadastral index map)
 - ❑ Land data bank (FDS)
- ❑ Development of methodology and competence



Technical development

- ❑ GPS - more efficient surveying
- ❑ GISOM
 - ❑ effective data capture from the central databases (Cadastre/ Cadastral Index Map)
 - ❑ efficient tool for analysis and for realloftment design
- ❑ Valuation
 - ❑ photo-interpretation
 - ↓
 - ❑ field inventory
 - ↓
 - ❑ control inventory (adjustments for bias)
 - ↓
 - ❑ inspection by the owners



Land Consolidation

- Costs and Financing

Costs **225 - 260 USD/hectare**

- ❑ Influence by:
 - ❑ Degree of fragmentation
 - ❑ Number of participating owners
 - ❑ Size of the consolidation area
 - ❑ Reduction of boundary length

Financing

- ❑ Subsidies 50 %
- ❑ Participating farmers 50 %



Political support of Land Consolidation

- ❑ Local level Various attitudes among the local politicians
- ❑ County level Strong political support, especially by the county governor
- ❑ Parliament level Lobbying activities during 2000 were successful!



GISOM system

Indata

Information

Programmes

Cad Index Map

Cadastre

Stereo & Field
inventory

Shapefiles
Access data base
SQL -server
Coverage
Raster pictures

ArcInfo

ArcView

Access

Crystal
Reports

Visual
Basic

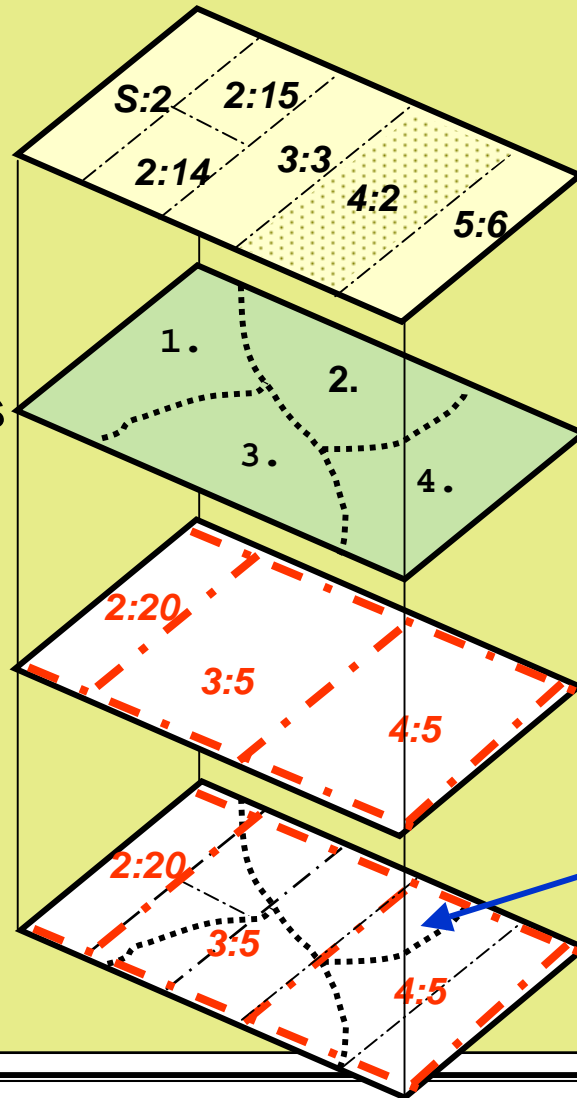
BMS Win
Husky

APC

Overlay-techniques in Land Consolidation

Layers

- Properties
- Forest stands
- Re-allotment design



Economic settlements are calculated by intersection between

- "old" properties
- forest stands
- "new" properties

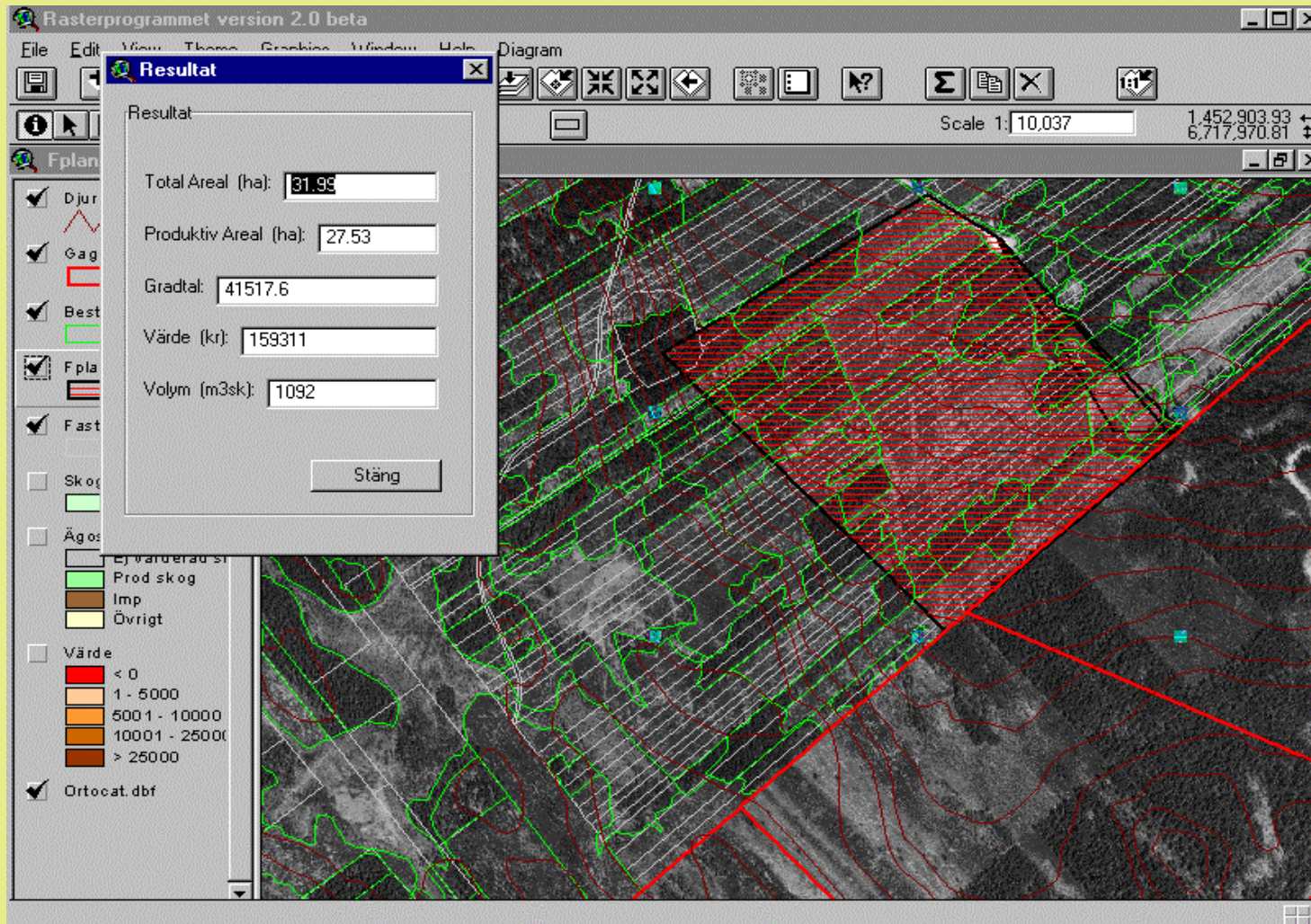
Each little figure has information about:
previous owner, new owner and value

Elaboration of the new re-allotment design

- ❑ Factors to be considered
 - ❑ The desires of the participants
 - ❑ Area, volume, age, value etc of their "old" possessions
 - ❑ Topography, lakes, rivers, wet areas
 - ❑ Road network
 - ❑ Forest composition (volume of the forest, yield, age, tree species, timber quality etc)
 - ❑ Environmental/cultural values



Re-allotment design by GISOM



Economic settlement

Specification of settlements, SEK
Owner: Anders Johnson

	Forest land	Arable land	Exploitation land	Saldo credit	Saldo debit
Gives up	670 000	24 000	12 000	706 000	
Receives	- 950 000	-21 000	-8 000		- 979 000
Settlement	- 280 000	3 000	4 000		
Debt	273 000				



Cadastral Surveyor



Responsible for the whole process from start until finish

- ❑ Co-ordinator of information, process and decisions
- ❑ Investigator
- ❑ Negotiator
- ❑ Competent to make decisions

