Dealing with Central European Land Fragmentation

A critical assessment on the use of Western European instruments

Terry van Dijk

Eburon
1. De meervoudige betekenis van het woord ‘versnippering’ verhult de noodzaak tot een diepgaande analyse van het probleem en leidt aldus tot verwarring over de juiste oplossingsrichting.
   (dit proefschrift)

2. Ruilverkaveling wordt in de huidige discussies een te zwaar gewicht toegerekend; landbanking past beter bij wat nu de kern is van het probleem van versnippering van landbouwgrond in Centraal Europa.
   (dit proefschrift)

3. Het fenomeen ‘multifunctionele landinrichting’ is een typisch product van een samenleving met een hoge bevolkingsdichtheid, verminderd economisch belang van de landbouw, veel vrije tijd, hoge mobiliteit en hoge welvaart.
   (dit proefschrift)

4. In rechten op grond bestaan, internationaal gezien, zoveel nuances in implicaties en historische inbedding dat deskundigen denken elkaar te begrijpen, maar toch verschillende dingen bedoelen.

5. Waar het gaat om de existentiële vragen: hoe is het heelal ontstaan, wat is leven en wat gebeurt er met het leven als we sterven, vraagt zowel het aannemen van wetenschappelijke antwoorden als religieuze antwoorden geloof.


7. De Nederlandse privatisering van overheidsinstellingen kwam voort uit een foutieve veronderstelling, te weten dat door marktwerking het bedrijfsbelang samenvalt met het consumentenbelang.

8. Het niet oplossen van files is een manier toename van het autogebrek te betuigen die zowel effectief, goedkoop als eerlijk is.


10. Gezien de populariteit van musicalproducties moet de gereserveerde houding ten opzichte van opera en oratorium wel op vooroordelen gebaseerd zijn.

Deze stellingen worden verdedigbaar geacht en zijn als zodanig goedgekeurd door de promotoren prof.dr.ir. M.J.M. Bogaerts en prof.dr.ir. A. van den Brink.
Propositions

1. The multiple meaning of the word ‘fragmentation’ conceals the necessity to thoroughly analyse the problem and therefore it results in confusion with regard to the right solution. 
   (this thesis)

2. Land consolidation is falsely put in the centre of current discussions; land banking makes a better match with the core problem of Central European land fragmentation at this moment. 
   (this thesis)

3. Multifunctional land consolidation typically corresponds with a society characterised by a high population density, where agriculture has only marginal economic importance and where civilians have relatively much leisure time, mobility and wealth. 
   (this thesis)

4. Rights on land are internationally so diverse in their implications and historical embedding that experts think they understand each other, but may address different matters.

5. Where existential questions are concerned: how did the universe emerge, what is life and what happens to life when we die, it takes as much belief to accept scientific answers as it takes to accept religious answers.

6. Developments in Dutch real estate during the past decade have resulted in a disconnection of material wealth and professional or family status.

7. The Dutch privatisation of governmental institutions followed a false assumption, namely that because of the free market the interest of the company coincides with the interest of the consumer.

8. Not-solving traffic congestion is an effective, cheap and just way to limit the growth in car mobility.

9. Spatial planning cannot be simultaneously democratic, liberal, efficient and consistent. 

10. Taking into account the popularity of musical productions, the less enthusiastic attitude towards oratory and opera must rely on bias.

These propositions are considered defendable and as such have been approved by the supervisors prof.dr.ir. M.J.M. Bogaerts and prof.dr.ir. A. van den Brink.
Dealing with
Central European land fragmentation
Dit onderzoek is mede mogelijk gemaakt door het Kadaster.
Dealing with Central European land fragmentation
A critical assessment on the use of Western European instruments

Omgaan met versnipperde landbouwgronden in Centraal-Europa
Een kritische beschouwing omtrent de mogelijkheden van West-Europese instrumenten

Proefschrift

ter verkrijging van de graad van doctor
aan de Technische Universiteit Delft,
op gezag van de Rector Magnificus prof.dr.ir. J.T. Fokkema,
voorzitter van het College voor Promoties,
in het openbaar te verdedigen op dinsdag 21 oktober 2003 om 13.00 uur
door Theodorus VAN DIJK
ingenieur in de landbouw en milieuwetenschappen
geboren te Kampen
Dit proefschrift is goedgekeurd door de promotoren:
Prof.dr.ir. M.J.M. Bogaerts
Prof.dr.ir. A. van den Brink

Samenstelling promotiecommissie:

Rector Magnificus, voorzitter
Prof.dr.ir. M.J.M. Bogaerts, Technische Universiteit Delft, promotor
Prof.dr.ir. A. van den Brink, Wageningen Universiteit, promotor
Prof.mr. J. de Jong, Technische Universiteit Delft
Prof.dr. W.K. Korthals Altes, Technische Universiteit Delft
Prof.dr.ir. H.N. van Lier, Wageningen Universiteit
Prof.dr.ir. E. Mathijs, Katholieke Universiteit Leuven
Prof.ir. P. van der Molen, Kadaster en ITC

Mr.dr.ir. J.A. Zevenbergen heeft als begeleider in belangrijke mate aan de totstandkoming van het proefschrift bijgedragen.
That writing a dissertation was going to be a learning process I knew before I started. The exact meaning of this trivial statement appeared to be somewhat different from my initial expectations. I did not only gather knowledge about the subject of this thesis. Looking back, that only seems to be a side-effect.

More interestingly, I learned that only few things are 'true' and much more are 'opinions', that can be very well-founded though. And that words of people often have to be properly decoded, taking into account to whom they are spoken, the relationship between the sender and the audience at the time he emitted the message, which intentions and interests could have affected his words, as well as his personal inclination (dominance or passiveness to please). That historic awareness is crucial for a real understanding of almost any subject. That availability of statistical information must never be taken for granted. And that the constant change in institutions and legislation was already a fact in the 'good old times'.

I suppose I initially was somewhat ignorant and idealistic, but my perception of many things became less black-and-white throughout the process, which added insecurity but gave space to tolerance as well. I would therefore say: for me, writing this thesis was foremost about growing up, socially and intellectually.

I would like to ask you to consider this thesis as a demonstration of the craft to formulate a manageable question, to collect and screen as much relevant information as possible, and to use this information and logical reasoning to derive an answer.

Terry van Dijk
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1. Introduction

1.1 Purpose of the research

Ownership of agricultural land is highly fragmented in Central Europe. This fragmentation is caused by the privatisation of land, being part of the transition from command economy to market economy during the 1990s. Currently, land ownership fragmentation is one obstacle for the emergence of a healthy and competitive agriculture. The situation asks for an effective solution, especially in the light of accession to the European Union.

Western European countries in the past have faced fragmentation of similar severity. To battle this problem, several instruments evolved in practically all Western European countries, of which land consolidation is the most distinctive. Land consolidation exchanges ownership and use of parcels in order to achieve better conditions for agricultural production. Together with land banking, parcel exchange and a well-established land market, it is generally regarded to have been effective in solving the fragmentation problem and, in later years, adapting agricultural areas to changing market conditions.

This study explores the possibilities for transplanting Western instruments to Central Europe. This is a relevant subject because of the varying expectations among Central Europeans with regard to land consolidation in particular and the consultancy activities by Western European experts. The effectiveness is likely, considering the similarity in goals, but on the other hand questionable, given the particular Central European history of land ownership and the current characteristics. To what extent can Western instruments effectively improve fragmentation in Central Europe? We need to know which of the differences really matter, and how do they affect what instruments to choose and what modifications to make to them.

1.2 History of land ownership in Central Europe

Agriculture is often mistaken for a conservative and static part of economy. Western European agriculture has seen profound changes through modernisation, however, and
Central European agriculture has been completely remodelled several times in correspondence with political views. Farmers all over Europe have been subject to profound changes in right to land since the beginning of civilisation. Prior to the modern individual rights to land, serfdom and aristocratic power over land prevailed. Emancipation of peasant’s rights took place relatively recently. The Habsburg lands (current Hungary, Austria and Germany) for example gave peasants individual rights to land in 1780, Prussia in 1807, Poland in 1850 and Ireland in 1880 (for a comprehensive international overview see Powelson, 1988).

The creation of individual rights tended to call for readjustments and Central Europe typically performed top-down agrarian reforms undertaken by the monarch that excluded peasantry from discussion and envisaged total social change within his lifetime. Especially turbulent is the history of Bulgarian land tenure in which reforming seems to be a constant state since the Turks left in 1879; Turk-owned land first was distributed into private Bulgarian ownership and after that the increasingly powerful Bulgarian Agrarian National Union made considerable land-banking efforts in order to achieve a fair distribution among Bulgarian people.

So, implementation of socialist ideology after World War II in the Eastern half of Europe to some countries represented prolongation of the existing pattern and not a disturbance of a stable situation. It did however isolate it from Western Europe. From then on, the Western part would continue to be capitalist market economies, while the Eastern European countries would choose the Marxist principles as their state model. All civilians should be equal. Individual ownership was to be eliminated as much as possible. Differences in income as well. For agriculture this meant a campaign to expropriate (part of the) land ownership rights that only failed to have success in Poland. Formerly independent farmers in the rest of Central Europe were to become employees of the newly formed collectives or state farms. The success of these campaigns and the character of these new structures differed between the various countries, but generally these were huge farming enterprises, highly mechanised, heavily subsidised and mainly producing bulk commodities. Yet none of the governments could prevent a residue of private farms to persist.

Land was regarded ‘an asset that belonged to the community and as such it should not be in private hands. The acquisition by a few, fortunate landowners of the value which society as a whole has endowed the land with is unjustified. In fact it is an expropriation of public wealth for private gain’ (Dawson, 1984, p. 191). Thus, the Western model land ownership and land value (Burger, 2001) were abolished. The forty year stand still of land’s economic life has faded the institutional and sociological basis of land ownership.

Nevertheless, the current Central European population cannot be qualified as missing any notion of private ownership. The privatisation practice during the 1990s was a clear statement that there had indeed been a tradition of private land ownership that was waiting to be revived. All Central European countries had a land ownership
structure to be reconstructed, often using their Grundbuch\(^1\), sometimes relying on witness evidence. Furthermore, privatisation revealed a public awareness of the importance of private property. This awareness discerns the Central European states from the former Soviet Union states, where the private property concept has no tradition at all (Dekker, 2001). The duration of a pre-socialism tradition of private land ownership, feeding transition processes, in cases was short though, contributing to the present conceptual gap between West and East. Unfortunately, documented evidence on this point is missing.

The iron curtain lasted for four decades. Around 1989 the Marxist system collapsed under the pressure of the discontented population. The reformers wanted a Western-model democratic economy, based on private entrepreneurial structures with profit maximisation as the keyword. The economy had to be privatised; state companies had to be commercially managed; means of production had to be in private hands again. In some sectors of economy, privatisation was a matter of redesigning the legal base of the company. In agriculture, privatisation meant transforming the landscape, rural society and all means of production. Only when the means of production are privately owned, a market economy can evolve.

The core of the privatisation in agriculture is privatising land ownership, being an important means of production, but although that is a prerequisite for competitive agriculture, it proved not enough. Privatisation is just a first step towards a market-oriented economy. It has created a rough starting situation for private entrepreneurs, which needs to be made suitable in many ways. Before private farmers can be expected to be well functioning in a competitive context, a lot of other requirements must be met as well. In Central European agriculture, problems in financing, services, mechanisation, processing and marketing, to name a few, still remain unresolved.

One aspect in creating the right conditions for private farming is reallocation of land ownership. Now that ownership is distributed among private owners, viable agricultural production units have to be created. The current situation is highly fragmented, although tenancy can be a way to create large production units, regardless of the fragmented ownership.

### 1.3 A topical subject

*International aid*

The subject of how to deal with land fragmentation became topical around the turn of the millennium. The United Nations Food and Agricultural Organisation (FAO) adopted the fragmentation-issue and set out to publish a survey, in which the exact nature of the problem in several Central European countries was to be highlighted.

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\(^1\) *A Grundbuch* is a particular type of land registry, which holds a textual description of real estate property (size, location and buildings), the rightful owner of this real estate, special rights or duties attached to the property and a reference-number that corresponds with cadastral maps, but the latter are not part of the *Grundbuch*. 
The actual publication of the survey was seriously delayed, but FAO did co-organise a special seminar on Central European fragmentation and the prospects for land consolidation in Munich, early 2002. The seminar resulted in the ‘Munich Statement’ (see appendix B), in which the congregated experts from all over Europe laid down guidelines for land consolidation activities. The FAO seemingly automatically assumed land consolidation to be the right instrument for the job. This thesis includes other instruments as well. The Worldbank initially seemed attracted to the land fragmentation issue, but actual piloting and research efforts have faded over time and the remaining efforts are closely tied to FAO initiatives.

In addition, several Western European ministries and agencies are actively engaged in improving Central European agriculture, although land fragmentation is rarely highlighted explicitly. The Dutch government provides financial aid through the MATRA program, and so does the German equivalent of the Worldbank (Kreditanstalt für Wiederaufbau).

**European enlargement**

The topicality is mainly a consequence of the enlargement of the European Union, the intention of which was made prominent in Agenda 2000 (European Commission, 1998). Ten Central European countries attained the candidate status in 1994-95. Poland, the Czech Republic, Hungary and Slovenia have been involved in accession negotiations since 1998. With Slovakia, Romania and Bulgaria, negotiations have started in the year 2000. The enlargement was approved of by the Member States late 2002. Enlargement will result in 100 million new consumers, a 50 percent farming-land expansion and a doubling of the agricultural labour force.

The enlargement is a ‘challenge’ for the EU administrative structure, for which enlargement is expected to be seriously jeopardising decision-making (see Senior Nello and Smith, 1998), but especially for maintaining the balance within the Union. The accessing population has an average purchasing power of roughly one third of that of the EU-15 member states. The average GDP per capita in the candidate countries is approximately 40% of the Community average (see Table 1). Over one-third of the population would live in countries with an income per head below 90% of the Union average – the current threshold for eligibility for aid under the Cohesion Fund. In the

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*Table 1: Two economic indicators in 12 candidate countries: Gross Domestic Product per capita and unemployment rates. * levels of 1998: EU15=100%. Source: Eurostat.*
present EU-15, this category covers one-sixth of the population. The imbalance may not only result in social tensions but, regarding the structural problems in agriculture, the costs of the Structural Funds may explode. Several authors (Courchene et al., 1993; Grabbe and Hughes, 1998; Brenton and Gross, 1993) suggest an increase in expenditures up to half the total 1999 EU budget (84 billion ECU) in case of all ten applicants entering. Thus, the main recipients of the structural funds in the EU15 must accept the reallocation of part of the transfers to the Central European countries.

The Central European countries try to synchronise both their rural policy and agricultural economic measures to the Common Agricultural Policy, abbreviated as CAP (reviewed by Rabinowics, 2000; Fearne, 1997; Tracy, 1997), because that would make accession the least problematic. But the EU itself is in a process of remodelling its CAP, as well as its administrative structure. Ironically they are two processes that are partly induced by enlargement itself and are not likely to be completed before accession takes place.

The constantly dynamic character of EU structural policy stems from the implementation of concepts and measures, which met considerable difficulties. In seeking to attain a tolerable fulfilment of one goal, others were overachieved (Marsh, 2000). In its attempt to maintain farm incomes, this price policy resulted in growing surpluses, which had to be exported with subsidies, or piled up in intervention stocks. The consequent costs raised to an extremely high level, especially when compared with the effect of price support on agricultural incomes, and the negative environmental impacts became a growing concern. Market and price policy had grown to absorb most of the budget and attention, at the expense of structural policy and rural development. Measures to directly improve agricultural structures were very limited and dispersed (Ahner, 1999).

The 1992 major reform of the CAP already led to a partial, but significant shift from price support to direct payments. This shift eliminated the production-propelling effect of that the old approach had. Farmers would still receive more than world market prices for their output but now part of farmers’ returns would come from taxpayers rather than consumers (Marsh, 2000).

One of the motives for the current CAP reform is paving the way for enlargement of the Union. Paying direct aids to farmers in the new Member States immediately after accession would put tremendous extra pressure on the EU budget. Not extending direct payments to their farmers would be politically hard to accept. Difficult internal debates will be needed concerning these direct payments.

**Pre-accession funding**

Special pre-accession funds finance the changes needed for accession. There are three special pre-accession programmes (Daman, 2001 gives an overview). One of the first and most extensive programme was PHARE, that has been funding the reform of the Central Europe countries through grant financing since the beginning of the 1990s.
Two of the key areas have been the reform of land administration (Bogaerts, 1998; PHARE, 1998) and the restructuring of state enterprises in agriculture. From 1990 to 1994, PHARE spent 4,283 million ECU in 11 new democracies in Central Europe. In 1997 and 1999 it was modified to meet the requirements of accession and to prepare the countries for the Structural Funds.

The Pre-Accession Structural Instrument ISPA has been funding transport and environmental schemes since early 2000, along the same lines as the Cohesion Fund model designed for the least prosperous EU members. The Special Accession Programme for Agriculture and Rural Development SAPARD has also been in operation since 2000, helping the applicants prepare for the common agricultural policy, in particular for its standards of food quality and consumer and environment protection.

In addition, an existing fund expanded its eligible area to Central Europe. LEADER (short for 'Links between actions for the development of the rural economy') is a support fund for rural areas that was already available for the Member States. It applies to rural areas that are lagging behind in development, are known to be fragile or have a very low population density. LEADER+ (2000-2006) adopted the purposes of Agenda 2000, the latter projecting the enlargement of the European community. The fund prioritises the structural adjustment of under-developed regions, areas confronted with restructuring problems and adaptation of educational policies and systems, training and employment in areas not covered by the first two objectives.

The parallel that is often used, namely that pre-accession funding resembles Support and Cohesion funding, does not hold. The task of 'preparing for accession' clearly emphasises institution building (enabling meeting requirements in EU law, and administering EU money flows). Through so-called 'twinning', candidate countries can gain access to practitioners with experience of actually implementing a specific aspect of the 'Acquis Communautaire' (the European rules of the game). After a period of twinning in a particular field, the candidate country should be in a position to manage that part of the Acquis unaided.

Closing the development gap in one or two decades would be impossible, whether it concerns agriculture, rural development or any other aspect of Central European countries. Accession will mean trading the pre-accession funds for the regular Support and Cohesion funding. The latter funds will have to carry the bulk of the convergence task. The question remains, however, whether EU support policy can lead to convergence. It has taken the three less prosperous Member States of the present Union (Greece, Spain and Portugal) ten years to increase their GDP from 68% of the EU average to 79%. This points toward a very long period of convergence for candidate countries. Baldwin (1994) made a number of estimations, indicating a 22 year period for Poland to catch up and 26 years for Slovakia, to name a few. However, the rapid growth of Ireland's GDP from 70% to 114% of the EU average in the past ten years is an encouraging indication that convergence can also take place much faster.

The progress of Candidate countries in the development of the legal and administrative framework is recorded each year in the Regular Reports. These reports cover all areas
of the Community Acquis. Each chapter includes a description and an assessment. Eventually, the assessment is made on a number of economic and political reasons. Chapter 21 deals with 'Regional policy and the co-ordination of structural instruments'.

1.4 Subject of study

Position on time scale

The developments in land ownership in Central Europe can be discerned in three phases; collectivisation, privatisation and facilitating private farming. All three have interesting relations to land ownership. This study concentrates on the third phase; creating the right conditions for commercial private farming, acknowledging the ongoing importance of the preceding two. Collectivisation and privatisation are involved as far as they directly influence current developments, but they are not the prime subject of this study. In fact, the first two phases are already covered by a host of scientific publications. Experts in this field are Pryor (1992) and Meurs (1995), having studied the collectivisation phase in great detail. The privatisation phase has been the subject of many studies of the Policy Research Group in Leuven, lead by Swinnen (for example Swinnen, 1997) and Csáki (World Bank). These works ensure a sufficiently strong base for focussing on the future.

The third phase, facilitating a market economy, is currently in progress. The process has been closely studied and has generated a large literature (Davidova and Buckwell, 2000; Lerman, 2001). The specific subject of land fragmentation has received fairly little attention in scientific reports, though. The studies from OECD, FAO, World Bank and EU-funds are mainly aiming at other requirements for agricultural activities, like land registry (Bogaerts, 1997; Bogaerts et al, 2002), rural financing (Csáki and Lerman, 1999) and the processing industry (OECD, 1999; Hobbs et al, 1997). The general tendency among agricultural economists might be that the market forces will resolve the fragmentation problem. The current topicality appears to lag behind the attention that other aspects of transition received.

One might argue that studying land consolidation is useless because of the problems in the privatisation stage. Indeed, in a number of Central European regions, the privatisation process is facing enormous problems. In certain territories the process is in a deadlock, leaving ownership structures unresolved. Despite the urgency, this thesis assumes that privatisation will be completed eventually. The main consideration is that it would be far too pretentious to think that Western European researchers would be able to resolve the Central European privatisation problems. We have to bear in mind that the choice for the applied privatisation mechanisms was a political one. It often has meant years of fierce debate in parliament. The Bulgarian Law on privatisation of land for example, has known numerous amendments. Clever solutions that perfectly

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3 Sonnenberg (2000) proposes to combine restitution and consolidation. In that case you design a totally new parcelling (irrespective of the 1948-situation) using the list of rightful owners.
make sense in a scientific perspective can be useless in a political and social perspective.

Geographical limitation

Throughout literature, the reference ‘Central Europe’ may have several geographical definitions. It is commonly used in combination with ‘Eastern Europe’, which nowadays refers to a more eastern region than before 1990. Eastern Europe is a generally agreed label for the newly independent states that used to belong to the Soviet Union, like the Ukraine, Moldova, Kyrgyzstan and Belarus. The Baltics (Estonia, Lithuania and Latvia), although former constituents of the Soviet Union, are either treated as a separate group or considered to be part of Central Europe, probably because of their EU-accession aspirations. However interesting, the Baltics are not considered any further here.

Of the countries locked between Western Europe, Eastern Europe and the Baltics, some tend to fail completely from comprehensive Central European analyses. Yugoslavia of course due to successive wars, but also Albania is generally left out in overviews on Central European developments, as is Slovenia, although there are thorough individual studies on the latter two. This thesis adopts the common, narrow geographical definition of Central Europe, namely Poland, Hungary, Slovakia, the Czech Republic, Romania and Bulgaria.

Perspective

This study explicitly involves the Western knowledge, under the – to be debated – assumption that Western experience on similar problems can be useful in Central Europe. Both halves of Europe share a long common history, abruptly ending after 1945, but nevertheless ensuring similarities in land-ownership concepts, land registry, state organisation and agricultural practice. Furthermore, climate, landscape, and subsequently agricultural land use in general are not principally different at both sides of the former ‘iron curtain’.

Therefore, one would tentatively say that there is no need to re-invent the wheel, because the problem and goals are in essence similar to those in Western Europe. This is the starting position for this thesis. Indeed, Western European governments have also faced severe fragmentation problems in the past, from which specific instruments emerged throughout the region. Using Western knowledge in Central Europe seems a logical step. Already, Western teams of experts manage pilot projects (for example the TAMA-project in Hungary: Kneib et al, 1999), some using money from one of the EU rural development funds, like PHARE or SAPARD.

Analysing the possibilities of applying Western European instruments in Central Europe can be done from an operational or a strategic perspective. On the operational level, we are confronted with issues that set challenges to the actual implementation of an instrument. Here, the farmers and local conditions are important. The width of
these issues may vary, depending on which detail or instrument it concerns. The development and implementation of a land registry for example has revealed how important local conditions are (Osskó and Hopfer, 1999). On the strategic level, a Ministry of Agriculture has to set priorities on fighting fragmentation. An analysis of the agrarian sector is confronted with an overview of alternative solutions. Furthermore, solutions for fragmentation consist of instruments and facilities that help autonomous improvement. Instruments result from an explicit aim in governmental policy and can comprise specific financial backing, organisations and legal arrangements. The second group aims to create the right environment to allow spontaneous processes to result in improvement. In this case, goals are rarely explicit and effectiveness is hard to assess.

This thesis primarily has a strategic and instrumental perspective. For the specific and complicated case of land consolidation and for land banking, operational issues are analysed as well. This study does not aim to investigate the wide societal and political framework assessing the decision to intervene in agriculture, like Van den Brink (1990) and Andela (2000) did for the societal forces shaping Dutch agricultural structural policy and the landscape and the land consolidation procedure respectively. For the German history of land consolidation amidst changing societal forces, the dissertation by Schlosser (1999) can be consulted.

Research question

The research question can be formulated as follows:

It can be considered putting the popular hypothesis 'Central European agriculture is fragmented and so they should start land consolidation projects' through the test. Subquestions that need to be addressed are:

- why is Central European land fragmentation a problem and to whom?
- what are the most important chances and drawbacks for fragmentation-reduction?
- what instruments for reducing fragmentation have been applied in Western Europe?
- which of the Western instruments can contribute to decrease fragmentation of land use in Central Europe? Which instruments in what cases and with what modifications?

Complex embedding

The fact that this thesis is confined to the land fragmentation problem does not mean that the thesis claims it to be the only or the most important problem of Central European agriculture. Central European agriculture is facing a vast complex of
problems. Within this complex, interrelations are plenty. Because of the large number of problems and their interrelationships, no hierarchy can be made among them. They are all links in a chain and each link in itself can cause the chain to break.

For a farm to be able to flourish, four means of production have to be present (also see Sabates-Wheeler, 2002), of which land is only one. Another prerequisite is machinery and buildings. These assets, which were present before the transition, have to a large extent become useless. They are not suitable for family farming, are owned by the wrong persons, or are not operational anymore due to lack of maintenance.

A third prerequisite is rural financing, which is closely related to buildings and machinery since it allows investments. Rural financing is needed when newly starting a farm as well. Banks are not keen on giving loans to farmers in distress. The financing problem is related to the inflation rates, which were very high just after the transition. Inflation causes the profitability of farming to fall, since consumer prices drop together with the purchasing power. But prices for inputs (fertilisers, seeds, pesticides) raise disproportionately. This effect is know as a ‘price scissors’, leaving less income for the producer. Inflation also causes banks to be on their guard since the assets purchased by the lent money decrease in value. Thus, conditions are demanding and interest rates are high.

And as a fourth factor, knowledge is essential. It takes managerial skills to run a modern farm. Knowledge of accounting, planting techniques, sanitary prescriptions, economic optimisation and the operation of machines must all be combined in one person. The Western farmers are not born with this knowledge either. The Dutch government, for example, has invested heavily in (voluntary) courses, lectures and demonstrations in order to distribute new insights as efficiently as possible. Historical developments have caused the Central European farmer to lag behind and effort has to be made to catch up.

Apart from the means of production, it is crucial that agricultural products can be properly put on the market. A whole new marketing structure, fitted to private farming, has yet to be put in place. Especially milk, vegetables and fruit are highly susceptible to loss of quality when inadequately stored and distributed. Infrastructure is needed to allow efficient transport of produce to processing industries and consumer concentrations.

And we can ask ourselves whether EU support money is not far more decisive for a farm’s financial position than the efficiency of production and marketing. So, land fragmentation is one out of many parameters that need improvement.

1.5 Research design

Methods

From the start, a rigid, quantitative research method – like surveys and experiments – was not considered to be an option. It was clear beforehand that the Central European land fragmentation issue would eventually appear to be more complex than the
preconceptions suggested. The boundaries between the subject and its surroundings are hard to define and the interrelations between factors play an important role. In addition, a rigid approach would trigger misinterpretation of phenomena that seem to be clear to the researcher, but in fact have a hidden layer.

So, the method had to allow room for adjustments resulting from new insights gathered during the research. These requirements clearly ask for a case study approach (see Hutjes and Van Buuren, 1992). According to Yin's (1989) definition, a case study addresses a contemporary phenomenon embedded in its context, in which the researcher does not take part and on which the researcher has no influence. This thesis has been executed using Yin's classic as a guide. Although by some considered as 'soft' because of its qualitative approach, it is the best way to endeavour in complex matters of which the complexity is yet to be experienced.

The focus of this thesis is the land fragmentation in Central Europe and the complications for applying Western European experience to improve this situation. However, as chapter 3 demonstrates, every Central European country has its own unique history and consequent land-related problems, and Western European countries are equally diverse in their fragmentation-reducing activities. Does this thesis include this entire variety? For the time span of a thesis like this, it was obviously too extensive to study all Central and Western European countries. A choice had to be made between the depth of the study and the comparative possibilities.

The number of countries involved in the study has been limited, however with the intention to derive more generally applicable statements. Instead of finding a solution for fragmentation problems in a set of countries, the thesis derives relationships between the problem and the solution. This way, it stays relevant also when problems change and it could even be meaningful for countries that have not even started their transition. Yin warns not to consider a case as a sampling unit. Generalisation of case study results should be done through 'analytic generalisation'; generalising to theoretical propositions instead of populations and universes.

Reference is made to other sections where you can find the basic constituents of case study research (Yin, 1994), namely the research question (1.4), propositions (1.4, 2.2, 2.3), units of analysis (2.1), links between data and propositions (2.5) and criteria for interpretation (2.5).

**Information sources**

The information used for this thesis is not original field information, like in surveys. The research question is too broad to allow such effort. For overviews of an array of countries, the thesis relies on papers and articles from academic literature, preferably of local experts, as well as statistics. For the case studies, literature and statistics is supplemented by information from interviews with local experts, preferably experts (see appendix A) that were interested in questions similar to the (sub)questions mentioned here.
The interviews were not structured according a fixed list of detailed questions, for this would collide with the desired incorporation of new insights and relaying of presumptions, and others (for example Creed, 1998) find that tight interview techniques may be contra-productive. Instead, I brought forward the research questions, which typically lead to an animated discussion to which the expert contributed elements coming from his or her specific position or knowledge. The interviews in general are quite subjective, and in this specific case they were limited in number and selective. Information from interviews was mainly used to determine which direction the core of the problem and suitable solutions may be sought. Therefore, corresponding deduction and statements from literature were collected and used. Part of the documents can be classified as primary literature, but in most cases secondary analyses were used.

Statistical information from Central Europe represents a particular problem. First of all, these statistics are difficult accessible, because printed in a different language. The easiest way out is to use tables that local researchers have published in scientific texts. Second, statistics are hardly ever collected in a pace and a level of detail that this study requires. This hampers accurate analyses of the present situation. Thirdly, statistics should be treated with caution. Figures may give a wrong impression about the actual situation. Farmers can give a wrong impression of their situation on purpose, in order to receive more subsidies. Furthermore, definitions of certain data may change over time or be vaguely defined. A good way to avoid all three problems is to check all findings with interviewed researchers.

Selection of case study countries

The comparative character of the study leads to choosing a limited set of countries. Depending on the subject of study, comparative case study research can consider cases that are typical to the group, critical cases, or extreme cases (Hutjes and Van Buuren, 1992). Because of the internal variety of both regions, the choice was made for couples of cases that contain maximum diversity, although it cannot be denied that personal preference, information availability and language barriers have affected the choice as well.

From the Central European region, Hungary and Bulgaria were studied. They are opposites in terms of collectivisation history, privatisation history and general economic development (for example see Dingsdale, 1999). The EU accession policy underlines this difference, for Hungary can join in 2004 and Bulgaria not before 2007. Poland is interesting from the fragmentation point of view, but Polish fragmentation does not result from privatisation. The Czech Republic and Slovakia are also rejected for further analysis because private farming is of relatively low importance (see section 3.3).

Hungary is an interesting case on one side of the spectrum, representing the only country having applied compensation and one of the most Western oriented in the region. The three remaining Central European countries to choose from, i.e. Albania,
Bulgaria and Romania, form a distinctive group in a number of respects (Dingsdale, 1999). Albania is not suited because of the unstable political situation in the region. Romania has the drawback of being too extensive to study as one country, as well as being known for relatively little initiatives with respect to improving agriculture (Rembold, personal comment). Bulgaria is active in this field and was therefore selected to be studied as a contrast for the Hungarian case.

The Western European countries in this study are the Netherlands and Germany. The availability of information is guaranteed in nations with a long-standing history of land consolidation playing an important role in the development of the country. In addition, in a quick-scan, the Dutch system showed important discrepancies to the French, German and Swiss system, mainly because of the more authoritarian initiation, combined with a democratic execution in case of the latter three. Language considerations eventually led to the Dutch-German combination, and excluded Scandinavia, the Iberian Peninsula and Italy from being studied in more detail.

It is not claimed here that these two case study countries are representative for all fragmentation-reducing activities ever practised throughout Western Europe. There may indeed be systems in other countries that are less commonly known but very well fitted to the Central European situation, systems that by the choice explained in this subsection remain unmentioned in this thesis. However, these two case study countries do reflect the already existing interest of Central European institutions, that in their explorations tend to be mainly consulting Dutch and German experts, where land fragmentation is concerned.

Within Germany, the Freestate Bavaria traditionally has been at the forefront of German land consolidation. It has certainly made the most extensive effort before the 1970s (see Figure 1). The Bavarian system therefore is analysed.

![Diagram](image)

*Figure 1: Data showing the ratio between land that were considered to need consolidation and land that already is consolidated in 6 German Länder; comparison of the 1951 and 1975 situation.*
2. Conceptual framework

2.1 A four-fold definition of land fragmentation

The concept funnelled

The word ‘fragmentation’ plays a pivotal role in this thesis, which generates a need for elaborating on a definition. Strictly speaking, fragmentation is derived from ‘fragment’, which in general refers to an incomplete part, or a piece that is detached or isolated from a whole it originally belonged to. The general definition thus hints on a situation that is not desirable. A fragment is of little use on its own. There is an implicit urge to reunite it with the whole.

Fragmentation refers to the process of breaking into fragments as well as an instance (a fragmented situation), of which the second meaning is more common. The opposite process, of combining several fragments into one whole again, is referred to as ‘consolidation’. Fragmentation can refer to various entities in every day life. An archaeologist may find a fragment of crockery. Your personal computer may occasionally indicate that its hard-disk needs defragmentation. And fragmentation of habitats is considered a threat to biodiversity.

This thesis focuses on agricultural land. Sabates-Wheeler (2002) pleads for avoiding the focus on land alone. She argues that any of the means of production (machines, labour, capital, land) can be fragmented, in each case strongly impeding a viable and sustainable exploitation of land. Improving agriculture must exceed the land-related problems. These arguments are certainly valid, but land has traditionally been subject to government interference, since land hardly responds to market forces. Unlike machines, labour and capital, land is immobile, emotionally burdened, exclusive and affected by high transaction costs. It therefore deserves a closer look on how to improve its distribution and structure.

Still, even the more specific ‘land fragmentation’ has multiple dimensions. The variability of terms like this is a complication for comparative research in general (for instance, see the introduction of EU, 1997). What aspect of land is fragmented? Land can be described by many characteristics that affect its quality. For agriculture, factors like fertility, drainage and porosity are important, but cannot be fragmented. The sand that gives body to the soil technically speaking is fragmented rock, so all land carries some fragmented aspect.
Fragmentation of land generally refers to (i) the parcelling or (ii) the legal claims on land ('tenure'). The parcelling is a physical characteristic, an aspect that people can see. In the landscape, hedges, ditches, fences or adjacent crops mark the boundaries of the physical units in which land use is structured. The legal claims are an invisible layer consisting of the ownership and tenancy rights that are established on a parcel. The visible and invisible parcelling largely coincide in a region where owners-users dominate, but they theoretically can be totally different. So, land can be viewed with a physical and a legal inclination.

In addition, we must be aware of the levels of scale on which fragmentation is considered. In fact, fragmentation has a fractal geometry, as Olff and Ritchie (2000) demonstrated for habitat fragmentation. In fractal geometry, when we enlarge a detail of a shape, it will look approximately the same as the entire shape, like in river systems. The scale on which land tenure\(^3\) is analysed determines what we must see as the 'whole' that the fragments come from. A land user takes his farm as his reference. Then the 'whole' is the farm. Fragmentation then represents the number and dispersion of parcels of that farm. A policymaker might consider the region to be the 'whole'. When the policymaker uses the word 'fragmentation' he might very well talk about small farms, instead of scattered parcels.

**Four definitions**

So, fragmentation is a word that is obviously subjective to the interests of the person that applies it. Even in a group of people who are all talking about agricultural structure, fragmentation may have very different meanings. Surprisingly, no publications on land fragmentation have been found with attempts to formulate a definition.

In this thesis, four definitions are used, three of which are schematically represented in Figure 2. Ownership fragmentation was a popular way of painting a picture of Central European agriculture in the early 1990s. At that time, the privatisation agencies provided such statistics, and generally these figures were the only statistical information available on agriculture. But ownership alone does not give a complete image of fragmentation, because that do not always correspond with the functional parcelling of the landscape. The actual use of agricultural land may be quite consolidated through tenancy. As we will see in section 3.3, the land use structure can be much better than the ownership statistics suggest, which especially is the case in the Czech Republic, Slovakia and to a lesser extent Hungary. Privates or enterprises have succeeded in

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\(^3\) A condition, form of right or title, under which (especially real) property is held. Comprises land ownership, tenancy (land lease) and the intermediate type: leasehold. Both its judicial as in its social implications are variable. Up until colonial times, almost everywhere outside Europe land itself was not considered tradable, at least not regardless of the rights of the community (De Moor and Rothermund, 1994). The present day world-wide array of exact legal arrangements concealed in these words is enormous (Bruce, 1998; Currie, 1981; De Soto, 2000). For an overview, see Grossman and Brussaard (1992) or Ravenscroft *et al* (1999).
acquiring tenancy on large amounts of leased land, typically hundreds of hectares. In other cases, like in Romania, private landowners join forces and form family associations.

So, besides fragmentation of ownership, the **number of users** (or the size of use-units) is a second type of fragmentation. The use situation, as said, is visible in the landscape, although you cannot tell if a fragmented parceling points to small farms or fragmented farms (the German language calls the latter ‘Zerstreung’, opposed to ‘Zersplitterung’ that refers to a high density of land users and the consequent small farm size). The overlap between these land users and landowners represents owners that at the same time are users, i.e. the share of owners that are using their land themselves.

A third type of fragmentation is the number of parcels exploited by each user. This is the fragmentation within a farm. **Internal fragmentation** has traditionally been the main subject of Western land consolidation experts who tried to demonstrate the importance of land consolidation. Internal fragmentation not only considers (i) parcel size, but (ii) parcel shape and (iii) parcel distance as well. Models have been made that proved that decreasing the distance of parcels to the farm saves time (Reinds, 1962; Reinds, 1970; Maris, 1960; Van Gelderen, 1968), a better parcel shape raises yields (Righolt and Van Hemert, 1971), and increased parcel size both saves time and raises yields (Righolt, 1962). Although the exact numbers that followed from the referred studies no longer apply today, the causal relationships they demonstrate do. For more recent datasets, see Coletta (2000).

The literature on problems in Central European agriculture tends to ignore the internal fragmentation, although the internal fragmentation is locally severe in Central Europe. Statistics on the situation are few and unreliable, though. Apparently, the problem is not felt to be the most urgent. That is logical to some extent. Reallocating the 10 parcels of a two-hectare farm still does not enable the farmer to make a good living. And the surveying and transaction costs will be relatively high. (Surprisingly, this imaginary reallocation improves efficiency very strongly in proportionate terms, far more than joining 10 parcels of a two-hundred-hectare farm.)

If the **overlap of use and ownership is small**, another fourth potentially problematic

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**Figure 2:** Schematic representation of three types of fragmentation. In addition, this thesis discerns internal fragmentation as well.
situation occurs. A small overlap means that tenancy is playing an important role in agricultural land use. A certain percentage under tenancy is desirable to allow farms to change size in a cheap and flexible way, so we cannot entirely do without tenancy (De Haan, 1964). However, analyses on Central European land markets, for example in Schulze (2000) and Swinnen (1999) as well as economic theory (Currie, 1981), suggest that land use that largely depends on tenancy suffers important drawbacks. We thus have four types of fragmentation: (1) number of owners, (2) the number of users, (3) the number of parcels per farm, and (4) the discrepancy between ownership and use (see Figure 2). This implies that reduction of fragmentation occurs by definition when the number of owners and/or users declines, the number of parcels per farm falls and when the share of owners that use the land themselves raises.

2.2 Practical implications for farming

The instruments mentioned in the research question intend to result in a reduction of fragmentation. This presumes that fragmentation is something negative. Is this qualification right, and if yes, why is fragmentation negative and to whom?

Positive effects

Let us start with some positive sides of fragmentation that are certainly present. For the ecological value of the landscape, as well as its scenic beauty, the benefits of fragmentation are obvious and generally acknowledged. But sometimes we forget that fragmentation can be a benefit for farmers. Arable farming enterprises are helped by some dispersion of parcels because it reduces risks. Especially arable crops, like grains, and soft fruit can be destroyed in a short time by climatic events. Due to unexpected or extreme variations in temperature or precipitation, the work and input investments of a whole growing season can be erased. Hailstorms, drought, flooding or (night) frost are known to be destructive. Diseases can strike equally local and disastrous. When the farmland of one farm is divided into a number of parcels that differ in topology, it is to be expected that the risk of disasters also varies. The chance that a hailstorm or disease will destroy the entire crop in one growing season is small in a fragmented situation. From this perspective, the disadvantages described below are an investment in income insurance.

Also in mixed farming and the dairy sector a number of activities need spatial separation. For mixed farming, separate parcels are used for crops and for cattle. Simply because these forms of land use cannot both take place on the same parcel. A dairy farm, that may look more homogeneous in land use, also divides its different activities. Pastures that are only used for mowing and collecting grass for winter food purposes are distinguished from the meadows where new born animals are raised until they start giving milk and finally there are grazing grounds for the adult cows. These different activities need different conditions. For mixed farming this applies to the
moisture of the soil. Here, hilly and mountainous areas will result in a strong segregation of activities. Fodder crops will be best suited for the moist valleys, arable crops against fertile slopes and animal grazing will be found on the higher ground. For dairy it mostly depends on where it is situated relative to the farm itself. The spatial spreading is not a prerequisite, but when present it can be fitted into the farming system. Dairy in the Swiss Alps is known to have a specialised farming system, sequentially using valley, slope and mountain pastures. Simply because not all the land is available year round.

From a strategic perspective, land use fragmentation is negative because of its impact on rural income. On the other hand, it keeps people in rural areas that, in a more consolidated situation, would have to make a living in the cities. They would have to find employment and housing, thus causing social tensions and a potentially big problem to the government.

We thus can conclude that fragmentation can be desirable to a certain extent. It gives a decline of risk for arable crops. And spatially separated parcels can be part of a farming system as well. Insurance contracts nowadays largely replace the relevance of fragmentation for risk reduction.

**Disadvantages**

Let us use the four types of fragmentation to categorise the disadvantages of fragmentation. Ownership fragmentation is not a problem in itself. The land registry might experience some practical complications, for instance when the law requires even very tiny ownership parcels to be physically marked in the field, but they are not of direct societal importance.

Disadvantages of fragmented ownership are indirect, since they trigger a gap between ownership and use of land. The most obvious drawback is that leased land on the long term is more expensive to use than owned land. Data sets from several countries show a tenancy rate some tenths of the selling price. Another drawback is that leased land cannot be used for mortgages, hampering investments in machines and buildings. Furthermore, the lack of legal tenant-protection results in insecurity of the mid-term continuity of a farm. As Low noted more than one and a half century ago: 'If a farmer cannot look to the future with security (…), all great improvements, but even the most common works of the season [will] be imperfectly performed. If we shall deny to the farmer that security of possession (…) we may rest assured that his capital will be sparingly expended on another man's property.' (Low, 1844, p.9).

Fragmentation in terms of small use units decreases the income that the farmer can make with his land. The size of a land-use unit restricts the maximum volume of produce that the unit generates, which in turn limits the income of the farmer. This limitation to the income is obviously a disadvantage to the farmer himself, although he may have the possibility to choose for more intensive land use (like labour intensive crops) or additional off-farm income. Regardless of the limited farm production, in case each farm is physically separated from others by fences, ditches or hedgerows,
these elements, together with infrastructure amount to a loss of productive land which is much higher than in large-scale landscapes. Small farms negatively affect productive acreage and the land/man-ratio.

The disadvantages of internal fragmentation were highlighted in the Western European large-scale campaigns on fragmentation reduction. In the early days of land consolidation, scepticism had to be fought by hard facts. However, hard facts of successful land consolidation projects in practice were not yet at hand. Theoretical and empirical case studies were conducted in order to gather evidence in favour of land consolidation. Practically speaking, the total length of parcel borders increases with fragmentation. Apart from the land loss by separating elements, parcel borders generally receive less fertiliser and pesticides, and they are more susceptible to wind damage and drought. When parcels are far apart, the time and fuel involved in travelling is another disadvantage. Parcels at greater distance are generally cultivated less intensively. Internal fragmentation negatively affects productive acreage and efficiency (Figure 3).

In essence, land-use fragmentation (both internal and regional) negatively influences the costs and volume of production. Production costs and volume are related to the parceling structure as indicated in the scheme above. Originally, sufficient food supply against low consumer prices was the primary reason for Western governments to intervene in agricultural structure, since it was a prerequisite for urbanisation and thus outgrowing the agricultural society stadium. The governments were confronted with private property rights of farmers.

Raise in income was and still is the main motivation for farmers to participate in land consolidation. Fully understandable in a market economy, when you pay for it, you also have to benefit from it. Later on, oversupply in agricultural produce emerged and farmers’ incomes became the main drive for fragmentation-reduction. In order to improve the income of the farmers participating in land consolidation, production costs should be decreased and production should be increased.

In this thesis, the negative sides are considered to outweigh the positive aspects. The globalising economy and enlargement of the European Union can be expected to further aggravate the importance of the disadvantages.
Importance for distinct categories of farms

Central European land users, as we will see later (section 3.3), can be divided into three groups, with varying nature and urgency regarding fragmentation. The first group is the vast number of subsistence farms, hardly ever measuring more than one hectare. These farms are not market oriented and in fact represent a social poverty problem, as Frenkel and Rosner (1999) and Creed (1998) clearly show for the Polish and Bulgarian situation respectively. Subsistence farming is a survival strategy that is triggered by unemployment and that can be expected to disappear when economic recovery occurs, a factor which may explain the surprising persistence signalled in a recent overview by Kostov and Lingard (2002). Fragmentation is not an urgent issue for this group of farmers. Fragmentation within these farms (connected to farming efficiency) is an unimportant limitation compared to farm size. And farm enlargement is not desirable to them, because of non-land constraints.

Besides the subsistence farms, there is a second group, consisting of companies that farm on numerous small rented plots. They are partly old co-operatives that changed their formal constitution into a commercial one. Many small producers still regard various forms of agricultural co-operation as a means of increasing access to capital, consolidating land, raising productivity and improving conditions to agricultural workers (Brooks, 1993). Collective organisation has the potential to bring real benefits to peasant producers indeed, but history shows that it does not under all conditions. In these companies, the land use is typically detached from land ownership. Solving internal fragmentation would not be useful regarding the mid-term insecurity of tenancy. And farm size is not a threat to viability, since these enterprises typically are quite extended.

The third group is the most interesting for this study. This group consists of the private farmers that succeeded in acquiring enough land and machinery for a level of production that justifies commercial farming. They might be the promise of a prosperous private commercial agriculture. For them, consolidating land ownership has a direct advantage in terms of raise in income due to higher production against lower costs. This group has parallels with the family farming structure that dominates Western Europe. That is why generating solutions has special relevance for this group.

2.3 No fixed threshold

Yet this still leaves us with the question when – under what conditions and to whom – fragmentation actually is a problem. Can we precisely calculate a threshold that marks the difference between ‘fragmented’ and ‘OK’? Looking back to the general definition of fragmentation at the beginning of this chapter, we again encounter the problem of what is ‘whole’. For the archaeologist, it is clear what is a whole vase and what is a fragment of a vase. With land, this question is far more complicated, because there is no narrowly definable line between ‘whole’ and ‘fragment’.
Fragmentation is not a matter of black and white, but a grey area of increasingly limiting operational disadvantages, the nature of which depends on the type of fragmentation. The more consolidated, the less important the disadvantages become. However, no farms will ever be completely free of restrictions. There always are restrictions, some related to land and many related to other means of production. But not every restriction is a problem. What made Western governments, that invested heavily in dealing with fragmentation, to decide upon action?

There seems to be a specific trigger that makes it urgent. In post-war programs from Western governments (for instance Hofstee, 1956), the essential argument for intervention is parity between urban and rural standards of living. If (i) the standard of living in cities is considerably higher than in rural areas, (ii) rural residents are aware of this difference, and (iii) land fragmentation is believed to contribute to this difference, then fragmentation is a problem to farmers and regions.

This problem-definition argues that no fixed figures are at hand with which a region can be assessed on its fragmentation. We cannot derive that a farm is not viable below, let’s say, 4.21 hectares. The parity issue is a matter of balance. A booming industry and service sector in the major cities (like we currently see in Warsaw) demand large farms to reach a comparable standard of living for rural dwellers. So, the threshold for the fragmentation problem to an important extent depends on the prosperity in cities. In addition, many other factors than land fragmentation alone determine the farmers’ income (see Hughes, 2000 for case studies). For example, on a 4 hectare, 10 parcel farm the income can be acceptable when produce is of high value (either due to its market value per unit, like in horticulture, or due to its quantity), inputs are cheap and marketing channels fit small-scale farming. Under conditions of a ‘price scissors’ and unsuitable marketing, however, that same farm could be far from viable. In the former situation, the threshold for calling a situation a problem would be above the actual situation. In the latter, the threshold would be below.

The disadvantages of fragmentation – food production and rural incomes – have varying impacts on the various administrative levels. On a regional level, considerations of income can be an important reason to ask for support from the national government. The national government will be susceptible for parity in income and also for national food security and agricultural exports. Food security is not a problem in Central Europe, but export of agricultural produce can be of national importance. Especially for Bulgaria and Romania, the favourable natural endowments (warm climate, fertile soil) are the main economic asset that as such must be exploited. The presence of major non-agricultural assets could have eased the urgency of fragmentation. On another level up, the European Union neither wants additional agricultural surpluses or rural poverty. This paradox is will remain a heavily debated complication to the current accession process. On a global level, in the light of a growing world population, all loss of production may be regarded as a problem, but fragmentation is only a minor impediment to world food production.
2.4 Instruments and public policy

The second keyword in this thesis besides the potential problem named fragmentation, is ‘instrument’ – a tool for dealing with a certain problem. Instruments are not considered here in the physical sense (like surgeon’s instruments) but, in accordance with the nature of the fragmentation-problem, as the means to execute public policy. Instruments in the context of this thesis relate to public policy and therefore to politics, all being complex matters that need some elucidation here. It is not easy to give a clear picture of these phenomena without simplifying. Compared to the in section 2.1 observed scarcity of attempts to define fragmentation, the number of definitions and typologies for instruments, policies and politics that the extensive public-policy literature provides is almost monumental.

Instruments for public policy are categorised by their legal, financial or communicative nature (Bressers et al, 1990). Legislation and financial instruments may aim on stimulation or retention. Stimulating instruments are legal duties or subsidies for desired activity. Retaining instruments are forbidding by law and giving fines. In many cases, all three types are combined in one package. A policy against the use of cellular phones in cars may imply changing traffic legislation, ticketing people that refuse to call hands-free and broadcasting commercials in which safer telephoning is promoted.

This thesis concentrates on packages of instruments. Reducing fragmentation may be helped by less apparent instruments, for instance a slight change in inheritance legislation or a reduction in transaction costs. Strictly speaking, these are instruments, but their exact goals and effects are hard to determine. As chapter 6 describes, Western Europe has faced a drastic modernisation in its landscape particularly by using packages of instruments with legal procedures, large sums of subsidies, special agencies with trained experts and extensive promotion campaigns. In the conclusive chapter to this thesis, some reflection is given on this choice and the value of more subtle instruments in dealing with fragmentation.

Instruments are subject to policies; a way of planning that can be observed in every organised society. They affect convictions, principles and interests and need concentration of power (Kuyper, 1984). Public policies may deal with a wide variety of substantive areas – defence, foreign affairs, education, welfare, police, highways, taxation, housing, and so on. They may range from the vital to the trivial.

There are several models of how politics generate policy (Dye, 1975, Dunn, 1994). Some consider governmental institutions the most powerful entity in the system. Others regard politics as the struggle among groups, being the essential bridge between the individual and his government, provided that the public is well-informed in how politics works (see House, 1981 and Dunn, 1994). The political system arranges compromises and balances interests. The equilibrium carried out in the policies is determined by the relative influence of interest groups. Public policy may also be viewed as the preferences and values of a governing elite. Another example is the conservative model called incrementalism, which considers existing programs, policies and expenditures as a base. Attention is concentrated on new programs and policies.
Figure 4: Schematic image of what instruments are. They can be categorised in three types and are applied in order to execute public policy. Public policy, in turn, results from a cyclic and interdependent relationship with the political system and the environment. 

After Dye (1975) and Forester (1993)

and on increases, decreases or modifications of current programs. Goodin (1994) argues that pure incrementalism means refusing to think at all. The research method of this thesis relates to the so-called rational policy model. To select a rational policy, policy-makers must (1) know all the society’s value preferences and their relative weights, (2) know all the policy alternatives available, (3) know all the consequences of each policy alternative, (4) calculate the ratio of achieved to sacrificed societal values for each policy alternative, and (5) select the most efficient policy alternative. The thesis seeks to provide part of the required information for weighing a fragmentation-reduction policy. It is acknowledged, however, that in reality constraints of time, intelligence, and cost prevent policy-makers from identifying the full range of policy alternatives and their consequences. Most policies are a combination of rational planning, incrementalism, interest group activity, elite preferences, systemic forces, competition and institutional influences (Dye, 1975; Fisher, 1998).

A recurring framework in theory on public policies is the triangular relationship (Figure 4), between the environment (wealth, urbanisation, economic system, inequalities), the political system (constitutional type, party system, power structure, interest groups) and public policies (on one of the various societal aspects mentioned before). These three entities all influence each other, as is depicted by the arrows in the scheme.

In this thesis, not all these relationships are taken into account. Keeping in mind that this thesis focuses on the match between Central European fragmentation and Western instruments, this means that it assumes that fragmentation-reduction is adopted in public policy. Thus, this thesis does not judge on whether fragmentation should be a matter of public policy, nor on whether the political system fails to give fragmentation the political attention it may deserve from a scientific point of view. The role of the characteristics of the political system is therefore further ignored here. In addition, the scheme suggests that the environment and public policies affect each other. This may be true when public policy has already been implemented, but in the case of Central European fragmentation, there is no active public policy yet, which makes this relationship unilateral.
2.5 The framework – structure of the book

How do the issues presented in this chapter relate in this thesis? It is obvious that they all are relevant. And we have seen how wide and complicated their definitions are, but it is yet to be explained how they blend, thus allowing the information to lead to a conclusion in a scientifically acceptable way. As the structure of the book directly articulates the framework, both are depicted in Figure 5 and elucidated here.

The material for the derivation of a Central European problem definition is collected using the types from section 2.1 as a measure. The assumption that fragmentation deserves to be addressed, given the methodological complications (section 2.3), is not tested explicitly. The general Central European overview of fragmentation (Ch. 3) illustrates the diversity in guises of fragmentation and their emergence. In two case studies (Ch. 5) the core of the problem is sought, enabling a thorough assessment of alternatives; solutions that do not merely address the symptoms. In the case studies, special attention is paid to private farming, because fragmentation is found to be the most acute to this group of farmers (section 2.2).

The material for the analysis on instruments – package instruments in particular (section 2.4) – and their targets is structured as follows. The thesis makes an inventory of instruments for improvement of farming structure that have been applied in Western Europe in Chapter 4. The instruments are analysed in more detail in terms of their targets and prerequisites in the case studies of the Netherlands and Bavaria (Ch. 6). The underlying assumption is that spending government money on fragmentation-reducing instruments is in principle legitimate since the economy and rural welfare will

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Figure 5: Schematic image of what information is collected and how it relates to the conclusions. In each box there is a reference to the chapter that contains the information or analysis.
be positively stimulated. The challenge of the thesis lies in the confrontation of problems and solutions, each one coming from a different background. The actual conclusions (Ch. 8) on the usefulness of Western instruments in Central Europe are composed of three constituent analyses. Sections 4.4 and 4.5 list the most important particularities of the Central European region, as far as they affect fragmentation-reduction. These drawbacks are part of the input for the concluding section of chapter 7 that, together with the case study outcomes, tries to establish whether the (1) instruments’ targets fit the region’s problems and whether (2) the prerequisites for effectively applying the instruments fit the Central European conditions. An instrument only is assumed suitable when both couples match. Furthermore, the conclusions consider choices for actually getting instruments operational (Ch. 7); what modalities are suitable for operational projects in Central Europe.
3. The Central European situation

This chapter gives an overview of the nature of land fragmentation throughout Central Europe. Although (compared to the case studies) this overview is relatively superficial, it does illustrate how diverse fragmentation profiles are. Part of this variety can be traced back to historic facts, which prove to be indispensable for an analysis on Central Europe. Not only does history tell us how the present situation emerged, it can also be crucial for finding a suitable solution. The history of rights on land as well as the use of land reveals the region's cultural characteristics with respect to land tenure. These characteristics will affect the way land is treated in the future.

This first section elaborates on how land tenure was perceived and treated under socialism. Then we turn to the conversion of the socialist concept into private property, in terms of the mechanisms that were at hand, and the choices that were made from these mechanisms. The concluding two sections provide data on land fragmentation in the various Central European countries, and tentative predictions on spontaneous recovery.

3.1 Land tenure under socialism

Pre-1990 production units

In the introduction on the thesis, some remarks are already made on the special status land had in socialist states. As a consequence of socialist policy, private ownership as well as private revenues had to be replaced by communal farms that would allow an equal distribution of wealth. This goal concretely meant establishing large agricultural production units in which the total group of workers would supply the labour together and thereafter would equally divide the revenues of their work. The management in theory would be communal as well, through democratic structures as elected boards and general assemblies. In practice, farm management had an undesirable top-down inclination and it was servant to the planned economy.

The large-scale production units came in two types: collective farms (kołchozy) and state farms (sowchozy). They were two solutions for the problem how to establish these large communal production units. From the socialist's point of view, the land
would be best entirely under state control. In order to achieve this, the state could buy the land from private owners, but more often pressure was used to make owners sell (legally speaking a ‘voluntary’ transaction but in fact without having any other choice and typically for prices well below market levels). And even straightforward expropriation was applied. So, in the case of state farms, all rights to land were taken away from the original owners.

The establishment of collectives (or co-operatives) involved transferring only part of the rights to land from the owners to the collective; the right to use and the right to alienate. The actual ownership titles in principle remained with the members. The separate parcels were physically merged in massive tracks of land that hid the legal patchwork underneath. Leaving the collective was allowed but could involve important disadvantages, like being assigned a less productive parcel than originally brought in.

Farm workers in collective farms were renumerated at the end of the year with a return on their inputs, based on the performance of the collective farm. Collective farms enjoyed somewhat more autonomy than state farms in their decisions. In state farms all assets, including land, were owned by the state and farm workers were like employees in any other firm and received fixed wages and social security benefits. However, over time, collective farm workers increasingly received the same social benefits as state farm workers and ownership titles ceased to have influence on productions technology or farm decision-making.

Besides the collective farms, where the actual production took place, all systems allowed small plots for the workers. They did not represent an official economic sector, but they were indeed essential to the system since they prevented starvation of the rural workers that lived under conditions of low wages, shortages and poor distribution. In addition, they provided an increasing share of the fresh food supply (especially vegetables and fruits; see Juhasz, 1991), were used by the collective management to rent out labour intensive activities, and even supplied urban relatives of villagers (Cred, 1999).

These three production units were in fact three degrees of government regulation of land tenure, which varied in proportions throughout the region (see Table 2). State farms represented fully erasing private interests and transferring all control to the state. In collectives, only part of the rights on land was transferred, whereas ownership stayed in place as well as (regulated) freedom of choice. There was no interference in rights on land on the private plots, but state control in up- and downstream sectors and land markets blocked viable individual farming on these plots.
Widespread misconceptions

Although the socialist logic of equal distribution of wealth is commonly known, a number of persistent misconceptions have emerged among outsiders about land under socialism. Four of them are presented here in order to structure this chapter: (1) all private land ownership was erased after 1945, (2) throughout Central Europe, collectivised agriculture was uniform, (3) collective agriculture was a failure, and (4) suppression of private land tenure meant eliminating any private activity in agriculture. As for the first misconception, the adoption of socialism did not change agriculture over night, nor did it erase private land tenure. It was a ‘continuous redistribution and redefinition of property rights during the socialist era’ and it differed in each country (Brooks, 1993). In most countries in Central and Eastern Europe land was not nationalised. Many families retained title to land for a number of years after collectivisation, and some never relinquished title even though land was collectively managed. Those who did relinquish title often did so through quasi-voluntary sales or forced contribution to the collective or the state. In Hungary, many co-operative or collective farms used land to which individuals held formal title, as well as land owned by the co-operative. Land owned by the state was held in state farms, and the proportion of land so held did not exceed approximately one-quarter, with the notable exception of the USSR. With the consolidation of socialist agriculture in Central Europe, ownership declined in importance as most of the usual rights of owners were transferred to managers of state and collective farms, even if land title did not transfer. Managerial status changed frequently with consolidation of farms and redrawing of farm boundaries, but ownership did not necessarily change. As a consequence, much of the pre-transitional land managed by collective farms still had legal individual owners.

Meurs (1999) extensively discusses the next two misconceptions (nrs. 2 and 3) about

<table>
<thead>
<tr>
<th>Bulgaria</th>
<th>Farm Size (ha)</th>
<th>Investment (% total)</th>
<th>Collective (% land)</th>
<th>Force</th>
<th>Local Control</th>
<th>Financial independence (% per annum)</th>
<th>Growth below prewar</th>
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<tr>
<td>1946-1948</td>
<td>266</td>
<td>6</td>
<td>7</td>
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<td>fully</td>
<td>3</td>
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<tr>
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<td>59</td>
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<td>1264</td>
<td>18</td>
<td>90</td>
<td>yes</td>
<td>some</td>
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<td>3</td>
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<td>1958-1963</td>
<td>4865</td>
<td>25</td>
<td>90</td>
<td>little</td>
<td>some</td>
<td>some</td>
<td>5</td>
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<td>22</td>
<td>90</td>
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<td>3525</td>
<td>15</td>
<td>70</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Comparative dynamics of collective agriculture in Hungary and Bulgaria.

Source: Meurs (1999)
collectivised agriculture: that the process can be characterised as the global application of a single, Soviet-defined model of collective agriculture, and that the experience should be understood as an unqualified failure. As for the fixed model, although socialist states did legitimise their agricultural policies by referring to Marxist principles and the Soviet model, there was a strong influence of local history, geography and political conditions. Economic considerations, for instance, went beyond simply raising agricultural productivity and incomes. They might also comprise freeing of labour from the countryside for industrial labour. In a political sense, collective farms facilitated the control of opposition, and pressure from Soviet Union in cases was an incentive.

As a result of the varying weight of each consideration, the collectivisation proceeded in quite different ways, on different timetables and with different consequences. In Czechoslovakia, Bulgaria, Eastern Germany and Romania, the socialist reorganisation of agriculture mimicked the Soviet model (Braverman et al., 1993). In these countries the typical form of agricultural enterprise came to be the state or co-operative large-scale farm of several thousands of hectares. In the countries that collectivised, private agricultural production still existed in household plots. Yugoslavia and Poland preserved the predominance of private farms. The dominance of socialist institutions in marketing, however, limited the opportunities for private agriculture. The political tolerance for socialised agriculture changed frequently. Hungary was the only place where household and subsidiary farming was continuously tolerated and often supported by the system. Private producers concentrated on animal husbandry and gardening; grain production and industrial crops were almost exclusively concentrated in the state and collective sectors. Consolidation of Hungarian farming alternated between periods of progress and retreat (Bell, 1984). Pryor (1992) gives a more extensive description of the wide variety of organisational forms.

Traditional forms of rural organisation may have affected collectivisation paths. Bulgarian collectivisation was facilitated by a strong, egalitarian tradition of labour organised at village level (Creed, 1998). Hungary’s rural population, on the other hand, constituted different groups of social standing, leaving little history of interaction and collective action. Bulgaria was most rigid in applying one single, correct model, while the post-revolution practice in Hungary was quite liberal.

Thus, socialist model agriculture was by no means insensitive to differences within Central Europe. Within the separate countries of the region, however, there was a lack of regional differentiation. The drive for production and equality led to large-scale farming (or attempts for it) in both the plains and the mountains and even on land that had serious natural impediments to farming. As a consequence, Bulgaria for instance was struck by large scale soil degradation, affecting 1 million hectares (Iliev et al., 1997). Like practical implementations described above, the success or failure of collectivisation (misconception 3) varied regionally. From an economic theoretical perspective, collective farming has advantages indeed. A system whereby landowners hire workers or vice versa offers flexibility. Allocation of resources and changes in operating structure can take place in the most economically efficient way (Currie, 1981). Pryor (1992) shows that in the 1970s and 1980s, agricultural output grows at an
equal rate as in non-socialist countries. The factor productivity, however, generally grew at a slower rate in socialist agriculture. In most cases, the benefits of consolidating small parcels are not sufficient to offset incentive problems that arise in the collective organisation of work. Kornai (1980) suggests that soft budget constraints, that is the socialist state’s commitment to support production units whether or not they were profitable, led to chronic investment hunger and the hoarding of resources, which in turn generated shortages throughout the economy. Hughes (2000) shows that the Czech co-operatives that still operate after transformation can be even more productive than newly emerged private farms.

Success appeared to depend on forming small to medium-sized production units, farmed by a stable group that exercised some degree of local control and financial independence (Meurs, 1999). Furthermore, collective agriculture must have a concrete advantage over independent farming. Grain-producing peasants, for example, at a bare subsistence level will appeal to co-operative with state supported mechanisation. Where the majority of these conditions were met, significant numbers of peasants voluntarily pooled their land into collective forms of production. Forced collectivisation was generally associated with disastrous production results, including widespread starvation. Independent producers may experience land fragmentation, lack of capital and poor markets as an incentive to join a collective farm. In fact, countries like Hungary and Bulgaria knew some degree of spontaneous collectivisation well before the Iron Curtain was drawn.

This leads to the conclusion that the eventual collapse of socialism was not simply an answer to the productivity problems in agriculture. Creed (1998) refers to the holistic integration of political, economic and social structures. This integration forced the state to constantly balance potentially contradictory demands. As a result, functions that seemed problematic in one area were often useful, even necessary in another. For nearly every problem or failure within the socialist system there were connections that rendered the resulting difficulties useful in another context, so problems were not only tolerated by the sector but sometimes even accommodated.

The last misconception to be redirected here is the complete absence of private activity in collective agriculture. The socialist planners were not blind for the advantages private farming had, at least in parts of agriculture. The Hungarian system eventually evolved into a symbiosis between the large collective farms and the private plots. Raising cattle, for example, was outsourced to privates. But even without any private plots, private commercial activities could still exists. Creed (1992) gives a lively description of the so-called akord system in Bulgaria, a country considered to have been very strict in applying the Soviet model collective agriculture. The akord system meant that parts of the collective’s land, for instance a part of a vineyard, were placed under the responsibility of a selected group of workers (‘brigade’), through a tenancy contract. The brigade was responsible for tillage, planting, maintenance and harvesting, entitled to use inputs and machines from the collective. The crop eventually was sold to the collective. The profits, but also the risks, were on account of the brigade. This
system shows that, despite the removal of land ownership rights, private semi-commercial activities did not necessarily cease to exist.

3.2 Variety in privatisation mechanisms

The early 1990s brought Central Europe a transition from a centrally planned to a market economy, which involved privatising agricultural land. Privatisation means shifting ownership of land from state and collectives to private persons. The eventual aim is competition in agricultural production, leading to increase in efficiency and production. Privatisation can be conducted in various different ways.

- **Restitution**: means returning the land to the original owners or their heirs. In most cases, the original land distribution is defined as the situation in 1945, just before the socialist regime came into power.
- **Distribution**: involves giving the original owners a piece of land that is not the same as they owned before, but is comparable in size and quality.
- **Compensation**: is a system that returns agricultural assets in money or vouchers (Hungary) that can be traded and with which pension, apartments or land can be bought.
- **Sale**: means transferring state owned land to individuals in return for money. In Poland this is the major means of privatisation. The drawback here is, that marketing large amounts of land, the price per hectare declines dramatically, ruining the land market.

In Table 4, an overview is given of the major procedures that are used in the different Central European countries, and to what percentages of the total agricultural land the procedures apply.

Most Central European countries have chosen to restitute collective farm land to former owners. Moreover, former owners who kept legal rights to their land were restituted property rights on their land without exception. State farm land is typically leased, pending sale.

*Key factors that have determined the land reform choice*

The variety in privatisation procedures is surprising, especially considering most privatisation programs can be classified as inefficient. Why were the procedures constructed the way they were? Swinnen (1996 and 1999) studied these differences, and formulated a number of key factors which have constrained Central European governments in their choice of the land reform procedures and have caused the choice of inefficient land reform process.

The most important causal factor of land restitution is the legal ownership status at the outset of the reforms. Agricultural assets that were still legally privately owned in 1989 have been restituted in all Central European countries. Many Central European governments could not use a process other than land restitution unless they first took away the legal ownership rights from the legal owners. It goes without saying that this
<table>
<thead>
<tr>
<th>Collective farmland</th>
<th>State farmland</th>
</tr>
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<tbody>
<tr>
<td><strong>Procedure</strong></td>
<td><strong>% of land</strong></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Restitution</td>
</tr>
<tr>
<td>Czech</td>
<td>Restitution</td>
</tr>
<tr>
<td>Hungary</td>
<td>Restitution +</td>
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<tr>
<td></td>
<td>distribution</td>
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<td></td>
<td>(physical)</td>
</tr>
<tr>
<td>Romania</td>
<td>Restitution +</td>
</tr>
<tr>
<td></td>
<td>distribution</td>
</tr>
<tr>
<td></td>
<td>(physical)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Restitution</td>
</tr>
<tr>
<td>Poland</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4: Most important land reform procedures in Central Europe. In Bulgaria, the distinction between state and collective farms is complicated because both types were merged in the Agro Industrial Complexes. Source: Swinnen, 1996

was not an option for the newly elected governments at that time. Romania is one minor exception to this general rule, where the government has imposed a maximum limit of ten hectares in land to be restituted to former owners, and is distributing the rest of the land among workers. In Hungary former owners, who had been forced to sell their land under the Communist regime, are not restituted their land. Such former owners are compensated through vouchers.

Secondly, the choice of privatisation policy affects the future asset ownership distribution among ethnic groups, both inside and outside the country. This explains why the Polish government did not choose restitution of land. This would entitle much of the land to Germans, as much of present day Western Poland was owned by Germans before World War II. An opposite example of ethnicity-induced decisions is found in Bulgaria (Buckwell et al., 1994). A high share of non-land assets was allocated to ‘labour contributions’ in order to placate the Turkish ethnic minority who was largely employed in agriculture and not eligible for much land, while being an important political factor.

The nature of pre-collectivisation land ownership distribution proves to be a third important factor. If precollectivisation land ownership was egalitarian, as in Bulgaria, restitution of land promoted historical justice as well as social equity. However, if it was more unequal, such as in Albania, were few landlords controlled almost all agricultural land, historical justice and social equity are conflicting objectives.

Finally, the costs of disruption of existing farm structures have led to leasing (pending sales) the state farm land. The fact that these state farms were more capital intensive, used better land, with better technology and were involved in activities with more scale effects, makes that land distribution would imply more costs of disruption than in more labour intensive, low technology production on collective farms. The costs of disruption versus the benefits of land use security were lower for collective farm members than for state farm employees.
Determinants for the outcome of the reform process

Despite the politically sound preparation of privatisation, the gap between legislation and applying the procedures is inevitable. A legislative power tries to translate the concept of the privatisation approach into an instrument that must lead to successful implementation. However, the reality always proves slightly different than was accounted for. Why did the Central European governments fail in reaching their goals of decollectivisation?

Broadly spoken, two groups of problems occurred. One group consists of inherent implementation problems, technical and organisational of nature. The second group contains matters of context; what is the economic and agricultural context within which farmers make their decision to leave the collectives or not.

There is a number of inherent obstructions to full decollectivising leading to a sound land structure:

- privatisation policies will not necessarily restore full property rights. One example is ‘restitution in comparable boundaries’. This form of restitution has important impacts on the bargaining power between collective farm management and the person who wants to retrieve its land;
- technical problems valuing assets, assessing the validity of land and asset claims, assigning land to claimants or developing voucher schemes and auctions;
- implementation problems and obstructions. Governments faced principal-agent problems vis-à-vis the implementing institution because of important transaction costs involved in monitoring and controlling the reform implementation. Another factor is when governments have intentionally slowed down and hindered the process. There exists a real chance that before the reforms are finished or even well under way, the government is replaced by another, which may be less supportive of the reforms. As a consequence, local administrations and executing institutions may

![Graph showing data](image)

Figure 6: Correlation of successful privatisation (expressed in Individual Farming Index) and the (1) share of individual farms and (2) farms smaller than 5 ha. Source: Swinnen et al (1997)
feel less inclined to follow government regulations, which they privately oppose, because enforcement procedures may not come into effect if the government might be replaced. And recently in many Central European countries amendments and adjustments of reform laws were introduced after the ex-CP parties returned into power. These policy changes have reduced or complicated the restitution of effective property rights and reduced the decollectivisation impact.

Contextual factors influencing the outcomes of the reforms can be tentatively pointed out. The shift to individual farming was lower in countries with lower labour intensity in collective farms, using restitution as land reform policy, and imposing higher exit costs through government farm transformation regulations.

Many collective farm members were highly specialised in performing a specific narrow task as a result of the extreme labour specialisation that characterised collective farms, such that they may not possess the necessary skills to start up a full-time individual farm.

Mathijs and Swinnen (1996) studied in more detail the influence of the context within which farmers had to decide whether or not to leave the large-scale collective system. They modelled and empirically tested 5 propositions, from which 4 could be proved. They make their claims clear by regression analyses that in some cases show a very close relationship between a determining factor and decollectivisation.

- **Average collective farm productivity.** Countries with low productivity on collective farms, such as Albania, have a significantly higher degree of decollectivisation than those where collective farm productivity was higher, such as Hungary. Within Hungary, the same correlation was recorded; decollectivisation is lowest in Transdanubia (21 percent), a region with the most productive farms. Furthermore, in countries where productivity on collective farms is too low to provide for the basic needs of members, they will leave. In Albania, the situation was so extreme that food shortages and hunger resulted, causing a massive breakup of the collective farms,

- **Technology.** Labour intensity, measured by the man/land ratio, is used as an indicator of technology. Decollectivisation shows a positive non-linear relationship between decollectivisation and the man/land ratio. However, excluding Romania and Albania – both having a much higher man/land ratio than the other Central European countries – would indicate that decollectivisation is not correlated with the man/land ratio,

- **Share of agriculture in total employment.** There is a positive correlation between the 1993 share of agriculture in the economy and the decollectivisation index. Countries with more than 15 percent of active people employed in agriculture (Albania, Bulgaria and Romania) show a higher degree of decollectivisation compared with countries where agricultural employment is less than 10 percent of the work force (Czech and Slovak Republics, Hungary). In addition, there is an almost perfect linear correlation (regression $R^2=0.92$) between the share of
agriculture in economy and the share of farms smaller than five hectares in total agricultural land,

- *Land reform and transformation regulations*. Decollectivisation is more important where (1) more of the land is distributed to farm workers, (2) the share of agriculture in employment is high, and (3) exit costs are low. The two countries at the extremes of the spectrum are exactly opposite in these three factors. Albania, where decollectivisation is highest, has a high share of agriculture in employment and low exit costs. Slovakia, where decollectivisation is lowest, restituted land has a low share of agriculture in employment and high exit costs. In addition, more fragmented pre-collectivisation land distribution implies more transaction costs for potential farmers to set up a farm of a certain size.

While empirical evidence is imperfect, it supports the hypothesis (1) that transition-related risk and adverse terms of trade have negatively affected the creation of individual farms, (2) that the productivity of the new large-scale farms has in important negative impact on the creation of individual farms, (3) that with extremely low collective farm productivity, food security concerns induce individuals to start up small individual farms, (4) that individual farming is less capital and land intensive production activities, and (5) that privatisation policies affect the extent of individual farming. More specifically, restitution of production factors to outsiders (former owners) leads to less individual farming than asset distribution among farm workers and members.

**Problems resulting from the transition**

Summarising, looking back at more than a decade of privatisation of agricultural land, Central Europe has faced a number of negative inheritances. In the context of the fragmentation-reducing instrument, obstructions of land exchange are essential. The most important obstructions are fragmentation, incomplete restitution and impossibilities in privatisation legislation.

Above all, it may be clear that the excessive fragmentation is a negative and direct result from privatisation. Goetz (2001) argues that the slower the transition, the more disruptive. The restitution system inherently divided the land among relatively many

*Figure 7: In the North-Western part of Poland, farming is large scale*
people, leading to small farms. Restituting in old boundaries leads these small farms to be divided into many parcels. In Albania for instance, 490,000 new farms were created, fragmented into 1.9 million parcels which range from 1-10 parcels per farm with an average of about 3.3 separately located parcels per family farm (Swinnen et al, 1997). Restitution procedures partly are not finished yet, even though some statistics may look promising. Namely, privatisation comprises three steps: (1) ascertaining what land a person is entitled to, typically using a Grundbuch, (2) determining the physical boundaries in the landscape, using old (not always accurate) maps or textual descriptions from the Grundbuch, and (3) handing out the ownership certificates which enables land transactions. The second step of the privatisation procedure is the most problematic, and the third one is typically slowed down by capacity problems. Do bear in mind that individual property rights are constituted by the rights to consume, to obtain income from and to alienate these assets (Barzel, 1989). A farmer can possess the right to use the land, but as long as the full ownership rights (including the right to alienate) are not officially appointed, optimal land allocation cannot develop.

In some cases (e.g. the Czech Republic) the procedure of restitution requires impossibilities. For instance, when restitution legislation demands restitution in original boundaries, and these boundaries are impossible to retrieve, the process will come to a standstill.

3.3 Fragmentation throughout Central Europe

The fragmentation that can be observed in current Central Europe strongly relates to the above described land reforms under socialism and the privatisation process afterwards. Both are very variable among the separate countries, even among regions. This section primarily aims at revealing differences in fragmentation within the Central European region. The statistics presented here represent the situation halfway the 1990s, a period of which a lot of publications on fragmentation are at hand. For most countries, more recent figures were not available because there had been no new data-collection efforts.

Just like Swinnen (1997), I would like to plea for a careful interpretation of the data and concepts used in statistics like the ones presented below. For example, whether 'private' refers to ownership rights or all property rights is often uncertain. It tends to distort the conclusion of outside observers. The statistics may substantially overestimate the extent of effective restructuring of property rights. At the same time, the co-operations and state farms may have undergone effective changes through altered incentives and use of resources, while these transformations remain invisible in the figures.
Poland

Poland is the only Central European country that has not known large-scale collectivisation. Private farming has always remained predominant. But the socialist policy did succeed in blocking a sound development of the private farms (Borek, 1993, Powelson, 1988). Especially private farms over ten hectares were regarded as dangerous for the superiority of the state farms. Thus, up to 1970 it was not permitted to sell agricultural machinery to private farmers. This way large farms were impossible to cultivate, and private farmers were forced to limit the size of their holdings. This caused the private farm structure to grow slowly, from an average 5.2 ha in 1950 to 6.3 ha in 1990.

But although collectivisation did not succeed, the creation of state-farms did. The state had obliged itself to buy every piece of land that came on sale. When the originally German population fled to the West when the border shifted, especially the Western land was bought by the state. There were several other ways in which pressure was exerted to cumulate land in state ownership (Banski, 1997). Eventually, about one-fifth of the country came into the hands of the state farms.

The state-farm land is now administered by the Agricultural Property Agency (APA). It amounts to 48,000 km² (or 12% of all Polish agricultural land, but larger than the Netherlands as a whole). Bringing this amount of land onto the market has a substantial depressing effect on land prices. APA has succeeded in selling about 16% and leasing out nearly 70% (Mertens, 2001).

All in all, we are now confronted with a twofold structure of 2 million inefficient small farms (Table 5) and large blocks of state land. Especially the Southern mountainous areas show a very bad parceling structure, with an average farm size of around 3 hectares (Flury, 1993). In the village of Trybsz, Flury (1993) determined that an average farm cultivates 86 parcels measuring 780 square metres on average. The land in these regions is often divided into ribbon-parcels, like in the community of Lapsze Nizne, where the parcels are only 3 to 10 metres wide measuring about 1000 square metres (Biasio and Peng, 1993).

<table>
<thead>
<tr>
<th></th>
<th>Number of enterprises</th>
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<th>Average size (ha)</th>
<th>Average number of parcels/parcel size</th>
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</thead>
<tbody>
<tr>
<td>Private farms</td>
<td>2,100,000</td>
<td>76.4</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>of which: 50% under 5 hectares</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>44% ranging from 5 and 15 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6% over 15 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>1,300</td>
<td>18</td>
<td>2,700</td>
<td></td>
</tr>
<tr>
<td>Co-operations</td>
<td></td>
<td>3.5</td>
<td>350</td>
<td></td>
</tr>
</tbody>
</table>

*Table 5: Farm size structure of Poland. Source: Borek (1993). * Right-hand column figures by Muczynski and Surowiec (1995). These figures may seem somewhat dated, but Muczynski (personal comment) expects them to have changed fairly little since.*
Hungary

Before the reforms that started in 1989, three main types of economic organisations dominated Hungarian agriculture: state farms, agricultural producer co-operatives and household farms. The state farms were large-scale enterprises (on average almost 7,000 hectares in 1989), operated by hired workers. The collective farms (4,180 hectares) were very close to Western-style producer co-operatives. The household plots were small plots (0.6 hectares) cultivated by members of collective farms or state farm workers. The amount of land and livestock was limited by law. The collectives contributed to their members’ private production by providing machinery services and selling feed and roughage to the farms. In this way, a symbiotic relationship between large- and small-scale farms evolved, in both systems leading to a successful agriculture as compared to other Central European countries (Mathijs and Mészáros, 1997).

In the current Hungarian situation (see Table 6), we have to make a clear distinction between fragmentation of land ownership and fragmentation of land use. Hungary managed to control extreme forms of land use fragmentation for the time being due to the fact that co-operative farms were not dismantled during land reform and the current legislation allows tenancy agreements to increase farm size (Riddell and Rembold, 2000). About 80% of the country’s land owners own one or two parcels which are less than one hectare in size. These parcels are often very awkwardly shaped (in their length-width ratio) (Kneib et al, 1999). The parcels of an owner can prove to be impossible to cultivate, leaving part of the owners no other choice than to leave it in the co-operative.

In 1998 the independent farmers only cultivated about 58% of the total arable farmland, the former co-operatives about 24% (Kneib et al, 1999).

<table>
<thead>
<tr>
<th></th>
<th>Number of enterprises</th>
<th>Share of total agricultural land (%)</th>
<th>Average size (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private farms</td>
<td>1,400,000</td>
<td>17</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>44.2% under 5 hectares</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41.3% ranging from 5 and 10 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41.5% over 10 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>136</td>
<td>15</td>
<td>7,036</td>
</tr>
<tr>
<td>Co-operations</td>
<td>1,267</td>
<td>68</td>
<td>3,456</td>
</tr>
</tbody>
</table>


Bulgaria

The pre-reform agricultural structures typical for Bulgaria consisted of three forms of organisation. Eighty percent of the arable land was farmed by extremely consolidated units, resulting from an ongoing upgrading (Boyd, 1990; Smollett, 1980). There were 298 Agro-Industrial Complexes (AICs), that merged state-land as well a collective land (this explains the mixed privatisation of what statistically is labelled state farm land).
<table>
<thead>
<tr>
<th></th>
<th>Number of enterprises</th>
<th>Share of total agricultural land (%)</th>
<th>Average size (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private farms:</td>
<td>1,777,122</td>
<td>52.5</td>
<td>1.48</td>
</tr>
<tr>
<td></td>
<td>of 86.4% under 1 ha (on average 0.25 ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.4% ranging from 1 – 10 ha (on average 2.1 ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2% over 10 ha (on average 49.3 ha), which concerns 27% of all privately farmed land**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>980</td>
<td>6.5</td>
<td>311</td>
</tr>
<tr>
<td>Co-operations</td>
<td>2,344</td>
<td>40.8</td>
<td>815.3</td>
</tr>
<tr>
<td>Farming companies</td>
<td>122</td>
<td>0.7</td>
<td>283.5</td>
</tr>
</tbody>
</table>

Table 7: Land use structure in Bulgaria in 1996.
Note: Bulgarian farm structure statistics do not address total agricultural (which amounts to 6.2 million hectares) land but arable land (4.7 million hectares). The remaining 1.5 million hectares is permanent grass and rough grazing, much of which is common land. The statistics therefore overstate the share of private ownership. Source: Davidova et al (1997) unless indicated differently: * Kaneva (1997), ** Kopeva (1995)

These AICs measured over 12,000 hectares on average in 1985. The second group was the privates, farming thirteen percent of the land on an average plot size of 0.38 hectares in 1985. The rest was land related to research institutions, schools and forestry enterprises.

Privatisation has caused a dramatic shift towards private farming, now responsible for 53 percent of the arable land. The importance of co-operatives is the result of the popularity of pooling land into producer co-operatives that are newly formed and commercial oriented. The number of co-operatives has increased between 1992 and 1995 from 347 to 2,344 (Table 7).

Privatisation is not completed yet. Estimates for Bulgaria indicate, that once the land reform is finalised, more than 2.6 million private farmland titles, divided among 12 million parcels with an average size of 0.4-0.5 ha each will be issued. The average size of the holding will be approximately 2 hectares (Riddell and Rembold, 2000).

**Romania**

The Romanian communist regime radically changed agriculture between 1945 and 1989. The centrally planned economy was introduced, focussing on industrialisation and urbanisation. This led to a strong rural-urban migration. Reorganisation of the agricultural use structure resulted in the dominance Agricultural State Farms (ASFs), created by expropriation of all land ownership over 50 hectares in 1945, and Agricultural Production Co-operatives (APCs), coercively created between 1945 and 1962. Individual farms maintained dominance in the mountain and high hill areas of Romania, where the natural conditions were not suited for mechanised crop production. In 1989, ASFs and APCs controlled over 90% of all agricultural land and
the state owned 85% of that land (Benedek, 2000). By that time, the farmers had become a marginalised, disadvantaged social group.

The Land Law, approved by the Parliament in 1991, is the legislative background for the privatisation of the state owned agricultural land. The privatisation meant a total restructuring of the agricultural production system, but proceeded quickly: in 1989 the state ownership was 90 percent, in 1994 it was 75 and in 1997 it was down to 30.

Nowadays, the average farm size of the private farms is very low (Table 8). Especially the household farms show a bad structure, while family associations and private companies are clearly better off. The most recent estimation of the average size of private individual farms is 2.3 hectares, spread over 6-20 parcels, accounting for 62 percent of agricultural land (Riddell and Rembold, 2000). With regard to the regional distribution, according Benedek (2000) the relatively large private farms are located in the south-western part of Romania (county of Banat, with 32% of the farms larger than 5 hectares). The eastern part of the country has the lowest farm size (counties of Muntenia and Moldova). The farm size problem is aggravated by the fact that 4 million households have their main source of income in agriculture.

Czech Republic and Slovakia

Much of the agricultural land (39 percent) and assets were confiscated and almost all remaining area and assets were collectivised after World War II and in the early 1950s

<table>
<thead>
<tr>
<th>Number of enterprises</th>
<th>Share of total agricultural land (%)</th>
<th>Average size (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private sector*</td>
<td>8,632</td>
<td>79.2</td>
</tr>
<tr>
<td></td>
<td>of which:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>54% under 5 ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29.8% ranging from 5 to 50 ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.3% over 50 ha</td>
<td></td>
</tr>
<tr>
<td>Public sector</td>
<td>299</td>
<td>20.8</td>
</tr>
</tbody>
</table>


* land of all co-operatives which have passed the transformation process as described in the Transformation Law
<table>
<thead>
<tr>
<th>Natural entities (e.g. limited commercial partnerships)</th>
<th>Number of enterprises</th>
<th>Share of total agricultural land (%)</th>
<th>Average size (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State farms</td>
<td>24,380</td>
<td>23.8</td>
<td>34.6</td>
</tr>
<tr>
<td>Legal entities (e.g. producer co-operatives, corporations)</td>
<td>41</td>
<td>1.69</td>
<td>732</td>
</tr>
<tr>
<td></td>
<td>2,753</td>
<td>74.6</td>
<td>966</td>
</tr>
</tbody>
</table>


when the Communists came to power. Collectivisation was strongly supported and ignored human rights. Peasants and farmers were forced to sign the contracts with co-operative farms and to give up their property rights to the land ‘voluntarily’ (Kabat and Hagedorn, 1997). In 1989, 25.4 percent of the agricultural land was in state farms, 61 percent in collective farms (state co-operatives) and only 0.3 percent was in hands of family farms. By 1995, the share of state farms had fallen to 1.2 percent, while the share of family farms had risen to 22.3 percent (Ratinger and Rabinowicz, 1997).

The current structure of land use enterprises in the Czech Republic shows a big difference with the structures of the countries mentioned above. In the Czech case, there is no domination by vast amounts of subsistence farms. Although there are numerous private landowners (Voltr, 2000), controlling over 3 million hectares of land (70% of all agricultural land) the number of enterprises is much lower. Apparently, enterprises are not organised according to ownership. Landowners have united their land in bigger enterprises.

The Slovak farming structure is similar: no numerous subsistence farms, but fragmented ownership instead: 9.6 million parcels were distributed (the Slovak populations is just over 5 million people) of 0.45 ha on average and owned by approximately 13 people (SMA, 2000). Privatisation is impeded by missing parcels\(^4\) and co-ownership (that can be excessive) frustrates the land market.

**Conclusion**

The figures on the fragmentation halfway the 1990s show quite a varied pattern. There is one commonality, though. Farming structures typically are bimodal, i.e. a large number of small farms use a relatively modest share of the total agricultural land, and a small number of large farms uses a considerable share. The large farms in general cultivate a host of land fragments, the right of use of which can be given through tenancy or more informal arrangements.

The location of the balancing point determines to what extent a country manages to mask the ownership fragmentation. Large-scale production organisations still dominate production in several Central European countries. Many new landowners lease their

\(^4\) These parcels are not really missing, but their physical location has not been determined.
land to the large-scale successor organisation of the collective and state farms. In 1994, they cultivated more than two-thirds of the total agricultural area in Bulgaria, Hungary, the Czech Republic and Slovakia.

3.4 Autonomous consolidation processes

This thesis is about fragmentation-reducing instruments, which raises the question whether spontaneous recovery is likely. There might very well be autonomous developments that, with or without governmental support, will lead to spontaneous consolidation. If such developments can be revealed, all efforts on fragmentation-reduction do not make a crucial difference. They would only speed up the process.

Let’s see what factors affect the distribution of land ownership and land use (for more details see Van Dijk, 2002c and Van Dijk, 2003). These factors are partly predictable, but to a large extent they are not. Developments in fragmentation are the result of a chain of events. Fragmentation is influenced by the land market (arrow 1 in Figure 8), characterised by two things. First of all there has to be a significant number of land transactions. The size of supply and demand (the market activity) dictates the speed of changes in land ownership.

Secondly the question is whether or not the traded parcels are merged in, or withdrawn from, a larger parcel. To answer this question, we have to know the type of sellers and buyers. The type of sellers relates to the parcel size on sale, the type of buyers relates to the plot size in which it will be merged. The land market is dependent of many individual owners making the decision to sell or buy. No land market, no change. The individual owners take their decisions considering (arrow 2) their personal and external situation. Three factors affect this chain (see Figure 9).

Economic circumstances affect land ownership, under the assumption that a landowner meets the homo economicus model. That is, the landowner decides to sell or buy on rational economical considerations, thus trying to find a balance between profits and security. Of course, this assumption does not reflect reality. Like all other commodities, the trading of land is subject to many more considerations than economic ones alone (see for example Brekke and Howarth, 2000; Frank, 1985 and Howarth, 1996). Postan (1975, p. 151) refers to the farmers’ special relationship to his land, making land ‘a “good” worth possessing for its own sake and enjoyed as a measure of family fortunes and a fulfilment and extension of the owners’ personality’. However, there are no data that allow an accurate modification to the homo economicus model.

Several analyses, as provided by several authors like Csáki (1999) and Schulze (2000), elaborate on the macro-economic conditions impeding the development of land trade.

Figure 8: Causal chain for fragmentation
(see appendix D for more elaborate information on Central European land markets). The post-transitional instability in the Central European region has made landowners wary of exchanging land for money. According to Currie (1981), this attitude perfectly makes sense in a highly imperfect financial capital market, given the risks entailed in lending money, and given the uncertainties attached to the future real value of financial wealth particularly in an economy suffering from inflation. Thus, a huge amount of landowners having a small piece of land that serves as a symbol of security in the unstable first years of market economy.

Bottom line is that unfavourable economic conditions are conserving fragmented ownership. Unemployment results in rural overpopulation and subsistence farming, low purchasing power and inflation negatively influence rates of return in agriculture and inflation makes agricultural parcels an asset to city people.

**Demographic developments**, especially the age of landowners, is another relevant factor. Land privatisation has typically led to landowners at relatively high age. Privatisation procedures tried to do historical justice, resulting in returning land to whom it was taken from (see section 3.2). These original landowners now are elderly, if not passed away. Thus, on the mid-term, large numbers of plots will probably be inherited, which can mean sale (not in the Czech Republic and especially Slovakia, where the heirs are added to the list of co-owners). The question is whether or not the family inheriting the plot is equally resentful to the idea of selling the land. Taking into account that the new owners are younger, it is more likely that they have a job and resources of their own, resulting of little interest in owning the plot. Therefore, a considerable proportion of the land of absentee-owners will potentially be open to sale.

**National agricultural policy** Future developments are also depending on the extent in which governments want to and can control developments. At one end of the continuum, free and unrestricted economic forces are the sole determinant of developments in agriculture. At the other end, all developments are planned and controlled by a very strict agricultural policy.

Agricultural policy will very likely be neither fully absent, nor fully controlling. The non-intervention approach would probably lead to great problems among the farmers' population. Hundreds of thousands of family farms and even enterprises, weakened by the crisis of the last decade, would be crushed in the free market arena. As a result, enormous unemployment would arise in rural areas. Very strict government control cannot be the case. The preparations for joining the European Union have proceeded too far already.

Nonetheless, more subtle policy inclinations are important for the developments in fragmentation. A liberal approach will allow market forces as much as possible as long as social welfare for the rural population is secured. In this case, the land market will be affected by abolition of part of the existing restrictions. Probably, enterprises and foreigners will be allowed to own land and tenants will get more rights, like pre-
emption right and minimum contract validity. This would enable the currently quite efficient enterprises to acquire more secure land use rights.

The protectionist approach will try to confine market forces in order to achieve goals that would otherwise not be met. The goal that will probably be aimed at is already prominent in the current politics of Central European countries. This goal is establishing a Western type family farm structure. Clearly, in a more liberal, spontaneous development, large enterprises have much better chances of succeeding.

A quick spontaneous consolidation of parcels can thus be assumed to depend on (1) considerable economic growth and (2) a very liberal agricultural policy. Neither one is very likely to occur. As section 1.3 shows, accession to the European Union is no guarantee for economic recovery. But accession will imply a regulated agriculture. We can therefore say that fragmentation-reducing instruments will be needed in Central Europe. A prerequisite for all land market activity, however, is a proper land registration system.

Figure 9: Schematic image of relevant characteristics of the land market (amount of land and type of actors) and how these are externally influenced. Source: Van Dijk (2002c)
4. **Instruments for reducing fragmentation**

With the overview from the former chapter in mind, we can now focus on available solutions. When a government faces fragmentation — and decides to correct it — two strategies are at hand. One way to act is by stimulating spontaneous improvement and slow down autonomous worsening. Examples with respect to fragmentation are changing the inheritance legislation and forbidding dividing up parcels. This strategy is susceptible for misuse, unwanted side effects and it is hard to assess its effectiveness. The second strategy is applying specific instruments to tackle specific problems. This is the focus of this thesis (section 1.4). This chapter presents specific instruments that were applied in Western Europe to battle land fragmentation in agriculture.

Do bear a first mismatch between both regions in mind, namely that the origin of Western European fragmentation was different from the Central European. With the rapid growth of the Western European population, that gained momentum after the Industrial Revolution, there soon was no more heath and forest to claim for agricultural purposes. Nonetheless, agricultural land remained an important condition for survival of the majority of the Western European population. As a consequence, agricultural land was seriously sub-divided (Hofstee, 1959), particularly in countries which are densely populated and which are not equipped with an industry ready to absorb excess agricultural labour (ILRI, 1959). Also, inheritance legislation had an important impact on the emergence of Western European fragmentation.

The practice of the last 60 years has resulted in three distinct instruments that are directly addressing land fragmentation of agricultural land. This first three sections introduce these three instruments. The last three sections make a first confrontation of these Western instruments and Central Europe. Central-European complications for applying the instruments are presented, together with activities that already are undertaken in the region.

4.1 **Land funds and land banking**

A farmer that wants to expand his property has to overcome a key constraint on agricultural land tenure. Namely, in densely populated rural areas, all farmland is
bordered by other people’s private land or by little productive land. This means that expanding one farm inevitably means reducing of property of others. This constraint is particularly important when the alternative ways to supplement income (intensification of production and off-farm income; see Hofstee, 1959) are not at hand.

The fact that land is finite (see Dawson, 1986) discerns it from other means of production. This fixed supply in itself does not block an optimal distribution of land among the most efficient users, however. The farmer that has the best possibilities of exploiting the land should still be able to acquire land from less efficient users. But a second particularity of land, namely the high transaction costs, can outweigh the difference in exploitation efficiency. And even then, non-economic considerations can resist the transfer from one landowner to another. Emotional bonds to land or farming as a profession may play a role and so may the lack of alternative income.

Thus, transaction costs and non-economic considerations can make the land market within a certain area far less dynamic than differences in efficiency would suggest or require. The effective and autonomous adaptation of farm size to economic requirements fails.

The deadlock can be avoided by introducing a new type of player in the land market; an owner that is not interested in growing but in distributing its land to established farms. Its land is thus used as a buffer that enables the improvement of farms without intersecting other peoples’ interests. The buffer may also be used to establish public facilities, like drainage and road infrastructure. The use of such a buffer is referred to as ‘land banking’. The buffer itself is a land fund.

The buffer can be an instrument for agricultural policy. By giving the government influence on the criteria for assigning land fund parcels, policy on farm structure can be implemented. This way, policy does not have to manipulate private actors, but can more directly change land ownership relations within a certain area.

Figure 10: Schematic image of a concentrated land fund (right half) that by transferring a farm into it results in a diffuse land fund (left shaded parcels)
The possibilities of applying land banking depend on the degree of concentration of the land fund. At the one end of the continuum, there are the vast, clustered amounts of land. In Poland, for instance, an enormous reserve is on sale. It concerns the zone that was formerly German land and used by state farms until 1990. It is not assigned as a land fund, but could potentially be used as one. Other Central European governments hold dismantled collectives or former military training areas. At the other end, there are the diffuse land funds, consisting of numerous parcels scattered throughout the country. The advantage of the diffuse type is that the buffer is at short distance from the farms that need it. Thus, established farms can stay in place while enlargement is still possible. Investments to make the parcels attractive for farmers are hardly necessary in this case. Diffuse land funds emerge by applying concentrated land funds (Figure 10).

Using concentrated land funds for farm structure improvement means that the new users will have to move to that particular area. This may involve large distances and consequently meet social barriers. Hofstee (1959) foresaw social problems connected to using the Dutch polders as a land fund (see section 6.1), for example an outflow of farmers with leading roles in local society, since they are strong enough to make the transition. Several considerations may keep people from applying, like degrading to a less-advantageous type of tenure (inherited-owner to tenant), the public disgrace of being rejected, a different soil-type. A governmental concern when using a concentrated land fund may be the new infrastructure and buildings that have to be constructed.

4.2 Land consolidation

The precise content of the term ‘land consolidation’ is quite variable. It does not necessarily refer to the instrument, but the process of enlarging land use units (regardless of the driving force) can be meant as well. If we do refer to the instrument, still variable associations are at hand. Its practice in much of post-war Western Europe first was heralded for meeting society’s demand for propelling economic prosperity. The term then had a positive association. The attitude towards land consolidation changed, however, when environmental concerns replaced the economic ones, thus highlighting negative side-effects (see section 6.2 and Bonifanti et al, 1997). For the – expanding – non-rural population, land consolidation became the icon of environmental destruction, while the farming population still appreciated its merits. So, the same word aroused a different association over time. Bulgarians will have yet another association with the term, since it was used for establishing the large socialist production units.

Here we use a neutral interpretation, for which the term is stripped from its politically induced targets. What thus remains is a locally supported voluntary procedure for establishing a new spatial allocation of ownership and/or use within a predefined rural area. The targets for the area are not essential for the concept (even ecology could be
the main drive; Van Lier, 1998), although agricultural land use optimisation is assumed to be the main objective of the population involved.

So, land consolidation, in the context of this thesis, is a project-wise improvement of all physical limitations on agricultural production, for instance parcelling, water management, infrastructure, soil quality and road infrastructure. Parcel reallocation is an integral part of the projects and aims to reassigning every participant less parcels, closer to the farm buildings and of equal acreage or productive potential. Of all Western fragmentation-reducing instruments, land consolidation certainly has involved the most financial resources, labour, debate and propaganda.

Land consolidation projects typically involve several hundreds of participants. Due to the large numbers of participants and the complexity of the tasks, a fully voluntary approach soon proved impossible. Therefore, there is typically a majority-rule that can force a stalling minority to co-operate for the sake of the project as a whole. As a consequence, legal provisions emerged in order to facilitate majority-rules and at the same time protect the rights of the participants to the greatest extent, compatible with the general interest (FAO, 1962).

Land consolidation by law emerged mainly around 1900, although Denmark was extremely early to prepare a central Act in 1781 that was completed in 1805 (Meuser, 1992). Dutch legislation did not provide in a Land Consolidation Act until 1924. It had several shortcomings that impeded large-scale consolidation in the Netherlands. In 1941 the Act was expanded with new measures and another majority rule, which led to farmers make more use of these legal facilities. In Germany, the first legal land consolidation provisions were established on Land-level, according to the federal constitution. Several individual Acts were adopted. The North was the first to provide legal possibilities. The Act of 1953 led to one central Act for the whole federation. France made a national level Act in 1918 that stipulated a majority criterion of half the owners with two thirds of the area, and a judge as decisive chairman of the body of participants. Italy adopted its first Land Consolidation Act in 1911, which was improved by the Act of 1933. The Austrian Act goes back to 1883, that provided in the consolidation of agrarian land, forest land and restructuring of users' rights.

Initially, all programs were to aim 'at increasing productivity of agricultural labour in order to strengthen the competitive position of agriculture, to establish a better balance between agricultural and industrial labour, and to reach a higher standard of living for the farming population' (ILRI, 1959).

After the first legal facilities were born, Europe faced many structural changes, which also affected agriculture. In 1959 the ILRI said the scope of the task of land consolidation to be (ILRI, 1959):

- Elimination of land fragmentation
- Land reclamation and soil improvement
- Improvement of the farm size pattern
- Improvement of the pattern of settlement
Later these tasks also embraced nature and environmental conservation and regional development (Meuser, 1992; Table 11). The German ‘Flurbereinigungsgesetz’ of 1976, for instance, turned the mainly agricultural focussed land consolidation into an instrument that aimed at comprehensive restructuring of rural areas. This led to an increase of consolidations accompanying great works of new infrastructure (Unternehmensflurbereinigung).

The current Land Consolidation Act from 1985 of the Netherlands also aims at broad goals, embedded in general national spatial policy. Meuser (1992) critiques the complicated and time-consuming system. A large number of phases and officials are involved. A marked difference in these two countries is de role of de municipal authorities. In the Netherlands they do not play a role at all. Co-ordination only takes place at higher administrative levels. Austrian land consolidation did also become an instrument of structure policies in the rural areas. The improvements of the rural living, agricultural and recreation space are planned from the view of both economy and ecology.

Although France has started synergy of different spatial instruments, like village restructuring and land consolidation, one can not speak from a comprehensive instrument like those in Germany or the Netherlands. Land consolidation has remained a classical purely agricultural orientated instrument. Yet, nature conservation and tourism can be said to get growing attention.

Danish land consolidation appears to be of little importance today. Environmental interests and interests of nature conservation only slowly gain importance in Denmark. These interests are more embraced by other planning instruments than land

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of conception</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>1850</td>
</tr>
<tr>
<td>- Baden</td>
<td>1343</td>
</tr>
<tr>
<td>- Bayern</td>
<td>1659</td>
</tr>
<tr>
<td>- Württemb.</td>
<td>1459</td>
</tr>
<tr>
<td>Italy</td>
<td>1898</td>
</tr>
<tr>
<td>Spain</td>
<td>1888</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1888</td>
</tr>
</tbody>
</table>

Table 11: History of land consolidation legislation in selected Western European countries. Source: After Meuser (1992)
consolidation. Land consolidation does serve to withdraw land from agricultural production (probably under pressure of European structure policies) that then can be used for environmental issues.

In Finland settlement problems are an integrated part of land consolidation. Also in Norway, legal provisions for nature conservation and environmental goals fail. Swedish consolidation has an important focus on forestry, and aims at improvement of the, not very densely present, settlement.

A significant number of countries has by now incorporated broad goals for their rural areas. There is a tentative link between multifunctional rural planning and high population density. In the Netherlands, the agricultural land for the majority of the people provides the sole opportunity for outdoor recreation. Nature areas are limited and quite concentrated. Near big cities like Rotterdam and Amsterdam, projects that serve important goals of outdoor recreation and nature development are more common than strictly agricultural projects are. When the rural space has to serve many goals, legislation could react to that.

Because land consolidation systems are so complex and the variability between Western European countries is so great, appendix C gives a terse international overview.

4.3 Voluntary parcel exchange

The voluntary exchange of parcels between three or more owners, thus resulting in improved parcelling is called voluntary land exchange (Figure 11). Parcels normally are not changed in size or shape. Compared to traditional land consolidation, this instrument is less expensive, less intrusive and less time-consuming. Voluntary land exchange does not need a special legislative background. It can take place in a normal sell-and-buy construction, where notary and cadastre are involved in switching ownership rights between several parties. However, the voluntary way of consolidating is generally made more attractive by provisions in the Law on Land. Normally the main stipulations relate to cost reduction for the landowners. Transaction costs (that vary among countries and can comprise notary costs and land registration fees) can be subject to subsidies and support by experts.

Western European voluntary initiatives to rearrange parcels have been recorded several centuries ago (see Meuser, 1992). In Germany a first attempt is described for the year 1343 in the area ‘Klosters Oberalteich’. And 1435, members of the Agnieten monastery in the Dutch city of Zwolle consolidated the land use in a 50 hectare area (Terravisic, 1978a,b). In Denmark consolidation was executed in the middle of the seventeenth century. And already in the eighteenth century the first legal provisions were made.

The Western European experience on voluntary land exchange (sections 6.3) shows two limitations on its application. The first limitation is on the complexity of problems that can be tackled by the voluntary approach. The voluntary land exchange is only suitable for a limited number of owners, relatively small differences in soil quality and within a small area. The second limitation is the danger of misuse. The favourable
subsidies can be misused for ordinary land transactions. This way, governmental support ends up at the wrong parties.

The Hungarian Act on Land (from 27 July 1994) already includes regulations concerning voluntary land exchange. It explicitly regards voluntary land exchange a temporary measure: “Until the effective date of provisions of (...) a separate law, (...) voluntary exchange of lands aiming at the consolidation of estates may be initiated” (§26). Participants intending to exchange land can institute these proceedings at any land office, the venue of which includes one of the plots to be exchanged. All matters concerning the exchange are organised by the land office. The latter requests land users and owners to make a precise proposal and prepare documents related to the agreements. If required, the office carries out the land survey necessary for the exchange on payment of a fee, and puts the owners in possession of the exchanged land. The Act on Land regulates the obligation of the reimbursement of the difference in value from the exchange.

4.4 Drawbacks for fragmentation-reducing instruments

When instruments from one country are applied on problems in another country, there probably will be problems in matching these two. This section gives an overview, which never is complete. Both the Central European problems on land, and the Western practice are far too complex to enable a perfect overview, let alone an analysis on how the first affects the second. The features presented here are a tentative overview, resulting from extensive literature review, and has been published by Van Dijk (2001a).

Macro-economic conditions

The first and perhaps most crucial discrepancy that affects fragmentation-reduction is the economic situation. Western European land consolidation has especially thrived in the 1950s and 1960s. For example, around a quarter of all agricultural land in the
Netherlands was being consolidated, and also in Germany huge investments in structural improvements were made. At that time, fragmentation was of comparable severity as it is in Central Europe now. Looking back, we can regard it to have been effective (Van Dijk, 2000). But we have to bear in mind that in the decades after World War II, the Western economies were growing. Trade, industry and the service sector were expanding, allowing the essential drain of labour from agriculture (Hofstee, 1959). This growth generated preferable financial circumstances for the governments, making it possible that the agricultural market became more and more protected and supported. Bottom line is that national governments as well as farmers had confidence in the future and were willing and able to invest.

The Central European situation is quite the opposite. The high inflation makes farming unprofitable for three reasons: (1) the states lack financial resources to support their farmers, (2) inflation has declined purchasing power, leading to a decline in consumption and consumer prices for agricultural products, while (3) prices of inputs have gone up, resulting in the infamous ‘pricing scissors’. Thus, income from agriculture is low and uncertain. This makes investments risky. Partially due to these conditions, a large proportion of the Central European land is used for subsistence farming only, in which context production efficiency is of low importance.

The bad prospects and the fear of investing are blocking progress. Because of the bad prospects, investments are postponed, and because of the lack of investments, prospects are bad. This raises the question whether fragmentation-reducing instruments should wait for better times, or can they ignite progress?

**Type of owners**

As a result of what is mentioned above and due to the nature of some privatisation mechanisms, the rural land is not exclusively owned by people who are eager and able to build a healthy farm. Especially in countries where restitution was applied, many people received a parcel of land without asking for it. This has led to the emergence of absentee-owners; landowners that are not able to actually use it, or think that another profession will give them a better or more reliable income. Selling the land would not be sensible, because land prices are low. And because of the raging inflation, land has a more constant value than cash. So the land lays fallow (in 1996 around 28% of all Bulgarian agricultural land according to Wegren, 1998).

The presence of absentee-owners leads to a tricky starting position, especially for land consolidation. A large share of the landowners has no benefit from consolidation because they do not use the land. But being participant in a project means having to pay a share of the costs. The result is, they oppose to land consolidation, leading to a deadlock.

Another problem is co-ownership. For example in Slovakia, one parcel can be owned by an extensive list of co-owners. All owners have a saying in what happens to the parcel, meaning they all have to agree on the reallocation plan. Finding all owners is one problem, but making decisions would be the second. Co-ownership is not investigated in further detail in this thesis.
**Land psychology**

Another reason why Central Europe is a special case is the different relationship that people have with their land. The Western view at land is more or less economic (although regional differences may occur). From an economic viewpoint, land is just one of several means of production. By exchanging parcels of land, the use of this production factor can be optimised. The productive value of land (in terms of soil quality and location relative to the farmstead) has more importance than the location.

More strongly than in Western Europe, the farmers in Central European countries often have a strong emotional bond with their land. A plot can have been family property for ages. This makes exchanging parcels a more sensitive issue than it is in Western Europe. Exchanging parcels in a way that leads to economic benefit can be fiercely objected to. Emotional considerations may include (1) keeping parcels of which the entire village can confirm who owns it, gives more security than a paper document from the land registry, (2) sentimental considerations, and (3) the parcel provides food security for the family. These strong emotional elements constrain the land market (Dale and Baldwin, 2000) as well as fragmentation-reduction and therefore cannot be ignored.

**Infrastructure**

When a region was collectivised, the original pattern of parcels, settlements and roads in many cases will have been erased. Road infrastructure and waterways were adapted to large-scale farming, i.e. the pattern was made much less dense. In that case, facilitating private farming involves restoring suitable infrastructure. A market-oriented private farm may demand more road length for reaching the parcels, supermarkets for its own household supplies, a telephone connection, processing industry at reasonable range and locations to sell its produce. All this asks for rural development: investments in facilities together with investments in farm outlay.

Poland, a country with a considerable consolidation experience already (see section 4.6), is now confronted with these kinds of problems, yet lacking experience with more complex projects. Projects that embrace farm structure, but also road infrastructure and village restoration. Complex projects involve co-operation of different institutions and disciplines. Mucsynski and Surowiec (1995) point out that the rural development aspect up to now only means allocating state land for public interest purposes. They also criticise the failing spatial and temporal co-ordination. Pijanowski (1993) also mentions the lack of comprehensive planning. Chechowski (1992) states that the current Land Consolidation Act is not suitable for comprehensive planning.

**Privatisation**

In some parts of Central Europe, the privatisation process is not completed yet. This backlog can be due to several factors. In the Czech Republic, the Law dictates that the parcelling structure of 1948 has to be restored. This is not always possible. Many original parcels are impossible to determine in the field (missing parcels) or they may
lie under roads or buildings. The original owners or their heirs can also be difficult to trace (missing owners). These practical difficulties combined with the rigid regulations can lead to excessive delays or even missions impossible. It goes without saying that reallocation of rights on land is not possible when distribution of rights in the original situation is not definite yet. Another result of the privatisation process may be a moratorium; a frozen situation. Most Central European countries forbid or restrict sale of restituted land for a number of years.

4.5 Geographic distribution of these drawbacks

Because of the internal diversity of Central Europe, the features presented in the former section do not apply to every square kilometre in Central Europe. Only the bad macro-economic circumstances for agriculture are a problem in all Central European countries. The transition of economy has disrupted the old structures and processes. A new structure is not yet in place, leaving the actors on the market with limited facilities and protection.

This section addresses the geographical distribution of the features. There are very distinct differences between the various countries and, although often neglected (Dingsdale, 1999), within the countries there can be an important regional differentiation. Often, the spatial distribution can be explained by differences in land ownership history and the privatisation mechanism.

The distribution of the rest of the features over the region shows distinct patterns. The four features in theory could make 16 combinations, but in fact four typologies can be distinguished (Table 12). Clearly, the combinations of features are not coincidental. There appears to be a direct link with the history of land ownership and privatisation. Whether or not disruption of the area has taken place (referring to completely adapting the landscape to large-scale farming) by definition indicates problems of unsuited infrastructure for private farming. In the case of disruption, the privatisation mechanism determines how the other features apply. Restitution, despite the ethic justice, gives a large share of the land ownership to people who are unable or not interested in farming, nonetheless holding on to that ownership because of the worthwhile capital. In practice, they are absentee owners. At the same time, the emotional bond to the land is strong, because of the historical importance of the location of the land. This applies to both the absentee-owners and the people that do use their restituted land.

Compared to restitution, the compensation mechanism is more efficient, skipping the laborious reconstruction of old structures. The owners have actively pursued ownership of their land. Therefore a greater part can be considered being interested in farming. Because they likely will acquire land that has no historical value, the emotional bond will be weak. In cases of sale of former state land, the owners are occupiers and do not have strong bond with their land.

For the areas where no disruption occurred, this implies that these regions have not really been collectivised. Private farming maintained its dominance during socialism.
Consequently, transition is less problematic. Old boundaries are still visible and well remembered. Privatisation plays a relatively small role and ownership structures change only little.

For Poland, an important subdivision has to be made between Western and Northern Poland, having a history of disruption, and the rest of the country, that remained untouched. The difference is clearly visible in the landscape, the first being large scale and empty, the second far more varied. This difference has a historical reason. The Northern and Western parts have only been added to Poland after World War II. Until that moment it had been part of Prussia and Germany respectively. The original population was forced to leave the region after the border shifted. The state, having obliged itself to buy all land that was put on sale, acquired large quantities of land in this region, establishing state-farms. Now the region is burdened by large areas of land for sale but at the same time no healthy private farms that are interested in buying the land. Also, because of the border shift, the Poles that settled there have always regarded this land as ‘German land’.

Now we have two regions with different land use problems. In the Northern and Western territories we see large quantities of land pending sale or tenancy. Because of the unsuited infrastructure new settlement of private farms is hard to establish. The result is that the land stays in the hands of the state, and land that is sold is often bought by people who are interested in worthwhile capital instead of farming. In the rest of Poland, the low average farm size is the main problem, but possibilities fail (or are already exhausted) to upgrade these farms.

In Hungary, the socialist policy led to almost 90% of the farmland being removed from the private agricultural sector so that nowadays there are hardly any farmers left who have a personal relationship to the land they farm (Kneib et al, 1999). A distinct regional diversification within Hungary fails in literature. The situation in the areas owned by the former co-operatives is not very different from the areas owned by those who have been compensated with land (Kneib et al, 1999).

When observing land related problems in Bulgaria and Romania, an important distinction has to be made between (semi-) mountainous areas (by definition peripheries) and the fertile plains, where also most of the cities are. According to Konstantinov (2000), in Bulgaria these two regions differ strongly because of the

<table>
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<th>bond</th>
<th>infra-structure</th>
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<td>occupiers weak unsuited</td>
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*Table 12: Four types of regions, described in terms of four features relevant for land consolidation*
socialist era and consequent privatisation. The mountainous and hilly terrain (30% of Bulgaria) made collectivisation more difficult and less viable (Achago, 1985). In the periphery, the (semi-) mountainous areas, restitution of formerly owned property did not give rise to many disputes. Boundaries tend to be well remembered because there has been no radical disruption of the terrain. Furthermore, in relatively little cases land was not claimed or registered at all. However, because of the socialist policy to redistribute the Bulgarian population over urban and rural regions, most land is owned by people who do not actually use the land. This has three implications: (1) large tracts of land are lying abandoned, (2) the effective registration (at a notary against certain costs) fails because of the low value of the land, and (3) there is no active property market. In the fertile plains, land is more desirable. As a consequence, especially around the richer villages and small towns, the number of problematic restitution cases tends to be much higher. Effective registration of land ownership involves high costs in terms of money and time.

The Romanian case shows a strong parallel with Bulgaria. Here, too, the regional distribution of the level of private ownership coincides with the pre-transition period. In the mountainous areas, privatisation was not very extensive and fairly simple. In the plains, numerous unrecorded land transactions in the past and absentee owners impede a fast and sound privatisation (Benedek, 2000).

4.6 Central European initiatives on fragmentation-reduction

Although the research question may suggest otherwise, Central European countries are already trying to deal with fragmentation. In the light of the obstacles in the former section, it is interesting to compare how each of the countries copes with land fragmentation. There are two groups of initiatives. The law-based, governmentally supported instruments resemble Western European ways. There also are strategies that directly result from the local farmers’ struggle with unfavourable conditions. The two groups are generally referred to as formal and informal consolidation.

*Formal consolidation*


The Czech simplified procedure was a temporary solution to cope with the problematic privatisation and the scale of the fragmentation problem. In simple land consolidation, one owner acquires the use-rights of another owner’s accessible plot of land. The latter is typically not interested in managing the land, although he has a well-accessible and contiguous piece of land. Both parcels in the exchange should be of
equal value. This way, the simple consolidations enable private farms to improve their production conditions. By the end of 1999, 19,227 simple land consolidation projects were completed, involving over 309,000 hectares of land (some 7 percents of the total available agricultural land). Its seeming success is overshadowed, however, by the inaccuracy with which they were executed. Exchanges were made using simple sketches with inaccurate maps from the socialist era. Because the determination in the field involved land markers, corrections are complicated.

Complex land consolidations involve larger areas and broader goals. The complex projects affect one cadastral unit. The projects aim to result in conditions for rational farming, but also seek ‘protection and fertilisation of land resources, landscape management and improvement of environmental stability’ (§2) as well. It thus enhances non-agricultural factors in order to comprehensively improve the quality of the countryside. In 2000, 137 complex land consolidation projects commenced, involving approximately 67,500 hectares of land. The project execution follows the German model, by electing a board of representatives and using a top-down initiation. Slovakia also adopted a land consolidation Law in 1991 (Law No. 330/1991). The Law also comprises the acquiring of titles to land and the institution of land offices and land associations. Further data on this formal arrangement could not be obtained.

Polish legal land consolidation (the first Law was adopted in 1923) never really disappeared. During the heydays in the 1970s, about 400,000 hectares were consolidated annually. Between 1968 and 1982, one quarter of all agricultural land in Poland has been subject to land consolidation (Mucynski and Surowiec, 1995). Farm enlargement hardly took place, however, due to the lack of a land banking system. The projects did grow to be more and more comprehensive in the 1980s, a tendency that is still going on. Co-operation takes place with Swiss, German and Dutch agencies on integrating more goals in the project. Evaluation systems are well-developed (for instance see Cymerman and Kurowska, 2001; Wilkowski and Sobolewska, 1998; Wilkowski and Pulecka, 2002). The Act was renewed in 1982, but the number of applications for land consolidation projects kept falling (Mucynski, personal comment), especially after the transition. Economic insecurity and the improvements made in the 1970s reduced the demand for new projects. Currently, Polish land consolidation efforts are minimal.

Hungary is on the verge on installing a land consolidation Act. A draft Law is in the process for approval by the Hungarian parliament. In section 5.4, more details can be found on this process.

Informal consolidation

The absence of land consolidation legislation in the rest of Central Europe, certainly does not imply that people are passive toward the land fragmentation problem. Farmers, as they have to face the direct practical implications of fragmentation, come up with informal ways to optimise production. Sabates-Wheeler (2002) gives an
overview of informal consolidation initiatives and argues that policy-makers should take these initiatives, being bottom-up, more seriously. At least three ways of informal consolidation are at hand.

A first type of informal consolidation, that is perhaps the most dominant, is the voluntary grouping of people or families that involves a seasonal or medium-term agreement about co-ordination of the use of contiguous or closely spaced parcels. These groups typically range between 2 and 30 members. Advantages are, besides overcoming land fragmentation, economies of scale and jointly using labour and equipment for farming. Harvested crops are divided proportionally. The groups are more flexible than official collectives because (i) members can decide annually what share of their land they leave in the society, (ii) decision-making is consensual and not dependent on leaders or committees, and (iii) there are no transaction costs involved.

As a second type, informal leasing can be a way to consolidate agricultural land. Sabates-Wheeler (2001) recorded two distinct types in Romania. In case of Dijma, the rental value is specified in kind. Expenses for crop production are typically split between lesor and leasee. The lesor is usually highly labour constrained and relatively land abundant, like elderly village residents that thus obtain their subsistence needs. Arenda refers to an informally agreed but normal leasing contract. The lesor leases out his land for a sum of money on a fixed term contract. The leasee has decision-making control over the production process and incurs all expenses and accrues all output and profits. This arrangement is preferred by city-dwelling landowners.

Thirdly, there is temporary, informal parcel exchange, for instance in Bulgaria. Producers – that typically live in the same village – mutually exchange land parcels. The exchange is usually for one crop-year and based on a verbal agreement. Unless the exchanged plots differ considerably in size or quality, no payments are made.

Remarks

When comparing the nature of consolidation initiatives with the severity of fragmentation (see section 3.3), an intriguing paradox arises. Because why is it that the countries with the least fragmented production structure are the most advanced in applying formal land consolidation? It is already mentioned that the Polish land consolidation tradition never ceased to exist. And it is true that the Czech and Slovak
Laws to an important extent intended to facilitate a smooth settlement of privatisation instead of optimising farming. Still, on the vast and highly fragmented plains and mountains of Romania and Bulgaria no steps toward formal land consolidation have been taken. The absence of formal land consolidation initiatives in the most fragmented part of Central Europe may indicate that rural problems there are more complex than fragmentation figures alone suggest. In the case studies in the next chapter, the answer to this paradox may be found.
5. Farms and land in Hungary and Bulgaria

Since the former two chapters made us realise that fragmentation throughout the Central European region is quite diverse (Ch. 3) and that Western Europe applied three quite distinctive instruments (Ch. 4), we must try to obtain a more profound image of what the fragmentation problem is really about. Obviously, we should avoid concentrating on symptoms instead of the actual problems.

This chapter attempts to reveal the core of land fragmentation in Hungary and Bulgaria. For each of the countries, a short geography gives a global image of the landscape, climate and size of the country. After that there is a description of how the privatisation of agricultural land was conducted. The field-data list as much facts about land fragmentation as could be obtained. Particular attention is paid to the problems in private farming, because this group of agricultural producers are most likely to experience disadvantages due to fragmentation (see section 2.2). The instruments that the case study countries already use for dealing with problems of agricultural structure are also taken into account. The final section gives a comparative analysis and subsequent conclusions.

Figure 13: Location of the two Central European case study countries Hungary and Bulgaria in Europe
Short geography

The Republic of Hungary (Magyar Köztársaság) measures over 93,000 square kilometres and is inhabited by 10 million people. The country is completely enclosed by mountains. It borders Slovakia (North), Romania (East) and Austria, Serbia, Croatia and Slovenia (South and West). Contemporary Hungary comprises one third of the original Hungarian Empire.

Hungary generally is divided into four geographical regions: the Nagy Alföld (Large Plain), the Northern Highlands, Dunántúl (Transdanubia) and the Kis Alföld (Small Plain). The Nagy Alföld comprises more than half the country and is located East of the river Duna (Danube), that crosses Hungary from North to South. The plain deposits its water in the river Tisza and is an important agricultural region. The famous pusztá, originally a prairie-like landscape, has been cultivated although a small part is left untouched in the East. The second region consists of the mountains in the North. The Mátra-mountains and the Bükk-mountains peak up to 1000 metres. At the base of these mountains, industrialised cities like Budapest and Miskolc are located. Dunántúl is the part of Hungary West of the Danube, except for the Kis Alföld in the Northwest. This region contains rolling hills and lower mountains. It is mainly agrarian. Lake Balaton, one of the largest lakes of Europe, is located in the centre of Dunántúl. The Kis Alföld is a plain and low important agricultural region. It marks the edges of the Austrian Alps.

Most parts of Hungary have a continental climate with long, hot summers and cold winters. In summer, the dry winds can cause damage to crops. Average temperatures range from -4\(^\circ\)C in January to 24\(^\circ\)C in July. Precipitation varies from 500-600 mm in the plains to 600-800 mm in the hills.

‘Republika Bulgarija’ is larger than Hungary (111,000 square kilometres) and the number of inhabitants is somewhat smaller (over 8 million). It lies in the Southeastern part of Europe, along the Black Sea. It is especially mountainous in the West, and plainer near the sea. Bulgaria is enclosed between Turkey and Greece in the South, former Yugoslavia in the West and Romania in the North.

The Bulgarian landscape shows a strong East to West stratification of parallel mountain ridges and plains. Along the Northern border with Romania, the Danube is flowing, along which the fertile Bulgarian Plateau is located. More to the South, right across Bulgaria, the Balkan Mountains are running (Stara Planina, or ‘Old Mountains’), extending from the Black Sea past Sofia. Parallel to the Stara Planina, more to the South, the Sredna Gora is running. Both mountain ridges (with summits up to 2000 metres) are connected to the Carpathians. South of the Sredna Gora there are the Rila mountains (highest summit, the Musala, 2925 m.) and the Rhodopes. The Sredna Gora and the Rhodopes enclose the largely irrigated Marica Plain. Of the rivers, only the Danube can be travelled by ships. The other rivers are mainly used for generating electricity and irrigation.

The largest part of the country is subject to a continental climate, meaning hot summers and cold winters. The average temperature in January is -2\(^\circ\)C en rises to
reach over 23 °C in July. Southeast of the Stara Planina, the climate is milder, causing (sub)mediterranean conditions in the Marica Plain and the Black Sea area. The precipitation (500-600mm per annum) is relatively low throughout the country.

5.1 Privatisation processes

The Hungarian system of land privatisation was quite complicated, both in design and in its practical implications. Mathijs and Mészáros (1999) give a detailed overview. They identify five parts. First, those members of collective farms who had always retained title to part of the land were permitted to withdraw their land freely from the collective. This was already achieved under the last Communist government in February 1990. Second, former landowners who had lost their land were compensated for their losses. Approximately half of the collectively owned land (which makes up more than three-fifths of all land cultivated by collective farms) was used for this purpose. This type of privatisation was regulated by the Compensation Laws. Third, the Transitional Co-operative and Unified Co-operative Laws dealt with the transformation of collective farms and the privatisation of the on-land assets and the remaining land. Fourth, the privatisation of the state farms is part of the overall privatisation legislation. Finally, a land law regulated, among others, the exchange of property rights of land. The individual parts will be described separately.

The land that was privatised consisted (1) partly of collectively owned land and (2) partly of state farms set aside for privatisation. All the land of the collective farms was divided into three pools: (1) approximately one-third of the land was still privately owned; (2) one-third was collectively owned land set aside for members and employees; (3) the remainder of collectively owned land was set aside for compensation under the Compensation Laws.

Restitution of privately owned land As in most other Central European countries, part of the collectively used land was still owned by individual members in 1989. Collective farm members held title to one-third of the land used by collectives. However, this land had been subject to land consolidation and improvement investments by the collective. The members owned a share of this land proportional to the land they brought in. Hence this land is referred to as 'proportional' land. Restoration of full property rights proved difficult. The collectives were free to design mechanisms to restitute property rights on this land. If no agreement could be reached, lotteries were organised.

Compensation Laws Three-fifths of the land cultivated by collective farms was collectively owned. Part of its privatisation was covered by the Compensation Laws, another part by the Co-operative Transformation Laws. The Compensation Laws were meant to provide indemnification for individuals whose property was confiscated.
under Communism. People eligible for compensation were farmers whose land was seized just after World War II and farmers who had been forced to sell their land to the collective farm for a low price in the 1970s and 1980s. Former owners (or their descendants) who claimed compensation, received so-called vouchers based on the estimated value of their lost property. For property up to the value of 200,000 HUF (roughly 10 hectares), former owners were compensated 100 percent, with a degressive scale of compensation thereafter. The voucher could be used to buy land, but the recipients could choose for assets, shares, apartments or life-annuity as well.

The value of the compensation vouchers was based on the original value of the lost land, which was calculated on the basis of the cadastral net income of the arable land, expressed in Gold Crown units ('aranyakorona'). The average Gold Crown value of Hungarian land is 20 Gold Crowns per hectare. Taking into consideration that the average market value was 20,000 HUF per hectare in 1991, one Gold Crown worth of land equals 1,000 HUF of compensation.

The land set aside for compensation was allocated through auctions. For the thus acquired land, a few rules applied. If the purchased land is not cultivated for a minimum of five years it may be confiscated. However, the land may be sold or leased to others who are willing to cultivate it. The land must be held for five years before it can be resold. Land can be bought using compensation vouchers only by the first bearer of vouchers.

Transformation of state farms The transformation and privatisation of state farms was the responsibility of the State Property Agency and not of the Ministry of Agriculture. People allowed to buy share included existing workers and tenants, on-farm and outside owners of compensation vouchers, banks and domestic and foreign investors. The transformation of state farms into companies took place during 1992 and 1993. The major part of them (94%) are operated as joint stock companies. After a few years, still 120 state farms had survived, of which 24 farms, specialised in seed propagation, animal-stock breeding and research, were further excluded from privatisation.

Both the changes of legal ownership rights and the transformation of organisational forms were, by large, complete by the summer of 1994 (Harcsa et al, 1998). The process had yielded a huge number of new landowners. At the end of 1994, about 1.8 million hectares were auctioned to 527,000 buyers (Mathijs and Mészáros, 1998) of which 320,000 did not own land before (Jaksch, 2001). This means, however, an average land acquisition of less than four hectares. Harcsa et al (1998) mention a number of 2 million families that were entitled to receive compensation. Apparently, three quarters of the recipients of vouchers chose not to obtain land. However, because of the auction system, the government did not know in advance how much land would be claimed by the recipients of the vouchers. So, despite not all the families bought land, the 2 million hectares set aside would not be sufficient to satisfy the full number of land requests (Harcsa et al, 1998).
Farms and land in Hungary and Bulgaria

The privatisation process did not lead to the extinction of the large production units. In fact, up to 1993, the number of co-operatives increased, due to the segmentation of excessively large co-ops, but the total land they cultivated declined steadily. Then decollectivisation gained speed and in 1994 only 437 co-operations remained. The population working in the co-operatives declined from 500,000 in 1989 to just over 100,000 in 1994, half of which were engaged in more industrial and commercial side branches than in agriculture itself (Harcsa et al., 1998). Mathijs and Mészáros (1998) argue that to an important extent, the co-operatives were restructured into new organisation forms. Of the 1,319 collective farms present in 1989, 174 were liquidated and 1,987 new organisations had emerged by 1993. Of these new organisations, there were 1,387 agricultural producer co-operatives, 351 limited liability companies, 24 companies limited by shares and 31 partnerships, as well as some organisations in forestry and food processing.

Bulgaria's volatile privatisation

The Bulgarian privatisation is not easy to understand. Mainly because it was redirected several times by the alternating governments. Because each new government was of the opposite wing as the preceding one, the direction of the land reform kept changing. Begg and Meurs (1998), Dräger and Jaksch (2001) and Creed (1998) give summarising overviews, painting the following picture. The political post-communist era started in June 1990, when the Bulgarian Socialist Party (BSP) won a plurality of the popular vote. This gave the BSP just over half the seats in the Assembly, resulting in a severely divided legislative body. The divisions slowed the work, but in February 1991, the Farm Land Act was finally passed. The Farm Land Act determined the BSP's influence on rural areas through the state and collective farms. Although the Act was a major reform, providing the return of land to its previous owners, it also retained limits on private property. It limited holdings to 30 ha (20 ha in regions of intensive production), forbade transfer of ownership for three years, and restricted the freedom to choose buyers. Clearly, this law left open the

Figure 14: A reclaimed parcel in original boundaries in Bulgaria amidst fallow land.
possibility that the existing farm structure would not be changed fundamentally. With the state and collective farms controlling farm machinery and the local Land Councils having the right to 'consolidate' holdings, it was possible to pressure households to leave their land in the existing situation.

By late 1991 already, political winds were beginning to change, and with them, the Land Act. Frustrated by what they saw as inordinate socialist influence on new laws, the Union of Democratic Forces (UDF) achieved plurality in the parliamentary elections of October 1991. Together with the Turkish minority party MRF, they demanded more radical reform.

In March 1992, the new government passed a number of important amendments to the Land Act. The limitations on owned plot size, the three-year prohibition on sale, and the prohibition on non-agricultural use were all removed. In addition, the law stipulated that land must be returned in its real boundaries, not as a share of a consolidated or new co-operative holding. More importantly, the law attempted to remove the possibility of direct transformation of the old state and co-operative farms into new production units. It thus demanded the liquidation of all state and collective farms. The district governments were to appoint Liquidation Committees for that purpose. The farm members would receive shares of the proceeds from the liquidation based on both the assets contributed by their families and their own length of service. New agricultural co-operatives could be formed under the law, but only on the basis of voluntary agreements among titled landholders. The UDF hoped to force the emergence of individual smallholder agriculture.

The legal changes also greatly complicated the reform process. Restituting the millions of tiny plots in their real (and often contested) boundaries proved to be a logistical

**Figure 15: Progress of Bulgarian land reform between 1992 and 2001. Source: Kopeva (2002)**
nightmare. In addition, restitution promised to create an initial ownership structure even more fragmented than the pre-war structure. Eventually, the imposition of the UDF-supported law on BSP areas resulted in a feeling that the reforms were being imposed on the rural population by outside, urban forces. The fact that many farm workers (in cases more than half) were not eligible to land at all, aggravated the resistance against this law.

The inability to quickly resolve questions of ownership and control in agriculture discredited the UDF government, while rapid decollectivisation caused massive economic and political upheavals in the tobacco regions. Both problems contributed to a 1992 political crisis that brought down the government. The new government took a softer line on agricultural reform, amending the Land Act and Co-operative Law slightly to facilitate the formation of new co-operatives. The changes reflected a new official acceptance of co-operative farming and an increased willingness to allow rural dwellers to find their own means of restructuring.

In May 1995, new elections brought the BSP back to power, enacted another collection of amendments and reinstated some elements of the original Land Law. Liquidation was suspended and private ownership restricted again. The president and parliamentary opposition appealed the majority of the changes to the Constitutional Court, which cancelled nineteen amendments in June 1995.

Summarising, we can say that there is no simple definition of the Bulgarian privatisation other than its agility. Of course, this perpetual manipulation of agricultural policy produced legal uncertainty. The policy changes blocked processes that were underway, revoked processes that were completed and made the starting position for new processes even more complicated than they already were.

Creed (1998) reports about the practical impediments to a smooth redistribution of rights to land. Difficulties started with the first step of the process: the submission of land claims. The locating of documentation could take lots of time and travelling. In the absence of these reports, claimants could use witnesses. Major disputes over land concerned inheritance, which involved the creation of new boundaries and divisions. Official registers were used to calculate tax or requisition burdens and were treated as manipulable. Furthermore, the very features of the physical environment had changed, making it hard to locate the exact amounts of land in the same places as they were before collectivisation (Verdery, 1994). And a significant percentage of agricultural land was simply no longer available. Farm buildings, factories and city suburbs were built on somebody’s land. According to the land, these proprietors were to receive either equivalent land elsewhere or some other compensation.

As a result of these various requirements, the land claims in many villages significantly surpassed the amount of land available. Common lands were used to compensate various categories of claimants. In cases where this resource was not sufficient, a correction coefficient would reduce every villager’s claim, but those being asked to give up land that was clearly theirs in the past were likely to be dissatisfied. Even land that could be returned may have been altered in quality, by permanent crops or overexploitation. Since land was supposed to be restituted in a quantity and quality
equivalent to that collectivised, these developments caused problems. Land Commissions faced infinite problems combined with constant changes in the Land Laws.

Generally, land to be restored in real boundaries presented fewer difficulties. Many plots were never claimed. Lack of interest by owners or heirs, and fear of taxation were reasons for this. Land not claimed after ten years reverted to municipal ownership. Owners of land not in real boundaries received a document saying the land was theirs but they were not allowed to take it over for cultivation or sale. They had to await a reallocation plan that would consolidate all fragments located in the same general area while trying to maintain equivalence of quality and quantity. Land Commissions were contracting out the technical work. Approval was uncertain, meaning a long process. Every delay made it more likely that the process would be halted when political power would change hands. Most land in the country required allocation.

Land in the plains was more strongly concentrated in co-operatives, making restitution in real boundaries even less important. The huge time span for reallocation made farmers impatient. Some of them violated restrictions and took over his or her former land for private use. Regardless of how fair the proposed plan might be, it was destined to meet resistance from former owners on their former plots. On the other hand, giving back - typically fragmented - original parcels was unlikely to attract private cultivation.

The problem thus was not simply property rights and ownership, but the structures of the agrarian economy. Under conditions in the 1990s, why should villagers have wanted their land back? Many people wanted as much land as they could cultivate, and they wanted their rights over the rest officially recognised, but they did not want to have to farm it all. Market endeavours remained linked to subsistence and informal activities. The family situation seems to be most decisive for market oriented activities.

5.2 Private farming: situation and developments

In Hungary

Farm types: The Hungarian farms are mainly arable, as over 40 percent of both privates and enterprises declare (Biró et al, 2002). They grow a wide variety of crops, since the soil and the climate of Hungary is suitable for a lot of crops. Around 37% of both privates and enterprises are mixed farms. Specialisation in keeping livestock is mainly a matter of the private farms (21 against 10 percent for enterprises), while specialisation on services is typical for enterprises (14 against 0.1 percent for privates). Intensive horticulture is only practised by a small number of private holdings.

Further analysis of the animal breeding (Table 13) learns that cattle and pig are the main livestock on private farms, whereas enterprises are clearly specialised in cattle breeding. Large shares of the animals held in enterprises live on very large farms, which is not surprising since 98% of all land used by enterprises is in farms of over 100 hectares. For private farms, pigs and horses are mainly held on the very small plots.
<table>
<thead>
<tr>
<th></th>
<th>In private holdings</th>
<th>Size class of specialisation (% of all privately held)</th>
<th>In enterprises</th>
<th>Size class of specialisation (% of all enterprise held)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>31.5</td>
<td>1-10 ha (45%)</td>
<td>55.0</td>
<td>&gt; 100 ha (90%)</td>
</tr>
<tr>
<td>Pig</td>
<td>41.2</td>
<td>&lt; 1 ha (43%)</td>
<td>34.6</td>
<td>&gt; 100 ha (64%)</td>
</tr>
<tr>
<td>Sheep</td>
<td>9.8</td>
<td>10-100 ha (42%)</td>
<td>2.2</td>
<td>&gt; 100 ha (83%)</td>
</tr>
<tr>
<td>Horse</td>
<td>6.9</td>
<td>&lt; 1 ha (49%)</td>
<td>0.9</td>
<td>&gt; 100 ha (67%)</td>
</tr>
<tr>
<td>Poultry</td>
<td>10.6</td>
<td>no data</td>
<td>7.4</td>
<td>&lt; 1 ha (no data)</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td></td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Table 13: Specialisation of Hungarian private holdings and enterprises. Based on national animal units. Source: HCSO (2000)*

Cattle lives in farms between 1 and 10 hectares and sheep are mainly found on larger farms (10-100 hectares). All types of livestock farming have seriously declined after liberalisation (Jaksch, 2001).

**Farm size** In the first years after 1990, the only statistics available were the alarmingly bad ownership figures. But a visit to the Hungarian countryside not at all confirmed the fragmentation these figures suggested. In Hungary, for years there have been no comprehensive collection and statistical processing of data on agricultural farm structure. From 1991 until the year 2000, the official agricultural statistics did not include data of land use. The census held in 2000 filled this gap: there were almost a million private farmers and 8300 enterprises.

From the 2000 data (see Table 14), we can conclude that Hungary shows a strong segregation of land ownership and land use: although privates own 86% of the land, only 54% of the land is actually cultivated by private farmers. This separation is the result of the collective structure and the privatisation. Both factors led to a new situation in which land ownership was transferred to people that did not have the equipment, knowledge or ambition to go farming. The equipment remained with the larger companies, which do not have enough land to effectively use these means of production.

The difference between the privately owned and the privately used is leased to enterprises cultivating it. Varga and Tóth (2000) calculated from a survey, that an average co-operative has 662 contract-based legal relations with persons as landlords, and each landlord owns 2.6 hectares on average. Burger (2001) presents several types of data on the enterprises of Hungary. The leasing market must be quite large, despite the little protection for the lessee (Jaksch, 2001).

Comparison of the 2000 and the 1991 data shows a positive trend in land use structure by private farming. The number of private farmers is decreasing (from 1.4 to 0.96 million) and the number of enterprises is increasing (from 2,600 to 8,300). Moreover, the private farmers experienced an important scaling up. In 1991, there were only 1,000 farms larger than 10 hectares. In 2000 this number had grown to 51,000, even containing 2,000 private holdings larger than 100 hectares. The size class between 1
and 10 hectares also grew considerably, from 138,000 farms in 1991 to 232,000 farms in 2000. Surveys by Varga and Tóth (2000, p. 288) confirm the growth and scaling-up of private farming during the first ten years after the transition, based on surveys. The average private farm in 1991 measured 0.5 ha, in 1994 this was 1.1, and in 1996 2.3. The share of the total agricultural land cultivated rose from 26 to 47 percent between 1994 and 1996.

However, “the measure and pace of concentration (…) is rather disturbing” (p. 287). Especially the trends in statistics should be viewed with reservation (Gyula Varga, personal comment). Methodical changes of statistical observations can result in false interpretations. For example, the 1994 survey, showing 1.2 million private farms used a threshold of 400 m² (Mathijs and Meszáros, 1997), while in 2000 (0.96 million private farms) only land use over 1,500 m² was counted.

The size-structure among the enterprises is very asymmetric. More than 97% of the productive land area of the sector is farmed by nearly one third of the enterprises typically controlling 100 ha or more.

The shocking share of 72% percent private farms below 1 hectare has to be put into perspective. These farms do not all have to support families. Some of these ‘farms’ may be not more than gardens, since the threshold is 1,500 m² or one piece of hog. The production value is not more than 2-3 thousand HUF per month; one could not
live from that for a week. The plots serve own basic needs, and labour may largely be applied outside the household. In fact, the definition being the basis for the individual 'farm' statistics is misleading. Also note that the obviously not viable producers (below 5 hectares) own less than 10% of the arable land territory of the country, which is satisfying considering food security. Nonetheless, Hungary cannot afford to shut down masses of small farms for social and social reasons.

Demography Berényi (1995) shows that Hungarian rural areas are facing a structural decrease in population. The population of the country as a whole is falling since 1980, when death rates exceeded birth rates. Between 1980 and 1994, the Hungarian people shrunk with half a million. Rural areas experience this decrease even stronger since urbanisation, although not a deliberate policy, did take place. The number of people living in villages with less than 1,000 inhabitants has declined seriously. Depopulation is accompanied by a high average age. In the villages the category over 60 years amounts to 25%, whereas the national average is just below 19%.

Unemployment is becoming a serious problem, ranging up to 30 percent (Biró et al, 2002). The transition swept away almost 650,000 jobs in agriculture. Alternative employment is scarce in the villages, since they were typically dominated by agricultural employment. Especially badly hit are Central and Northern Hungary and the Western Transdanubian counties.

In Bulgaria

Farm types Bulgarian agriculture produces a number of crops that are not found in Hungary, related to the more southern position, and consequent warmer climate. Typical for Bulgaria are sunflowers, peaches, apricots, cherries, tobacco, melons and strawberries. Just after the transition, in 1991, private farming was producing over half of Bulgaria's maize, tomatoes, potatoes, melons and strawberries. Because the current dominance of private farming, the distinction has statistically disappeared, but the before mentioned crops are likely to be the specialities of small and middle sized family farms. Especially the cereals are still mainly grown on large scale farms, like the extensive new co-operatives that are common in Northern Bulgaria.

The transition triggered a sudden change in the types of farming activities. It meant swift reduction in labour-intensive perennial crops (orchards, vineyards, etc.) that dropped in area from 6.4 to 4.6% between 1990 and 1994. The area covered by pastures fell as well, from 4.4 to 3.4%. As a result, the relative share of land under crops increased by 150,000 hectares (83-86.4%) (Ilieva and Iliev, 1995). Of the crops, the labour consuming ones, for instance tobacco, declined in importance. Furthermore, the fallow land seriously expanded, amounting to 27% of all arable land in 1996 (Ilieva, 1998).

As for the cattle raising, those activities are also diminished. In fact, livestock production was falling already in the last socialist decade, with the exception of pig-raising. The private sector traditionally raised some 20 to 30 percent of most sorts of
cattle. Buffalo (60%) and poultry (40%) used to be relatively important in private farming (Davidova, 1991). Thus, transition caused a reduction of labour intensive activities. It seems contradictory, since the number of people living in rural areas grew as a result of privatisation. It might be expected that land use would intensify. However, considering the high average age of this rural population, and the loss of mechanisation, this development is not as surprising as it seems at first glance.

**Farm size** Getting a clear image of Bulgarian private farming is difficult. Most of all because after 1996 no detailed censuses have been executed. But also because the distinction between family farming and new co-operatives is absent in more recent surveys. The Bulgarian Statistical Institute reports that new co-operatives (in 1999 a number of 3,177, farming 2,3 million hectares) are declining both in number and their total acreage. Since many of the remaining co-operatives are on the verge of bankruptcy, it is assumed that their importance will continue to decline (Ilieva and Schmidt, 2001).

Although the Bulgarian private farming structure is alarming, the trend is positive. The average size of the Bulgarian farm was 3.92 ha in 1998. That was the smallest size for a period of 100 years and the share of the fallow and unused land of it was very high (29.85%). Since 1990, however, private farming is showing an increase in both its relative importance and its average size. Their share in the total agricultural land, being only 0.2% in 1989, quickly grew to exceed 50% in 1996. In 1999, private farms used more than 95% of all arable land. Meanwhile, the total number of private farms is falling, allowing the average size to grow from 0.7 to 1.4 hectares between 1992 and 1995 (Ilieva and Schmidt, 2001).

Unlike Hungary, the Bulgarian process of fragmentation continued even after the land privatisation. Privatisation returned land back to the original pre-collectivisation owners, whether alive or not. So, after the redistribution of titles, a further reduction in average holding size occurred due to subdivision of restituted land among present heirs of original title-holders. In the first three years after restitution, a reduction in holding size by a factor 1.6-1.7 was observed (Batanov, 1998).

An aggravating problem is the legal minimum size of parcels. The Land Law defines a minimum of 0.3 ha for a field and 0.1 ha for orchards, vineyards and pastures. The consequence is that co-ownership emerged, when heirs cannot divide their land because of these restrictions. Parcels can be owned by several dozens of co-owners, all having to give consent on sale of the parcel as well as the price.

**Demography** A recurring theme in practically all analyses of Bulgarian agriculture is the depopulation of rural areas. In comparison to the pre-collectivisation situation in 1946, the rural population had dropped by half by the end of 1993 (5,294,000 and 2,783,000 respectively). The rural population density sank from 52-55 inhabitants per square kilometre to under 30 (Geschev, 1995). Moreover, the composition of the current population is very disadvantageous for the emergence of private farming.
The current depopulation is a direct result of the strong urbanisation policy during socialism. Considerable effort was made to pool labour from the rural areas into towns. By 1990, Bulgaria was one of the most urbanised countries in Europe. Between 1946 and 1992, the share of urban residents grew from 24.7 to 67.2 percent (Creed, 1998), where the push from the village must be considered a more important driving force than the pull from the city. The migration from village to city resulted in a domino effect (Table 15). The migration, consisting mainly of younger people, raised the average age of the remaining population, in turn decreasing the birth rate (10 per 1000 inhabitants) and raising the death rate (19 per 1000 inhabitants). It finally led to an alarmingly negative growth figure in over 20% of rural Bulgaria (Geschev, 1995).

The negative demographic trends in rural areas already became clear at the end of the 1970s. There was a growing shortage of labour in agriculture, endangering food production. Several financial incentives were introduced, designed to increase the natural population growth. These incentives included a very liberal system of maternity-leave benefits, a lump-sum payment at birth, and a monthly wage supplement. They were combined with taxing celibacy and childlessness (Creed, 1998). However, all efforts failed to turn the tide. And to make matters worse, the 1989 political reorientation triggered the emigration of 330,000 Bulgarian Turks, negatively affecting especially the eastern parts of Bulgaria.

Currently, villages are populated by relatively elderly people. Unemployment is high in the villages. The collapse of the socialist agrarian structures ended many jobs. Alternatives are few. Kopeva (2000) states that in 1998, the share of unemployment in the villages was 20%. The villages without any chance for non-agrarian activity are 40%. These are small villages, 80% of them with a population of less than 500 people and an average age over 50 years. Gallie et al. (1996), referring to an extensive survey, point out that the motivation to work and the discontent about being unemployed are very high indeed. The lack of alternatives in the villages, together with the unfavourable conditions in agriculture does not give opportunities to the unemployed. Geschev (1995) expects the depopulation of rural areas to continue, despite the counter migration from cities back to villages, generated by the restitution of land. Only in the vicinity of cities and larger villages, situated near key transport axes, a stabilisation is likely.

Irrigation A special Bulgarian issue that needs mentioning here is irrigation. The National Agriculture and Rural Development Plan (BMA, 2000), that gives an overview of Bulgarian agricultural problems, stresses the irrigation problems. They
represent one aspect of 'unfit infrastructure' (section 4.4), since irrigation structures are directly related to physical land use structures. Bulgaria's geographical location and hot summer climate make irrigation an important productivity factor for agriculture. Dräger and Jaksch (2001) estimate some 58% (3.6 million ha) of Bulgarian agricultural land to be in need of irrigation. Precipitation and flowing water supplies are distributed unfavourably through the seasons. The second part of summer as well as the autumn months are very dry.

Until 1989, the country's irrigation system covered some 1.2 million hectares of productive land, out of 4.8 million hectares of agricultural land. A vast irrigation system was erected over time. In 1997, it consisted of 160 irrigation dams, 847 pumping stations, 7228 kilometres of canals and 8093 kilometres of pipelines. The irrigation system has become obsolete during transition. Destruction and plundering of equipment or parts of it took place. Together with the disturbed agricultural market (making irrigation-water too costly), an increasing amount of land that needs irrigation does not receive water. In 1990, the acreage that was actually irrigated amounted to 570,000 hectares, which had fallen to only 50,000 by 1997.

5.3 Farm-level characteristics

The internal fragmentation and the ambitions of the private farmers are important indicators to learn if there is a need for fragmentation-reduction. Information on this level of detail is not collected on a nation-wide scale. Therefore it is impossible to get a clear image of the situation throughout a country. That is why we have to use surveys; information collected among a limited number of cases, i.e. villages. The numbers typically exclude the data from being statistically representative, but maybe that is not bad at all. The individual cases can clearly be discerned and the studies present knowledge on a very concrete level. In larger data sets, the particularities disappear in the generalities.

Among Hungarian farms

This section draws heavily on a survey from (Biró et al, 2002; Table 17), describing very limited numbers of cases. The World Bank (1995) surveyed a far more extensive set of cases in 1993, but that information is too much outdated to use it here.

Internal farm fragmentation One of the important issues that remains unanswered by national statistics is the internal fragmentation of the farms. Characteristics like the number of parcels per farm and the distance at which they are situated are essential to determine the need for consolidation. In literature, some nation-wide estimates can be found, though they lack solid referencing. The figures for the Hungarian case study villages (Biró et al, 2002) show no signs of extreme internal fragmentation. Average numbers show 2-2.2 plots, measuring 3.7 hectares in Szakmár and 2.9 hectares in Harta. The researchers note that these figures
Table 16: Parcel size distribution in the TAMA case study villages in Baranya and in Pest. Categories are indicated in hectares, values are total number of parcels within each category. Source: Kneib and Moklós (1996)

<table>
<thead>
<tr>
<th></th>
<th>0.05</th>
<th>0.1</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1</th>
<th>1.2</th>
<th>1.4</th>
<th>1.6</th>
<th>1.8</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>7.5</th>
<th>10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baranya</td>
<td>7</td>
<td>11</td>
<td>28</td>
<td>75</td>
<td>852</td>
<td>251</td>
<td>114</td>
<td>63</td>
<td>88</td>
<td>32</td>
<td>45</td>
<td>32</td>
<td>101</td>
<td>71</td>
<td>45</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>Pest</td>
<td>11</td>
<td>48</td>
<td>286</td>
<td>385</td>
<td>138</td>
<td>62</td>
<td>47</td>
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<td>21</td>
<td>45</td>
<td>25</td>
<td>7</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>

are well above national average, without providing statistical back up. The Szakmár land users have 2 parcels at farms smaller than 5 hectare and 3 parcels at farms measuring between 5 and 20 hectare. Average distances around 4 kilometres are somewhat large and are said to hinder 17 percent of the families. In Harta, the situation is slightly less efficient. Even the very small farmers have 2-3 parcels, at large distance. The larger farms in the sample have 5 parcels on average. The large distances do not seem to bother the farmers, since only 15 percent mention being hindered. The larger the farm, the more impeding the distance is perceived to be.

Data on the TAMA villages (see section 5.4) in Pest county reveal an average size of plots below 1 hectare, in Baranya and Somogy counties between 1 and 2 hectares, and in Békés county approximately 2 hectares. The TAMA-brochure does not mention whether this parcelling represents small farms or internal fragmentation. Such very small plots can only be used for production of special crops or only for family demand. The typical long and very narrow shape of the plots was considered disadvantageous as well.

In several cases the location of the plot impeded its use, for example if it is situated on the border of settlements. The plots are not only dispersed within one village, several owners have plots also in the area of other villages. In the TAMA case study villages, the proportion of owners living in the village where their land is situated only 36% in Ordacsehi (Somogy county), 63% in Majs (Baranya County), 51% in Tárnok (Pest county), and 65% in Hunya (Békés county). The other owners, amounting to approximately 46%, do not live in the village they own land in.

Land leasing behaviour In the land leasing behaviour, the Hungarian case study villages differ extremely. Although in Szakmár and Harta, the average ownership is 7.7 and 7 hectares respectively, the average area cultivated is 14 and 2.3 hectares respectively. This is due to the important concentration by tenancy in Szakmár, where land users questioned state they lease 93% of their land. In Szakmár owners lease out 10%, in Harta 21% of their land.

The Szakmár people questioned increase their land by tenancy by 93%, in Harta only 15%. The highest shares of rented land occur among the large farms. Apparently, ownership alone does not allow such large farms to exist. An interesting phenomenon that is observed here, is that people lease out land, but at the same time lease back land from others. This way, a ‘use consolidation’ takes place; exchanging land use rights in order to establish a better parcelling.
| farm size class | Szakmá  | | |  | | | Harta | | |  | |
|----------------|--------|---|---|---|---|---|---|---|---|---|---|---|---|
| village        | under  | 1 - 10 | over |    | under  | 1 - 10 | over |    |    |    |    |    |    |    |    |
| families asked | 12     | 31     | 23   |    | 92     | 29     | 10   |    |    |    |    |    |    |    |    |
| total number of plots | 16     | 75     | 72   |    | 204    | 119    | 53   |    |    |    |    |    |    |    |    |
| average distance (km) | 3.0    | 2.7    | 5.4  |    | 6.6    | 8.0    | 11.6 |    |    |    |    |    |    |    |    |
| distance impedance? (yes/no) | 1/7    | 1/30   | 7/16 |    | 7/71   | 4/25   | 4/6  |    |    |    |    |    |    |    |    |
| distance increases costs? (yes/no) | 1/6    | 10/20  | 13/9 |    | 18/60  | 12/16  | 8/2  |    |    |    |    |    |    |    |    |
| total privately cultivated (ha) | 1.65   | 118.3  | 905.1 | | 311.56 | 330.1  | 304.05 | |    |    |    |    |    |    |    |    |
| total privately owned (ha) | 22.95  | 113.4  | 420.1 | | 488.96 | 340    | 180.05 | |    |    |    |    |    |    |    |    |
| total leased out (ha) | 21.5   | 16.5   | 17   |    | 179    | 21     | 4    |    |    |    |    |    |    |    |    |
| total leased (ha) | 0.2    | 21.4   | 402  |    | 1.6    | 11.1   | 127  |    |    |    |    |    |    |    |    |
| intends continued private land use (fams) | 4      | 17     | 22   |    | 22     | 15     | 9    |    |    |    |    |    |    |    |    |
| - wants others to cultivate land (fams) | 0      | 18     | 4    |    | 44     | 18     | 5    |    |    |    |    |    |    |    |    |
| - wants to lease out the land (fams) | 4      | 5      | 1    |    | 37     | 4      | 1    |    |    |    |    |    |    |    |    |
| - wants to sell the land (fams) | 1      | 0      | 1    |    | 1      | 1      | 0    |    |    |    |    |    |    |    |    |
| - wants to lease additional land (fams) | 0      | 1      | 3    |    | 1      | 2      | 1    |    |    |    |    |    |    |    |    |
| - wants to buy additional land (fams) | 0      | 1      | 3    |    | 9      | 5      | 4    |    |    |    |    |    |    |    |    |
| intention on concentrating plots (yes/no) | 0/8    | 6/22   | 12/9 | | 17/61  | 13/16  | 4/6  |    |    |    |    |    |    |    |    |
| willingness to exchange land (yes/no) | 0/8    | 5/17   | 4/12 | | 14/61  | 9/19   | 3/5  |    |    |    |    |    |    |    |    |
| experience on exchanging land (yes/no) | 0/6    | 0/15   | 3/7  | | 3/72   | 3/25   | 2/6  |    |    |    |    |    |    |    |    |

Table 17: Survey results from two Hungarian villages on (1) perceived disadvantages of fragmentation, (2) land leasing behaviour, (3) intentions on future land usage, and (4) intentions on land exchange. Source: Biró et al (2002)

**Ambitions on land use** In the Hungarian case study villages, the willingness to continue private cultivation varies. In Szakmár, two thirds of the families questioned are planning to continue private cultivation. The willingness seems to have a positive correlation with farm size; bigger farms are more interested in private farming. The Harta families only want to continue private farming in one third of the cases, again mostly larger farms. Leasing out is especially wanted by small land users. The Harta small farmers are optimistic with regard to expansion; 10% of them are planning on purchasing additional land.

**Ambitions and experience on concentrating plots** Despite the relatively modest fragmentation in the Hungarian case study villages, around 30% of the users would like to concentrate their lands into larger units. This indicates that the advantages of more concentrated land are obvious to the farmers involved. However, only around 20% of the people would be willing to carry out land exchange. Apparently, something is holding them back. Maybe it is because of the experiences of the 10% that have tried to exchange lands.

**Among Bulgarian farms**

**Internal farm fragmentation** Kopeva (2000) presents a number of facts on internal farm fragmentation. The total number of parcels was 8 million in 1998. This means
that an average parcel measured 0.6 ha at that moment. A private farm possessed on average 2.6 parcels. For the size classes up to 1 ha, 1-5 ha and over 5 ha, the averages were 2.0, 3.1 and 3.7 respectively. These figures do not look alarming. No data are available about the spatial dispersion of farms.

Land leasing behaviour In Bulgaria and Hungary alike, farmers are typically engaged in contracts with numerous landowners. In the Dobrich region, where large-scale farms prevail, exactly one third of the farmers have made contracts with more than 1,000 owners. All the farmers in that region reported to lease from over 100 owners. The share of rented land within the farms is generally more than half. Around 18% think that having half the farm under tenancy is optimal. Two thirds of the respondents could not point out an optimal percentage of rented land.

Leasing of agricultural land is widespread in Bulgaria. Not all tenancy is registered, however, explaining the 2.8% of tenure that is mentioned by others (Ilieva and Schmidt, 2001). The registering involves certification by a notary, which is too much effort in terms of time involved, making appointments with absentee-owners or driving elderly owners to the notary. This informal leasing practice unfortunately discards the merits of the Land Tenancy Act (Kaneva, 1997) that is in place. Tenancy arrangements with absentee-owners typically have no written contract at all. The tenancy area is not likely to expand further, since in 1995 already, only 13% of the landowners were thinking of leasing out in the future (Kopeva, 1995).

During the year 1999, the rent in kind was still prevalent, on a national scale amounting to 80-85%. The rent in kind is being paid in regions where mainly co-operative farms were present. Moreover, rent in kind indicated the absence of a land market, and vice versa. The payments mainly consist of fodder for the animals the lessor raise. City-dwelling landowners of course rather get their rent in cash, thus eliminating the distance between them and their tenant. The cash payments are much higher in value than the in-kind rent given.

The large-scale lessees are the main buyers of land. It is typical for them that they start buying the land only several years after starting their business. Their purchases grow in size in subsequent years.

Ambitions and experience on concentrating plots As for the Bulgarian acknowledgement of the fragmentation problem basically two surveys are available. One is from Kuncheva (2002), with very detailed questions about the perception of fragmentation and the ambitions to deal with it. Unfortunately, the answers of both co-operative members and private farmers were treated as one sample, thus obscuring the different perceptions between these groups.

The second survey is from Kopeva (2000) and limited to the Dobrich-region that has a large-scale farming structure compared to other Bulgarian regions. In her survey there is a widespread awareness of the disadvantages of fragmentation. Farmers know that fragmented land impedes efficient cultivation. Parcels of 2 ha are regarded to be a
minimum measure. Almost 80% of the farmers in Dobrich define their farms as fragmented, especially owners of larger farms. The concept of exchanging parcels is neither unknown nor rejected. Since privatisation through reallocation was the prevailing restitution approach, the law introduced some land consolidation principles. The skills are still present and practised. All the farmers in the region subject to Kopeva's study cultivate consolidated land in spite of the fact that they have leased or posses dispersed parcels of land. However, this consolidation is informal, it is negotiable exchange of leased or owned land among local stakeholders. The division takes place at the beginning of the crop year and lasts for one year. All interested parties have a meeting. There it is determined who will cultivate which part of the land territory. Over 90% of the respondents take part in such divisions. On a smaller scale, parcels are exchanged between two parties, usually for the period of one crop year and on the basis of oral agreement. Thus, on top of the ownership and leasehold layer, often there is a different land use pattern. This layer has hardly any regulatory framework.

Introducing land consolidation is strongly opposed, though. Considering land consolidation a social measure affecting property rights, Kopeva (2000) claims it to be in contradiction with the Constitution of the Republic of Bulgaria. She also recorded prevailing negative attitudes from landowners towards any administrative interference in their property. This is hardly surprising, given the recently finished reallocation process that was costly and problematic.

5.4 Attempts for improvement

Public attention

Before the land fragmentation problem leads to actual attempts for improvement, there has to be a political or popular willingness for addressing the problem. Governmental financial resources are by definition limited, which is certainly so in Central Europe, and therefore no expenditures are made unless it is for a really important cause.

It is not easy to determine whether public attention for a certain problem is present, because it depends on what groups you consider and on the possibilities that groups have to articulate their interests. Moreover, for a researcher who is not living in the region, it is practically impossible to constantly be updated.

Some data were found on how farmers experience land fragmentation, and what they think of consolidation or enlargement. These data are too local (Hungary) or too much aggregated to derive solid and differentiated statements on the Hungarian and Bulgarian farmers populations as a whole. We do see a certain pattern, however, of a correlation between need and willingness for consolidation and/or enlargement on the one hand and farm size on the other. In other words, land fragmentation for the farmer is regarded to be advantageous only when the farm has a substantial size.
But to what extent are policy-makers and researchers interested in land fragmentation? Their perspective differs from the farmers'. Policy makers and researchers will tend to put the problem in a more comprehensive societal framework, emphasising social and macro-economical considerations instead of production-economical and emotional ones. Judging on the conversations with the – selectively chosen and limited – group of people that have been interviewed for this thesis (see appendix A) problems of agricultural structure are topical and sensitive matters in both countries. It is attached to EU-accession matters more strongly in Hungary than in Bulgaria. But in either case, the negative consequences of privatisation have the attention of politicians.

In Bulgaria, the land fragmentation problem in particular receives little attention. Like we saw in section 1.4, land fragmentation is only one out of an array of interrelated agricultural problems, and in Bulgaria this array appears to be too extensive to isolate one specific problem already. In addition, the fierce resistance to all previously proposed improvements to the privatisation process for efficiency's sake (like consolidated privatisation) makes policy-makers reluctant to interfere in agricultural land. The general opinion throughout the Bulgarian interviews is that it is too early to start consolidating private land, although they all agree that land fragmentation is a serious problem indeed.

In Hungary, experts indicate that the rural population is slowly getting more positive about consolidation. The sense of urgency is variable among the people that were interviewed, although some of this variety can be traced back to implicit differences in definition, but none of them was really determined about the need of consolidation. The plans for special legislation (see below) therefore may have been induced by the presence of Western expertise rather than urgency. The plans have reached the stage of parliamentary approval, but the interest from the government has varied strongly over time and a final decision is yet to be expected.

The land-fund concept was given a prominent role and strong connection to land consolidation in practically all Hungarian interviews, whereas it was not touched on by many of the Bulgarian experts. This is surprising since, as we will see in this section, Bulgaria is the one that is actually applying the concept already.

**Land funds in Hungary**

The Hungarian land banking activities have taken some time to be officially started, but the Act on the National Land Fund was eventually adopted in 2001. The necessity had been clear for quite some time, but there was a fear of misuse and disturbance of the land market.

The state land assets, referred to as the National Land Fund, are managed by the National Land Fund Managing Organisation, a non-profit organisation that is placed under the act on the national budget. Its employees are public servants of which 40 are working in the central office and 60-70 in the regional offices.

The urge for transparency and parliamentary control over the land fund resulted in an amendment in 2002 already. In the current system, the government must report to the
parliament on an annual basis on the implementation of the guiding principles of the land policy, the state of the national land fund and the activities of the property management organisation. The National Land Fund Monitoring Committee provides the parliament with an objective overview on this matter and supervises the executive organisation. Also, local committees (existing mainly of local farmers) ensure that no government organisation can make decisions concerning arable land without considering local interests.

Acquisition of land by the National Land Fund is voluntary. Parcels can be transferred into the land fund against market prices or life-annuity. Life-annuity is primarily offered to retired farmers over 60 years of age. From people under 60 years the cases are assessed individually. Distribution of land fund land is done in ownership.

The land banking activities must obey the national land policy, which is ‘to provide an opportunity for all actors in agriculture – so the family farmers as well – to become a competitive business unit’ (Parliamentary Resolution 48/2002). In addition the land fund has to provide land for use for social purposes. Land banking is aimed to benefit farmers with 1 to 20 hectares of land that would not be able to get competitive by themselves.

Because Hungarian land banking has started relatively recently, no figures or other indications are available on the effectiveness and the volume of these activities.

The TAMA-pilot on land consolidation

From May 1994 to 1997, a pilot land consolidation project was executed in Hungary. It was called ‘TAMA’ (Alta Alanos Birtokrendezes Magyarorszagon, meaning ‘overall land reallocation in Hungary’). The aim of the project was to provide an example for the actions and procedures of land reallocation and spatial planning, and to generate proposals for creating the financial background and conditions of co-operation with the owners so that it eventually could be made to use for the whole country.

The project was a joint effort of the Hungarian and German government, with the assistance of both Ministries of Agriculture. The Ministry of Agriculture of Germany offered the financial support for an experimental project. The report by Knieb and Miklós (1996) paints the following picture about the project.

The project considered economical as well as environmental aspects. The targets of the TAMA project clearly were broader than agricultural optimisation alone. Ecological aspects clearly were highly regarded. At the setting of the aims of land re-allocation the experience gained in Germany already gave an example. It was clear, however, that the Hungarian conditions had to be considered. The targets were:

- to establish and guarantee an environment- and market oriented agriculture and silviculture (for instance decrease fragmentation, improve accessibility and stop water erosion)
- to assure the self-renewal force of the nature on a long term (for instance establish a multifunctional agriculture and to protect and develop biodiversity in flora and fauna).
In order to obtain representative results, the TAMA project was not confined to one location within Hungary. The organisation made a selection that represented the differences in landscapes present in the country. Four study areas were chosen (Figure 17), situated are the villages of Nagynyarad (Baranya county), Hunya (Békés county), Tárnok (Pest county) and Ordaschep (Somogy county).

The co-operative partners from both Ministries were the Hungarian land offices and the German Büro für Bodenbewertung (Land Valuation Office). The German side had the consultative role in the land re-allocation, but it also participated in the elaboration of the conception and education.

The Hungarian partner team consisted of the staff of the Ministry of Agriculture and the Land Offices, their task was the co-ordination and execution. In the preparatory stage of the project, the owners gathered in meetings in the villages, and had to fill out surveys. The thus recorded needs and ideas were considered in making the land re-allocation plans. The draft plans were then presented in the villages. Afterwards, a personal interview collected the demands and requests for modifications. The final plan had to meet all the requirements of all the owners. Only after that the realisation of the plan, the actual exchange of parcels, would start.

Also, the owners’ intentions with regard to future use were decisive to where the owner would get his new plot. Key to the design was whether the owner wanted to cultivate his land himself, or together with others, or maybe lease it. A big group of owners, intended to lease or sell their land. This meant, that they were not interested in cultivating the land themselves. There were also owners that intended to cultivate only a part of their land, and sell or lease other parts.

In the reallocation, participants with smaller parcels, intending to cultivate their land themselves, received parcels close to the village. Owners of bigger parcels, tenant-farmers, and groups which cultivate their land jointly get areas further from the village, but easily accessible with machines. Those who planned to sell or lease their land had

![Figure 17: Impression of the four TAMA case study sites. Located in four different counties, each site consists of four villages.](image-url)
identical rights. To improve the shape of the parcels, a new network of parcels was needed. Considerations were the desired use and the existing road network. The reallocation was designed in a transparent way. All existing fields were virtually divided into strips that separately had very unfavourable forms. The smaller the field is, the smaller is the virtual strip. All strips had the same Golden Crown value. All the strips were labelled with a numerical code, which was recorded in a database. So, the database held all the data about all the strips of all fields. Through the database, the land was reassigned. The database resembled a bank account. The owners could make requests for the fields they would like to have their plots in. The database held the data of all owners, and their property value in Golden Crowns. If an owner made a request for one of the fields, strips in the value of his original property were reserved for him. At the same time the database recorded the reserved land and its value on the account. Modifications to assigned land could only be made with the help of the database. The final and precise definition of the borders was made with the help of a geodetic program. Only when the majority accepted the proposal, the localisation of the parcels started. If there was request for change from the owners, there was possibility to make a new arrangement with the help of the strips still available in the database.

The ecological aspects like nature protection could only be considered through a development plan, in which predetermined locations are expelled from agricultural use. Areas belonging to the self-government, if any, could be offered for exchange. The figure shows a real-life example for the reallocation plan. It shows the allocation

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**Figure 18:** Harmonisation in the TAMA projects. (1) presentation of the procedure. (2) Discussion of issues not mentioned in the draft plan.
of plots in a part of Tárnok village (Pest county). This allocation had all the problems mentioned above; small parcels, bad shape, bad allocation. For achieving a better structure of plots, all the old boundaries of plots were eliminated and new roads were added. All the owners were given new plots along to the road, thus safeguarding the value of their property.

One especially important step was the concentration of plots when several owners jointly cultivated the land (for instance friends or relatives). Here the plots had to be combined in one field, or even merged, so they had easy access, making cultivation less problematic.

Although the goals of TAMA were similar to the goals of this thesis (i.e. assessing the suitability of Western tools for relieving the Hungarian fragmentation problem), clear statements have never been put on paper. In the final stage, the project ran out of finances, which caused it to end rather abruptly.

Interviews with project managers and Hungarian students who have investigated TAMA rendered an extensive list of factors that are felt to have contributed to the failure of TAMA.

- One of the most important factors was that the German system was too extensive, too complicated for Hungary. The Hungarian project managers did not realise to the full that the German system also included ecological problems and rural development.
- The Hungarian Ministry of Agriculture did not give the support the project needed. The Ministry seemed to give fragmentation less importance than he locals.
- The project started too early. Privatisation was not finished yet. Unclear ownership seriously impeded the actual change in parcelling.
- The German financial support for the project was restricted to the training of project managers, preparation of the project and the technical prerequisites. The costs for the execution of the reallocation plan had to be borne by the landowners and the local governments. Unfortunately, the participants did not have the resources and the local governments did not acknowledge the urgency.
- Valuation of parcels is complicated due to the absence of a real land market. There is an outdated Golden Crown system, which assigns fixed values for all land in Hungary. Using these values is not a good option since they express natural values (production potential) and economic values (the value of crops) in one digit (in fact the potential income).
- Land offices cannot provide digital ownership data. In some cases the land offices are unwilling to co-operate. Setting up an entirely new system for the project alone was considered too costly.
- The time-planning for the project was much tighter in comparison to normal German projects.
- The landowners in the villages are hard to convince that land consolidation is a good thing. Part of the owners shows serious disinterest. Disinterest can result from the tenant-status or the fact that the land use is not mechanised. Another part mistrusts any initiative coming from outside. The nostalgia of repossessing their
original ownership prevails production-economic motives. The word ‘land consolidation’ is still associated with the establishing of co-operatives during socialism, resulting in fear and mistrust.

- The risk-reducing effect of fragmentation is still appreciated.
- Especially near Budapest and Lake Balaton, many parcels were bought for the assumed raise in price level. This type of landowners is not interested in reduction of fragmentation.

Towards a Hungarian Act on Land Consolidation

Hungary is in the process of making a Land Consolidation Act but it is taking longer than expected. It started half way the 1990s and was not finished yet by 2002. There are two reasons for this delay. One is the subsequent governments, that sometimes were and sometimes were not eager to solve rural problems. A second obstruction was the intention to combine the laws on Land Consolidation and on Land Funds. Due to discussion about the second (mainly the size of the Fund), both were seriously delayed. The draft Law, as described in the FAO survey (Biró et al, 2002), defines the Hungarian land consolidation as an administrative and judicial procedure following the objectives of improving cultivation conditions, measures of public interest and transport facilities among farming activities. In the course of this, owners of the properties concerned and other entitled persons co-operate with the authorities in order to change the location, the ownership relations of lands and to mark new plots. The conceptual element is complete and unconditional compensation, in principle in land but if not possible in money.

Preliminary proceedings can be instituted at the proper county land office by (1) owners possessing 10% of the Golden Crown value of properties on the land required to be consolidated, or (2) the local government. Authorities of water conservation,
nature protection, construction and transport are to be drawn into the proceedings as expert authorities. If the office finds that the initiative does not originate from a person entitled thereto or that it obviously does not fulfil legal requirements, it dismisses the initiative by resolution.

The land office summons the general assembly of the property owners concerned for a date between 45 and 60 days after the beginning of the proceedings. At the general assembly owners have the right to vote in proportion with the Golden Crown value of the property in their possession. The general assembly decides by simple majority whether the owners agree on the initiation of the proceedings of land consolidation. The land office – in case of a favourable decision of the general assembly – submits the initiative to the minister of agriculture and rural development within 60 days after the general assembly. The minister can (1) ask for further preparation because the data available are not sufficient for a decision on the merits of the case, (2) dismiss the initiative if the legal conditions of land consolidation do not exist, or (3) decree land consolidation, at the same time marking the area concerned.

The persons concerned may enter an action against the minister’s decision decreeing or dismissing the initiative at the Capital Court within 30 days. If no one resorted to legal remedy or the court dismissed the action validly, the minister orders the date of the beginning of land consolidation by decree. There is no legal remedy against the latter. Connected to the official fixing of the date of the beginning of land consolidation, there are certain limitations of proprietary rights:

- the utilisation of the area concerned can only be changed with the preliminary assent of the land office,
- also authorisations are necessary for the establishment, transformation or liquidation of buildings, wells, canals and other artificial structures,
- a permit from the soil protection authority is necessary for the establishment, transformation or liquidation of soil protection structures,
- a permit from the land office is necessary for the clearance and planting of vineyards, orchards and other plantations.

All of this can only be permitted if the change has no unfavourable effects on the utilisation of the total area under land consolidation.

Preparatory proceedings commence when the decree on land consolidation goes into effect. The land office is obliged to draw up and display the list of owners and other persons concerned, as well to summon the general assembly. The competence of the assembly involves (1) the acceptance of the assessment of properties, (2) the land of land consolidation and compensation, and (3) the division of costs. It is also the task of the general assembly to elect the chairman and members of the land consolidation committee with two-third majority of the votes due to those present.

The land offices assess the value of the owners’ original land. This is to be performed by making a comparison with the values of each land under consolidation and on the basis of the data of the valid land classification. Outside experts can also be involved in
the assessment. Any of the persons concerned may apply for expert's counter-opinion against the result of the assessment, but he has to pay the costs in advance. Out of the costs of land consolidation the state bears the total costs of the preliminary proceedings and the reinstatement of property.

Closure of the land consolidation comprises the preparation of the land consolidation plan. For this, the land office interviews each landowner concerned about where within the outskirt, in how many and what kind of plots he would like to receive his property. The owners' requests are to be observed while making the plan. The land office may employ an entrepreneur selected through open tender for the preparation of the plan. The consolidation plan has to be in accordance with the regional and settlement planning conception. As part of the compensation conception, the land office adds up the costs borne by the owners and divides them among the owners. The division is based on the ratio of the market value of new properties marked during land consolidation.

The first impression of the Hungarian draft Act, is that it is a German-model Act. Especially the institution of the general assembly at the start of the project is strongly similar to the German Genossenschaftsprinzip. The similarities with German practice are not coincidental. German expertise has been present in Hungary from the start. The TAMA-initiative was strongly influenced by German experts. However, the competence of the German general assembly is much larger. Apart from the German-style Genossenschaftsprinzip (see appendix F), there are many Dutch-model elements in the draft Act as well. Elements that are only seen in the Netherlands are the voting at the start of the project and the involvement of parties outside the area in the design of the consolidation plan and the assessment of properties.

Land banking efforts in Bulgaria

In Bulgaria, three land funds – State land fund (SLF), Municipality land fund (MLF) and Private land fund (PLF) are present. They exist on the basis of three types of ownership rights. Their existence is not a transition phenomenon; they existed just after 1900 already, for reform purposes (Powelson, 1988). Even at that time there were two additional land funds – land fund of Monastries and Churches and land fund of Schools and Chitalishta5. For development of land banking, the State land Fund and the Private Land Fund will play an important role.

5 Chitalishte is a special structure in every settlement. Created on a public basis. The main activity is concentrated in culture, maintaining of public library in the settlement, non-professional theatre, schools for painting, arts, etc. In fact they are the predecessors of the current NGO’s and operate on a voluntary basis. For centuries they were the main “cultural center” in small settlements and in the countryside. Now they still exist and are vital. So, until 1948 they owned agricultural land given as a gift to them from physical persons.
<table>
<thead>
<tr>
<th>Crop year</th>
<th>Arable land (ha)</th>
<th>Arable land (1993/94=100)</th>
<th>In that number</th>
<th>Average price (BGL/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993/1994</td>
<td>53,300</td>
<td>100</td>
<td>32,900</td>
<td>100</td>
</tr>
<tr>
<td>1994/1995</td>
<td>55,500</td>
<td>104</td>
<td>n.a.</td>
<td>162</td>
</tr>
<tr>
<td>1995/1996</td>
<td>35,900</td>
<td>67.4</td>
<td>19,300</td>
<td>260</td>
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<tr>
<td>1996/1997</td>
<td>49,200</td>
<td>92.3</td>
<td>26,200</td>
<td>350</td>
</tr>
<tr>
<td>1997/1998</td>
<td>36,900</td>
<td>69.2</td>
<td>29,000</td>
<td>1400</td>
</tr>
</tbody>
</table>


The State Land Fund (SLF) currently covers 265,000 ha of land, of which 154,000 ha are arable land. The State (as an owner) has restituted property rights over 102,000 ha, of which 38,000 ha are in old real or restorable boundaries (art. 18g of the Regulations for land restitution) and 64,000 ha through reallocation plans (art. 27).

Although an officially constituted land bank does not exist in Bulgaria, the state land is used as a land fund. Schools use part of that land, as well as research institutes, experimental stations, universities and companies. The rest of the arable land has been leased, either on a short-term (one year) or on a long-term (up to 10 years) basis, or was exchanged for fragmented privately owned land. Part of the State Land Fund is intended for compensating landowners who were not restituted all their original land.

Land leasing from SLF has a social effect, with priority given to landless applicants or peasants. Every year the Ministry (since 1993) determines the duration, level of rent and way of payment. Part of the arable land is leased for one year to physical persons and entities, on the basis of auctions. In 2000 a Decree was adopted for giving land to the landless but the process will begin after the compensation is really completed. According to the Law only fifty percent of the State Land Fund is identified for compensation needs. So, Bulgaria actually uses its land funds for an operational land banking system. A part of the land fund parcels are distributed under tenancy. However without regulations to assure that fragmentation is not aggravated by the rental pattern. The amount of rented land is falling (Table 18). Another part of the State Land Fund is used more effectively, explicitly being referred to as a consolidation method (Kopeva, 2000). It consists of the exchange of scattered plots of private land with consolidated land from the land fund. The blocks of land from the land fund are large enough in size to ensure efficient agricultural production.

In the Dobrich region, about 6,500 hectares (out of 22,000) are included this type of exchange. Until December 2000, 1,900 exchanges of agricultural land were completed between physical and juridical persons and the State Land Fund. The state had conceded ownership rights of 10,935 ha, and acquired ownership rights over 11,135 ha. For the first half of 2001 (January-June) around 760 exchanges of agricultural land were completed. The amount of conceded land is 5,1221 ha, and acquired 5,282 ha.

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* Landowners receive Nominal Compensation Bonds that can be used in privatization of non-agricultural enterprises and/or to get agricultural land from the State Land Fund through auctions.
Priority is given to those physical persons and entities that intend to establish orchards and/or vineyards (perennial crops). Recent observations indicate increased interest towards renting in land from the State Land Fund for 10 years and even longer. In the regions of Plevcn, Burgas, Haskovo, Jambol and Silistra, the main motive was creating of vineyards and orchards.

Unfortunately, the practical implication of the exchange for the owner involves several offices that have to give approval, making the process lengthy (several months) and expensive. For the state, there are two advantages besides the improvement of the farming sector. The first advantage is that the parcels left behind are typically less in value. Since the farmer receives land of equal value, he leaves behind slightly more square meters than he obtains from the land fund (as the statistics in the former paragraph show). The exchange thus increases the land fund size. The second advantage is that the parcels, which the farmer leaves behind, are of varying size and located throughout a large area, thus improving the possibilities for land banking.

5.5 Comparative analysis of Bulgarian and Hungarian fragmentation

A comparison of the case studies in this chapter learns that fragmentation of the production structure has a different nature in the two case study countries. The privatisation history has an important role in this. Hungary only applied restitution to a relatively small proportion of the agricultural land. Most of the land was subject to less destructive ways of redistributing land. In addition, because the fall of socialism was less abrupt (there had been a liberalisation process in the 1980s already) part of the large-scale production structure continued under a different name and rural disruption was partly prevented. Restitution did dominate Bulgaria, except for the plain regions. Moreover, prior to collectivisation Bulgarian agricultural land was very fragmented already, aggravating the fragmenting effects of restitution.

A common denominator is the bimodal production structure; numerous smallholders that use a small part of all agricultural land and a much smaller number of very large farms that use a substantial share of the land. In Hungary, the larger units are more dominant than in Bulgaria (approximately 70 and 40 percent respectively). Moreover, private farms are larger in Hungary since 41% is over 10 ha and this share is only 0.2% in Bulgaria. Bulgaria's bimodality is spatially separated; the northern zone along the Danube has a large-scale production structure, whereas the actual use fragmentation prevails in the rest of the country.

The bimodal production structure corresponds with a bimodal fragmentation problem. The regions with large enterprises are impeded in their development by the segregation of ownership and use. As long as tenancy has little protection, long-term security is poor, for owners may suddenly decide to stop leasing out their land, leaving the tenant with gaps within the units he cultivates. Leasing from a large number of smallholders makes it less probable that a considerable share of a farm's rented land becomes
unavailable, but still, a strong decrease in the attractiveness of leasing out land could have substantial effects.

Internal fragmentation problems are present in this type of land use (Kopeva, personal comment; Varga, personal comment), but the question is whether reallocation of parcels is sensible in the tenancy-dominated situation. We will return to that question in section 6.6. Outside the large-scale regions, land fragmentation is foremost a matter of farm size. The available statistics show average farm sizes that are very low compared to European standards. Internal fragmentation is of low importance among this group of farmers, not only are the averages on the numbers of parcels per farm quite normal, this type of fragmentation is not a limitation for small farmers because time is not a constraint and mechanisation is low. The Hungarian survey results show a clear decline of urgency of internal fragmentation when farms are questioned.

What about the possibilities to improve farm size? In both countries, the rural population is aging. This means that a large proportion of the little farmers is not interested in farm enlargement. An aging population usually tends to shrink. When we also consider the absentee-ownership that occurs in both countries, the physical room for enlargement of commercial farms is there. In fact, considerable proportions of land of urban owners lay fallow but the bad land market does not allow this land to be transferred to people who are eager to use it.

As a seeming contradiction, especially from the perspective of the popular opinion that land consolidation is the solution to fragmentation, is that only the least fragmented of the two - Hungary - is establishing a land consolidation procedure. Bulgaria seems much less determined to do so (although preparations are being made). Both countries do focus on land banking. Assuming that this difference is not caused by ignorance or indifference from Bulgarian authorities, and using the problem-instrument relationship that is brought forward in chapter 4, this would indicate that the farm-size problem indeed is the most urgent problem in Hungary and Bulgaria.

A particularity of Bulgaria is that irrigation, so important for agriculture in that country, has to be adjusted to the new land use structure. Irrigation systems are directly related to parcelling structures since they both physical patterns in the landscape. Because irrigation facilities are expensive, they dictate parcelling once the pattern is established. Therefore, the correction of the physical land use structure would have to be synchronised with irrigation improvement.

*The core problem*

So, do we have an answer to the question we set out these case studies with: what is the core of the problem? The symptoms for the actual problem are, as said, small-scale owner-occupancy and economically viable units that to an important extent rely on tenancy—badly protected and expensive tenancy. Therefore, in my opinion, the bad farming structure is only a symptom that obscures the core problem: ownership of land resides at the wrong parties.
The real challenge is redistributing solid rights on land (ownership or to be developed tenancy structures with a firm long-term continuity) to farmers of a viable size. Adjustments to the land use units (i.e. farming structure) are on the long run ineffective as long as ownership and use remain this widely separated. In a situation where commercial land users do not have solid rights to their land, basic requirements for economically healthy farming are impeded: investments (through rural financing), competitiveness and autonomous changes in farm-size (see Swinnen, 1997, p.360 for a similar view). Ironically, ownership fragmentation had only few direct disadvantages according to section 2.2.

Central European fragmentation thus differs profoundly from the Western European situation at the start of large-scale fragmentation reduction (Figure 20), despite the treacherous similarity when we look at statistics on farm-size distribution. Statistics on farm size do not reveal the problem of ownership-distribution that is hidden underneath.

This looks like a bad omen for the usefulness of Western European experience, especially considering section 4.4 that already showed Central European drawbacks for the application of Western instruments. The tentative link between Central European fragmentation and Western European experience on reducing fragmentation does not seem that logical anymore.

The next chapter tries to find a conclusive judgement in this matter, as it compares the targets and prerequisites that have propelled Western fragmentation-reduction practice with Central Europe.
6. The Western instruments in practice

The case studies of Bulgaria and Hungary (Chapter 5), together with the quick-scan in section 3.3, give us insight in the problems that fragmentation poses to these countries, as well as the urgency among the types of fragmentation. It appeared that the fragmentation of private land use is foremost a matter of small farm size and that problems of internal fragmentation coincide with tenancy-dependent farming. Optimising the spatial arrangement of parcels does not address the core problem. The solution should be sought in (facilitating the) creation of farms with a viable size and holding strong rights to the land they use.

Let us now – with this problem description in mind – turn our focus to assessing the use of Western solutions for this situation. Two case studies have been conducted; Bavaria and the Netherlands (see section 1.5). Interestingly, the Bavarian and Dutch farm-size distribution at the beginning of the heydays of fragmentation-reduction give a nearly identical picture (Figure 20). Germany as a whole had a steeper curve, i.e. relatively large share of very small farms. So, the Dutch and Bavarian governments not only had the same aim, but started out with an identical initial situation as well. That makes a comparison of these two cases even more interesting.

The first thing we want to know here is if Western Europe has encountered the same problems as the Central Europeans. Section 2.1 showed us how internally diverse 'fragmentation' is. Not all four types may be a déjà vu. And to which types did Western European countries apply instruments? Chapter 4 already presented the three instruments that are at hand for addressing agricultural-structural problems. Here we will see how the instruments are related to types of fragmentation, and how government interference emerged and developed. The first four paragraphs present instruments and their goals in practice.

The second factor that is key to making a match between Central Europe and Western instruments is the prerequisites for successfully applying an instrument. The central question in this thesis is whether Western European practice can contribute to finding solutions. Figure 5 in section 2.5 suggests that two factors are involved in finding the answer. Have the Western efforts been effective? What conditions are needed to allow an instrument to actually achieve its targets? These questions are addressed in the last two paragraphs of this chapter.
Figure 20: Farm-size distribution in Germany, Bavaria and the Netherlands in 1950 (top) and in 1998 (bottom). Source: Statistical Offices in Germany, Bavaria and the Netherlands.

Short geography

Of the two Western European case study countries, Bavaria is the least urbanised. The Netherlands measures 41,526 km² (including water surfaces) and is inhabited by 16 million people. Bavaria on average is far less densely populated, being twice as large (70,551 km²) and holding less inhabitants (12 million). Bavaria is a free-state within a federation.

The Netherlands' main border length lies along the North Sea, including several small islands and estuaries. Spectacular dams have reduced the original 1080 kilometres of coastline by 700 kilometres. In the East it borders Germany and in the South Belgium. Bavaria is completely enclosed by land in the heart of Europe. The North and West are enclosed by other members of the German federation. The South border runs along Austria and in the East Bavaria borders the Czech Republic.

Geologically, the Netherlands is a delta of sediment. There are hardly any rock formations surfacing. Wind and glaciers have caused some relief in the landscape but this is relatively small, amounting to some tenths of metres in height. Triggered by changes in sea level, alternating patterns of peat, clay and sand soils emerged. The peat
areas are only suitable for dairy farming. Woods are mainly found on sandy soils and the clay soils are partly used for arable farming, especially the chalky clay. Both Bavaria and the Netherlands are situated in the temperate zone, although the Dutch climate has maritime characteristics, with precipitation in all seasons (765mm per year) and relatively warm winters.

6.1 Farm size raised with land banking

Problem-awareness

A detailed UN-survey on agricultural structure (UN, 1954) learns that Western European farming structures have dramatically changed during the last half century. Farming in the 1950s and 1960s was very small scale compared to modern standards. Of course, those structures did not per se mean problems for the farmers or the governments of Western Europe. Our modern standards cannot be applied within the economic setting of that time.

The Dutch government clearly considered the low average farm size at that time as a problem. The ‘smallholders problem’ (or ‘kleine boeren vraagstuk’) was becoming increasingly urgent and was addressed by politicians as well as researchers (for example Maris et al, 1951). In this period, the polder construction works, which had already been going on for several decades, were included in the pursuit for solutions. A special commission on this was appointed to investigate whether using polder land for relieving overcrowded regions. The commission published its recommendations for concentrated land banking (Hofstee, 1959).

An analysis of the Bavarian recent history did not reveal any policy document containing a plea for the pursuit of a raise in average farm size. Although the farm-size distribution in Bavaria was not more favourable than the Netherlands (on the contrary, both countries were identical in this respect), it does not seem to have reached the political agenda. The reason for this might be the Bavarian tradition of part-time farming (‘Nebenerwerb’). Large proportions of the agricultural labour force obtain a considerable share of their income from off-farm labour. As a consequence, farm size
is less important a limitation to the household income than in case of full-time farming, which is common in the Netherlands.

The Dutch polders used as a concentrated land fund

The Netherlands has been able to improve its farm-size structure with the help of a particular endowment that was present: unsettled polder land. Four polders (the 'Wieringermeer', the 'Noordoostpolder', 'Flevoland' and the 'Markerwaard'), together measuring approximately 200,000 hectares of agricultural land, literally gave the Dutch government the space for a special kind of structural policy. Bavaria did not have a concentrated land fund and therefore did not practice land banking in a concentrated way.

The experience can still be valuable today, despite the fact that the polder-land distribution took place at a time completely different from the present. Namely, the distribution of polder-farms started in 1934 and ended in 1992. During that period, enormous changes took place in agriculture and in the society as a whole. This demonstrates the flexibility and versatility of land funds, and the solutions found for the ever-changing context.

Diffuse land funds in the Netherlands

In the Netherlands, the polders could not completely solve the fragmentation problems on the 'main land'. Dutch land consolidation practice did, and still does, benefit from diffuse strategic reserves. These reserves were originally administered by the Foundation for Agricultural Land Management ('Stichting Beheer Landbouwgronden, or SBL in Dutch), which was later renamed BBL and still functions as such. SBL has always bought land on a strictly voluntary basis.

Only in the framework of a land consolidation project, these plots were used to improve the ownership structure. The focus of SBL, facilitating land consolidation (Bos, 1983), was underlined by the integration of SBL as a department of the Land Consolidation Service ('Cultuurtechnische Dienst, or CD in Dutch). The Foundation's board consisted of 10 persons, combining agricultural and other interests.

Originally, CD staff was burdened with the tasks that SBL's targets generated (Bos, 1983). The tasks were distributed through the entire organisation until a special department was formed in 1964. After 1968, every province had 1 or 2 SBL officials, supported by a number of acquiritors. The acquiritors, selecting and buying parcels, have always been experts from outside the SBL organisation. Between 1965 and 1973, they acquired some 125,000 hectares and redistributed 60% in the same period. The remainder was needed as a working reserve.

Over time, the task of SBL became more important and the broadening scope of land consolidation affected the SBL activities as well. Having strategic reserves was
increasingly important to achieve non-agricultural goals in project areas. The reports of newly accepted projects between 1960 and 1965 assumed SBL to buy 1167 ha of arable land, of which 67 ha to be reserved for nature. Between 1970 and 1975 these figures were 10,842 and 3574 hectares (Van den Brink, 1990). Farm enlargement ceased to be an SBL target in 1980 (Van de Kamp, 1994).

The replenishment of the diffuse land fund was further stimulated by a subsidy arrangement: the Development and Reconstruction Fund for Agriculture (Ontwikkeling en Sanering, or O&S in Dutch). The fund had two aims: (1) giving financial support to farms that have difficulties to making ends meet, and (2) buying the property of farmers that did not wish to continue their activities (Van den Brink, 1990). The bimodal goal of the fund gave the fund two rather contradictory roles; the saint and the vulture. In fact, the vulture was part of the original first concept (buying up terminating farms), whereas the saint was part of the compromise made to satisfy the agricultural interest groups. The policies on the expenditures of the Development and the Reconstruction Fund respectively were made by two different working parties.

The Development part of the fund mainly focussed on modernising farm buildings. The criteria for granting subsidies were hard to define, however. There was a fear of attracting unprofitable investments and a further decline of prices for agricultural products. This hesitation may explain why the expenditures of the Development-part have been lower than those of the Reconstruction-part for the first ten years of the fund.

The Reconstruction aims were met by a series of farm termination subsidies. Farm termination would give space to the remaining farms (thus improving the economic
position of the latter) and generate labour for other economic sectors. The main principle was to give the former farmer an allowance until his pension date. The three regulations that have been applied represent a search for the right criteria. It was a logical suggestion to make SBL the obligatory buyer of terminating farms. SBL was in a position to use the land of the terminated farms for improving the general farming structure. Moreover, in return for the subsidies, it was reasonable that the government kept some control over the farmland that came on sale through these subsidies. The other option, sale of the land on the free market, may aggravate fragmentation but does not disturb the free market land prices. In the political arena, the monopoly of SBL perished under the pressure of agricultural interest organisations. However, within land consolidation areas, SBL did retain its monopoly and outside the project areas, the subsidy held the restriction that the sale of the farmland must improve the parcelling of recipient farms.

The fund had a considerable impact. In practice, the fund was involved in 21% of all Dutch farm terminations between 1965 and 1975. Of the 78,550 hectares of farmland that was released by these farm terminations, 65% was surrendered to existing farms in the framework of farm enlargement, amounting to an average 2.55 hectares per transaction. Another 31% was sold to SBL that returned it to existing farms in average plots of 4.75 hectares. The remaining 4% was converted into non-agricultural land use, with an average 1.52 hectares per transaction.

Looking back, we can state that the diffuse land funds have been successful thanks to the presence of (1) one central agency, entitled to buy and sell land, (2) that conforms to national agricultural structure policy, and (3) that does not disturb the free land market. Renamed as BBL, this agency is still functioning, but its scope has turned to non-agricultural interests over time.

Diffuse land funds in Bavaria

In comparison to the Dutch agency SBL, with a specific budget and explicit task for agro-structural improvement, land banking in Germany in general is less centralised and less specific. In fact, there are various governmental and non-governmental organisations and persons who administer land funds ('Bodenfonds' in German). None of those organisations focuses entirely on farm enlargement. Facilitating motorway-construction, village renewal, water management and nature conservation are very important in German land banking.

The most locally executed land banking is done by the Body of Participants (see section F). Being the executive body for land consolidation projects, it is entitled to acquire strategic reserves beforehand and during the project. It can use a certain percentage of the participants' land as well. The thus mobilised acreage enables the improvement of joint and public facilities in case of village renewal, nature conservation and water management. Demands for farm enlargement can also be met. There is a specific type of land consolidation where land banking is particularly important. For the construction of motorways or railways, the land under the projected
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<tr>
<td>Bought on the free market (ha)</td>
<td>230,844</td>
<td>92,745</td>
<td>54,581</td>
<td>378,170</td>
</tr>
<tr>
<td>Based on land reform Acts (ha)</td>
<td>95,963</td>
<td></td>
<td>95,963</td>
<td></td>
</tr>
<tr>
<td>Using pre-emption rights (ha)</td>
<td>14,523</td>
<td>8,939</td>
<td>2,292</td>
<td>25,754</td>
</tr>
<tr>
<td>Total</td>
<td>341,330</td>
<td>101,684</td>
<td>56,873</td>
<td>499,887</td>
</tr>
<tr>
<td>Used for measures of structure-improvement (ha)</td>
<td></td>
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<tr>
<td>among which:</td>
<td></td>
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<tr>
<td>Farm-reallocation out of congested villages (number)</td>
<td>13,395*</td>
<td>3,324</td>
<td>1,368</td>
<td>18,087</td>
</tr>
<tr>
<td>of which with farm enlargement</td>
<td>7,063*</td>
<td>no data</td>
<td>no data</td>
<td></td>
</tr>
<tr>
<td>Voluntary parcel exchange (total project size in ha)</td>
<td>9,751</td>
<td>26,755</td>
<td>44,392</td>
<td>80,898</td>
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course of the new infrastructure has to come into state ownership. The state then acquires parcels in a zone alongside the project. Land banking is used – within a land consolidation project – to reallocate the parcels into the right place.

Another German attempt to facilitate farm enlargement is a combination of private land funds and legal requirements. The private land funds, specially thriving in the Eastern part of Germany, are owned by investment companies. They acquire parcels with the intention to make profit from it. Profit comes from tenancy contracts and raise in value. Profit-making and considerations of farm-structure do not coincide, of course. There is a Law on Land Transactions ("Grundstücksverkehrsgebet"), however, that prevents parcels from being sold inefficiently. Land transactions need to be approved on. According to the Law, if a party wants to sell a parcel and if there is a farmer in the area who is (i) in need of additional land, and (ii) who is willing and able to pay for it, the parcel must be sold to him. This Law is currently debated for it effectiveness (for more details see Klare and Doll, 2000).

On a higher level, there are Land Societies ("Siedlungsgesellschaften" in Bavaria (Schüller, 1986), but commonly called 'Landgesellschaften'), that have been active from 1890 on and are legally obligatory for every federation member since 1919. Land Societies are entitled to acquire land with the prospect of facilitating all kinds of rural development, among which farm enlargement. Supporting land consolidation is one of the explicit tasks. The 1950s introduced the reallocation of farms from congested villages to the open field as an additional goal as well as involvement in voluntary parcel exchange. When village renewal gained importance in the 1960s, elementary schools, kindergartens and leisure facilities were planned and constructed, also with the help of Land Societies.

Currently, these Land Societies act as problem-solvers for agriculture and rural areas in general. They help to overcome conflicting land use. By using land funds, Land Societies contribute to uniting conflicting interests. There are cases in which the Land Society is incorporated in a company that serves rural development, but at the same time as a real estate agent for private persons.
The figures from Table 19 reveal some more details about land banking practice by Land Societies. Acquisition of land has been the most effective by voluntary land transactions. Legal arrangements with the intention to mobilise land were of relatively little use. Between 1946 and 1973, all redistributed land was used for improving farm structure, particularly farm enlargement. The volume of land involved in land banking decreased considerably in the 1973-1990 period, mainly due to the excessive rise in market prices as well as budgetary cut-backs. Also, changing conditions in agriculture and new claims on rural areas weakened the role of land banking. A greater portion of the redistributed land was used for non-agricultural purposes during this period (also see Attenberger, 2002).

6.2 Internal fragmentation and beyond with land consolidation

Problem-awareness

From the three fragmentation-reducing instruments that are presented in this thesis, land consolidation by far has been the most commonly known, has consumed a lot of financial resources and has raised the most intense feelings – positive and negative. Despite this dominant role, internal fragmentation has never been the subject of alarming governmental reports. Nor was internal fragmentation considered a real issue in the UN-survey on agricultural land (UN, 1964).

Land consolidation has apparently been a pragmatic answer to operational needs that groups of farmers articulated to their governments. It may have been the nature of the internal-fragmentation problem itself, or a different position of the government within society (only acting on demands, not in pro-active policy-making) that explains the absence of a clear strategic document on internal fragmentation. Only later, as we will see in the text below, the instrument was strategically used by governments.

Land consolidation improves the physical production conditions, especially those that cannot be improved by individual efforts. Reallocation of parcels is a main component of any land consolidation project. One can imagine that reallocating parcels of one farmer – being an exclusive commodity, which means that two parcels cannot lie on the same location – demands reallocation of other parcels, and thus leads to a chain of related allocation problems. This reallocation can only be effective within a comprehensive project. The concept assures that participants receive an equal value of land as they contributed, which means that only internal fragmentation can be addressed, and farm enlargement in principle not.

Apart from parcel reallocation, also the public facilities are improved, for instance road infrastructure and water management (drainage or irrigation). Public facilities too demand a comprehensive project since individual efforts are not effective. Nature conservation organisations, as landowners, may also participate in a land consolidation project.
Evolution in Dutch practice

The very first Dutch attempts in parcel exchange were made by monks, like in 14th century Bavaria. The Dutch initiative took place one century later, however. In 1435, members of the Agrieten monastery in the city of Zwolle consolidated the parcels in a 50 hectare area (Terravisic, 1978a,b).

It was not until the 1950s that the concept was developed enough, and had the necessary governmental attention to play a significant role. The essential legal foundation was present in a operationally sound form, after a cyclic process of adjustments (see appendix F). The introduction of the 1954 Law caused land consolidation to play a role of national importance (Figure 23) and the number of requests soon exceeded the available budget by far.

A priority scheme had to be made in order to secure coherent policy and to prevent discouraging waiting applicants (CCC, 1958). This multi-annual plan defined targets for land consolidation policy, as well as requirements for requests and a measure for urgency. Only agricultural considerations were involved. Highest urgency was granted to projects with expected high rates of return and relatively low development.

The system of urgency indication was not applied very strictly, though. Van den Brink (1990) shows that in the 1961-1963 period, 40% of the initiated projects were not urgent according to the multi-annual plan. Eventually, a sharp rise in projects in preparation occurred, followed by a high and stable level (around 300,000 ha) of area in execution.

Like in Germany, the Dutch land consolidation practice received increasing scepticism. During the 1960s, land consolidation was successful, propelled by the economic boom.

Figure 23: Impression of the scale of Dutch land consolidation in 1960.
Source: Annual Report of 1960, Land Consolidation Service
and the availability of the polders as a land fund (see section 6.1). But the resistance grew towards the negative implications that scaling up had for the landscape. Despite its success, as far as the number of adopted projects is concerned, the 1954 Land Consolidation Act was evaluated in the years 1964-1968 already by a special working group. The 10 years in which the Act had been effective had brought serious flaws to light. Particularly disturbing were the limited intentions (only agricultural interests) and insufficient ties to spatial planning (Witt, 1968). Despite the criticism, the working group did not plea for a totally new, more comprehensive instrument, but suggested a revised version and special laws for specific areas.

Soon after the commission completed its work, the land consolidation budget was restricted, meaning reduced initiation of new projects (a maximum of 40,000 ha per year from 1974 on) and an increase of the share the farmers would have to pay (Greve, 1981). The explicit target of farm enlargement soon disappeared from the land consolidation plans (Van de Kamp, 1994). The policy toward supra agricultural goals posed problems in terms of interpretation of the Law and consensus on execution of projects. Resistance of farmers and protests of environmental organisations led to deadlocks and even preliminary termination of projects.

In 1985, a long time after the first serious attempts to reform land consolidation, new Law was established. The draft law was deposited in 1979 already. The clarification attached to the new Act listed the essential improvements in comparison to the 1954 law:

- agriculture was no longer the main focus of land consolidation projects. The law can be used for adapting the project area to all land use that take place or will take place,
- a project will imply a balancing of several land use options in the light of national spatial planning,
- decision-making is no longer limited to the land users and land owners of the project area, because intentions can be non-agricultural.

The new law gave way to projects that strengthened and integrated several types of land use. The dominance of agriculture was supposed to be erased. The 1985 Law provided in four types of projects; a division similar to the division made already in the German Law of 1954. Crucial to the new Law was that land consolidation was made subordinate to spatial planning. The relationship with spatial planning was tightened through the involvement of the provincial parliament in the initiation.

In practice, however, the achievements in terms of multifunctional planning were disappointing. The change in legislation proved insufficient to make an actual difference. The environmental organisations were not satisfied and pointed out that their influence in the process was still too limited. As a consequence, a commission was appointed to advice on altering the procedure. The conclusions included focussing on improving the project area instead of the separate sectors represented in that area, and more importantly, changing the constitution of the executive organisations. The commission's findings (Gorter, 1990) resulted in a change of policy (Ministry of Agriculture, Nature and Fisheries, 1993).
Halfway the 1990s, Dutch land consolidation practice realised that things had changed and that land consolidation lagged behind these changes. The lengthy land consolidation procedures were no longer suitable for optimising parcelling. Agriculture had become much more dynamic, and thus required simpler, faster and more flexible instruments. Land consolidation procedures took well over 10 years. A time-span within which the goals set at the beginning of a project could very well have changed considerably before the project’s completion.

Although for other reasons than the Dutch rural areas, the Central European counterparts can benefit from ideas that enhance speed and simplicity. The Central European rural restructuring is mainly struggling with the immensity of the task and a chronic lack of resources. Two factors that cry out for speed and simplicity, just as the Dutch farmers.

*Changing paradigms in Bavarian practice*

In terms of land consolidation history, Bavaria was the first in the Western world to consolidate agricultural land and the first region that adopted a land consolidation law. Spontaneous land consolidation goes back to 1343, when monks exchanged parcels in the village of Oberalteich. More structural initiatives were undertaken around 1550, a period from which documents describe land consolidations around the city of Kempten.

The first Land Consolidation Law was adopted in 1861, after a period of fifty years in which experts tried to attract attention to the need for a legislative consolidation instrument. The first law was not really successful however. This was mainly due to the very strict provisions on forcing uncooperative participants. A majority of four out of five in number, area and taxes had to be in favour. Furthermore, the Law did not provide in a special authority, causing the participants to be responsible themselves.

Just after World War II, the parity issue arose all over Europe; there was a strong awareness of the importance of food security. In addition, the booming economy led to inequality in wealth between urban and rural areas. In other words, there was an urge to rebuild and expand agriculture. Germany, like many countries, stimulated structural improvements of agriculture in order to close the parity-gap. Land consolidation was applied as one of the instruments to achieve this. The so-called Lübbe-plans were the leading documents for this restructuring operation.

Around 1950, the amounts of land in need of land consolidation were estimated (Schloegl, 1951). Dependent of this amount of land, the desired pace of land consolidation was calculated. At that moment, Bavaria proved to be the region with the largest task on land consolidation. An estimated 87 percent of all agricultural land being in need of land consolidation still had to be consolidated. But in a period of 25 years, the initial lagging behind was completely converted. By 1975, Bavaria was the region with the highest percentage of land having been consolidated.

This indicates that Bavaria has really had a highly productive land consolidation authority. Combined with the fact that Bavaria is the largest German region (70,000
square kilometres, twice the size of the Netherlands) the total acreage consolidated in 25 years is enormous; 1.5 million hectares. It therefore was a fortunate choice that the methods used by the Bavarian authorities have largely been adopted in the Federal Land Consolidation Law of 1954.

The need for goals beyond agricultural-economic ones, was acknowledged in an early stage already (Schneider, 1967). Not because of sustainability but for social-economic considerations. Merely supporting high-productive agriculture in unfavourable conditions for non-agricultural employment might lead to abandonment and 'social erosion' of agricultural regions.

In the 1960s, non-agricultural goals received increasing attention in land consolidation projects (Hottes et al, 1975). Land consolidation was embraced as an ideal instrument for comprehensive rural development (Dams, 1967). The goals as stated in §1 of the 1954 land consolidation Act did not oppose to this stalking broadening. Broader goals were also permitted by §37. The Höchertl-plan from 1968 officially made spatial planning prevail over agriculture in land consolidation projects. Over time, this development was underlined by the re-naming of the former departments for land consolidation (Schlosser, 1999).

For some, the system did not give enough room for non-agricultural interests. Hottes et al (1974) plead for limiting the power of the Body of Participants (further explained in appendix F and section 7.3) that would block developments they experienced to be too threatening. Others wondered whether the decaying consideration of agricultural interests did not offend the legitimacy of land consolidation actions (Ernst, 1973, p.70). The renewed Law of 1975 did not actually change the procedure. The official goals of land consolidation were broadened by re-drawing the words ‘improvement of production and productivity’ (Zillien, 1990). The new Act aims at ‘Verbesserung der Produktions- und Arbeitsbedingungen in der Land- und Forstwirtschaft sowie (...) der allgemeinen Landeskultur und der Landentwicklung’ (§1, 1975 land consolidation Act). In addition, the village improvement that in practice was an integrated and important aspect of land consolidation, became an integral part of land consolidation in a formal sense as well.

Figure 24: German farms typically are concentrated in villages, whereas Dutch farmsteads are dispersed throughout the landscape.
Despite the renewal, ecological and agricultural interests did not cease to collide. In the 1970s, conservation of nature and environment became an issue that did not leave land consolidation unaffected. Land consolidation became the centre of dispute between ecology and economy. Illustrative are the commonly heard opinions recorded by Strössner (1983). Representatives of the farmers state that land consolidation ‘only serves nature conservation’, whereas the conservationists complain about ‘the total lack of ecological considerations’. Some spoke of a ‘cross-fire of interests’ (Batz, 1980) and ‘battling opinions’ (Oberholzer, 1984).

The increased complexity and acreage of the projects that were executed under the 1975 Act caused problems. The time-span between initiation and conclusion rapidly increased and the number of projects in execution dropped continuously between 1975 and 1995 (from 3,800 to 2,200, Schlosser, 1999). Nonetheless, the earlier apparent rivalry between agricultural and landscape considerations was replaced by harmonisation (Dippold, 1990; Thöne, 1997). The simple consolidation procedure and infrastructure related projects increased in number, yet remaining relatively insignificant.

6.3 Voluntary parcel exchange: smaller impact

And what exactly did the third Western instrument pursue and achieve? Two things stand out: the instrument voluntary parcel exchange does not achieve much on a strategic level, but it certainly serves a need.

Data on Dutch voluntary land consolidation prove that the instrument has been quite popular in the 1960s. The voluntary projects embraced equal aims and measures as did the regular land consolidation projects. Over time there was also an increase in the average project size from 92 hectares in 1960 to 335 in 1970. The total area subject to voluntary land consolidation increased swiftly just after the legal provisions were established.

Compared to the area subject to land consolidation schemes, however, the importance of voluntary land exchange was limited (Table 20). The highest relative importance was reached in 1967, when the area subject to voluntary land exchange amounted to 4.3% of the area being subject to consolidation projects. But in most years, the relative importance was only 2 percent.

The growing size and complexity due to trends toward multifunctional land consolidation (as is described in section 6.2) created expenses and execution periods of undesirable magnitude, also in the voluntary projects. As a result, voluntary projects according to the above described system ceased in the Netherlands in 1977 (Van den Brink, 1984). Nonetheless, the demand for a voluntary instrument persisted.

A successor regulation, named parcel exchange (‘kavelruil’ in Dutch) was established in 1970. Parcel exchange was, and still is, simple, effective and cheap. Between 1970 and 1983, a total of 1338 projects (representing 32,246 ha and 8,445 participants) were executed. Gioudemans et al (1994) argue that more actively providing information on parcel exchange to landowners could seriously increase the number of projects. This
may actually be the reason for the strong revival of parcel exchange in the 1990s. In the year 2000, well over 16,000 hectares were exchanged (Noorduin, 2001). Currently, each province has special personnel to inform landowners about their possibilities and to guide the participants through the process.

Throughout Germany as a whole, voluntary parcel exchange had only involved 33,341 hectares in the period 1960 to 1970. The absence of legal provisions was held responsible for this low importance (Bohle, 1976). In 1967, guidelines for voluntary parcel exchange were published, whereas the 1976 renewal of the Act on Land Consolidation completed its legalisation (see Hoerster, 1978; Seehusen, 1997). This instrument retained a relatively unimportant position, however. Statistics specific for Bavaria (Schlosser, 1999) also point to the relatively low acreage under voluntary land exchange, on average 20,000 hectares per year, although increasing interest during the 1990s can be observed.

6.4 Supporting activities

Although the three instruments that are presented in chapters 4 and 6 are separate entities, it would not be correct to ignore the related activities that enhance land consolidation effectiveness. These activities are facilitating to fragmentation-reduction, although they are not purposely or exclusively focused on it. These supporting activities strictly speaking are instruments as well (see section 2.4), but they are treated differently here because they were not applied separately.

Farm reallocation

A land consolidation project may have to deal with parts that are under-supplied and parts that are over-supplied. Supply refers to land and is relative to the demand for land. Under-supply characterises the situation where many farm buildings are located at close range. They all would prefer their parcels to be close to the buildings, but that is
impossible. So, a high density of farms means that the demand for land in the vicinity of these farms is high relative to the land available.

Reallocating farms from under-supply areas to over-supply areas serves three effects. The reallocated farm will establish new farm buildings, contributing to modernisation of the farm facilities. It generally will receive an optimal parcelling, since in the over-supply area few intersecting interests will oppose. And it will leave its former parcels behind in the under-supply area, contributing to a better parcelling of the not reallocated farms.

Farm reallocation typically was embedded in land consolidation projects and also involved land banking, especially when the reallocation was out of the region and farm enlargement was part of the operation.

Dutch land consolidation practice has made quite some use of this concept (see Van den Brink, 1991). All reallocations were made voluntarily and with the help of considerable financial state support. The original idea was born from a matter of equal treatment. Namely, the colonisation of land reclamation (in the polders, see section 6.1) comprised establishment of farm buildings by the state. The parliament asked for similar services for farms from under-supply areas. Since 1953, state subsidies were provided for farm reallocation, but the exact criteria for granting the subsidies have changed many times since.

The provision led to the reallocation of many hundreds of farms, reaching its summit in the 1960s, when over 160 farms per year were reallocated. In fact, farm reallocation became an integral part of designing the land consolidation plan. Especially in the river-district, farms typically were clustered. Mainly along the dikes and other elevations, while the intermediate area was regularly flooded, even up to the 1950s. After the drainage had been improved, farm reallocation has led to an actual colonisation of this intermediate area by farms from along the dikes (Greve, 1988). Coinciding with the reallocation, farms could opt for enlargement. The statistics on farm reallocation between 1976 and 1990 show that only 16% of the 711 reallocated farms refrained from enlargement. Approximately a quarter of the total acquired more than 10 additional hectares, while the average enlargement amounted to 7.2 hectares.

Parallel to the broadening scope of land consolidation (section 6.2), Dutch farm reallocation too gradually served an expanding diversity of goals. Considerations of traffic safety (eliminating rail track crossings) were introduced, as well as liveability of villages (reallocating the manure-smell together with the farms) and protection of nature reserves (avoiding pollution of farms too close to the borders of the reserve). For the nature conservation aspect, however, farm reallocation is not a mere blessing. Because of the over-supply areas becoming used more intensively, negative impacts can occur.

According to Schlosser, both in his dissertation and in a personal comment, farm reallocation has been of minor importance in Bavarian land consolidation practice. Nevertheless, the Bavarian annual reports show a considerable expenditure on this point. And they report around 300 reallocations per year in the 1950s and 1960s, representing some 20 percents of the total German farm reallocations at that time.
Village renewal

German land consolidation projects are typically accompanied by a village renewal project ("Dorferneuerung"). In the 1950s, village renewal was considered one of the most important challenges to close the gap between city and village in economic, social and cultural respect (Klempert, 1962). The key physical task was decreasing the density of village properties. Farms were reallocated from the village into the field, the village centre was made less congested and old farm buildings were removed (Hottes et al., 1975).

The absence of a law-based instrument was commonly seen as a disadvantage (Ernst, 1963). However, village renewal was more or less spontaneously integrated in land consolidation. Namely, the Body of Participants proved to be a very good concept for achieving improvements of the village. Improving infrastructure, water management and facilitating village expansion received increasing attention (Geuenich, 1986).

As the former subsection shows, Dutch practice traditionally invests heavily in an optimal distribution of farms in the landscape through farm reallocation. German practice serves a less important role for farm restructuring but focuses more on village renewal, a set of measures that is unfamiliar to Dutch projects. Do German farms already have a perfect spatial distribution? And don’t Dutch villages need any improvement at all?

The difference between the Dutch and German approach toward farmsteads is not coincidental. The reason for the difference lies in the historically grown difference in landscapes. Dutch farms were never really concentrated in villages. The Dutch landscape has always been dotted with individual farmsteads that lie amidst the quilt of parcels. Farm reallocation efforts have further de-concentrated the farm pattern and led to the extinction of functioning farmers’ villages. German and especially Bavarian farmsteads have always been very strongly concentrated in villages. Separate individual farmsteads still are not common. As a consequence, both countries have divergent demands for instruments that improve the farming structure.

6.5 Consolidation effectiveness

Two ways of assessing effectiveness

Since the efforts that the Netherlands and Bavaria made to consolidate agricultural land were quite substantial, it is legitimate to question the effectiveness of land consolidation. The importance of evidence of effectiveness is relevant when other countries consider adopting the instrument; they want to be sure of return of investments.

Improvements due to land consolidation occur in two steps (Figure 25). The first step is the improvement of the spatial outlay of the farms involved, e.g. the larger, more regular parcels and the shorter distances between them. The second step is the improved farm management, being an indication for more income and thus improved
living conditions for the farming population. Improved farm management is an indirect effect. Changes in farm management can be due to better parcelling, but also to an important extent by market forces (are prices high enough to invest in changing farm management?), personal preferences (is the farmer open to new views on management?) and mechanisation (was new machinery introduced in the course of the project?). So, studying the outcomes of in terms of improved farm management does not give an accurate determination of the efficiency of the land consolidation instrument itself.

The literature focusing on the effects of parcelling on farm management is extensive (for an overview see Van Dijk, 2000 and 2001a; Schlosser, 1999). However, research into the actual effects of the instruments is rare and never comprehensive. This section will focus on the direct effects of land consolidation; changes in parcelling structure during the project. The direct effects will be referred to as ‘consolidation effectiveness’. Effects that are not related to parcelling (improvement of drainage, increased possibilities for getting loans) can also be important in practice, but are not taken into account here.

German consolidation effectiveness

The German land consolidation authorities publish statistics on the consolidation effectiveness each year. The statistics on consolidated areas show a strong increase in parcel size. Table 21 shows figures about the achievements of projects completed in the 1960s; these projects presumably were started in the 1950s. The figures indicate that on average, when comparing the initial and the new situation, the parcels more than tripled in size and the total number of parcels was decreased to 30 to 35% of the initial number. The table also shows that the consolidation efficiency was slightly higher in Bavaria than in Germany as a whole. Unfortunately, a detailed comparison with the autonomous development in parcelling is not possible. The statistical office in Bavaria did not systematically collect data on parcelling. The only data that are comparable from the 1949 and 1971 census, where the farms were distributed over categories of number of parcels. A comparison of both censuses learns that the percentage of farms within the lower categories (up to 10...
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Bavaria
Average parcel size before | 0.34 | 0.35 | 0.33 | 0.36 | 0.41 | 0.48 | 0.37 | 0.44 | 0.47 | 0.52
Average parcel size after | 1.19 | 1.16 | 1.12 | 1.17 | 1.14 | 1.27 | 1.17 | 1.18 | 1.21 | 1.31
Consolidation ratio | 3.50 | 3.31 | 3.39 | 3.25 | 2.78 | 2.65 | 3.16 | 2.68 | 2.57 | 2.52

Germany
Average parcel size before | 0.32 | 0.31 | 0.32 | 0.37 | 0.36 | 0.28 | 0.34 | 0.38 | 0.37 | 0.43
Average parcel size after | 1.01 | 0.96 | 0.96 | 1.02 | 0.99 | 1.00 | 1.00 | 1.04 | 1.01 | 1.09
Consolidation ratio | 3.16 | 3.10 | 3.00 | 2.76 | 2.75 | 3.57 | 2.94 | 2.74 | 2.73 | 2.53

Table 21: Achievements of all types of land consolidation projects (including projects with special goals) that established the new parcelling in the years indicated. Consolidation ratio refers to the ratio between the number of parcels before and after the project.

Source: Annual reports of the German Ministry of Agriculture

Parcels) increased. The higher categories (more than 10 parcels) contained a smaller share of all farms. Calculating an average number of parcels, by determining the weighted average of all categories, reveals a quite remarkable trend. Between 1949 and 1971, the average number of parcels per farm had only declined from 9.8 to 8.2. So, the success of land consolidation has not been able to structurally change the parcelling structure. Apparently, the autonomous development is subject to a high-speed fragmentation. The cause may very well be the inheritance rules; especially in Southern Germany, a farm was split up and divided among all sons.

**Dutch consolidation effectiveness**

Surprisingly in the Netherlands, despite the extensive calculations that are made before land consolidation, in order to convince the participating farmers that the project will be worth the effort, systematic evaluation after completion is absent. Oosterbaan (1981) acknowledged this gap and analysed 104 land consolidation schemes that were completed between 1968 and 1978 (Table 22). He used agricultural survey figures of the areas involved. The study proved that, for all projects on average, the number of parcels per farm declined from 5.2 to 2.2 and the average parcel size increased from 2.6 to 8.1 ha.

In the Table 23, a number of individual project evaluations are compared in order to make clear what differences in results there are among the land consolidation schemes. Five projects in a small-scale landscape with sandy soils (Group I) and three projects in areas with a clay and peat soils (Group II). The parcelling structure is characterised by irregular rectangular in the first case, and long narrow rectangles in the second case. The projects differ in the extent in which they increase farm size. In the case of Schanswetering, up-scaling of farms was very successful. In Beltrum, the number of

<table>
<thead>
<tr>
<th>Arable regions</th>
<th>Meadow regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy soils</td>
<td>Horticulture</td>
</tr>
<tr>
<td>Number of projects</td>
<td>Consolidated area (ha)</td>
</tr>
<tr>
<td>before</td>
<td>after</td>
</tr>
<tr>
<td>17</td>
<td>77360</td>
</tr>
<tr>
<td>28</td>
<td>116020</td>
</tr>
<tr>
<td>49</td>
<td>226380</td>
</tr>
<tr>
<td>10</td>
<td>28350</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
</tr>
</tbody>
</table>

farms did not change much. But in all cases described in the table, the number of parcels and the parcel size improved dramatically.

On a national level, in 1950 the average Dutch farm measured 7.8 hectares. In 1966 this was 9.2 hectares on average, and in 1980 this was over 14 ha. The farm enlargement has resulted in a shift of land from farms in the category under 20 hectares to farms over 20 hectares. The raise in farm size may not look spectacular, but did trigger an important change. The vast number of very small farms disappeared. Between 1955 and 1966 the number of farms smaller than 10 ha fell with 27%, from 220 thousand to 160 thousand. The number of farms over 10 ha increased with 9 percent, from 76 thousand to 83 thousand. Moreover, the intensity of farming raised. In 1960, 15% of the farms kept more than 30 dairy cows. In 1970 this more than doubled to 32%.

More importantly, the above-mentioned increase in average farm size has caused the parcel size to rise from 2.2 ha to 4.3 ha on average. This is an increase of about 100 percent. In the consolidated areas, measured over the same time span, the increase was

<table>
<thead>
<tr>
<th>Voted</th>
<th>% voters</th>
<th>% land</th>
<th>number</th>
<th>number</th>
<th>parcels</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>pro</td>
<td>pro</td>
<td>farms</td>
<td>before/after</td>
<td>before/after</td>
<td>before/after</td>
<td>parcel size before/after (ha)</td>
</tr>
<tr>
<td>Group I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lievelede</td>
<td>1947</td>
<td>59</td>
<td>48</td>
<td>592 / 586</td>
<td>2031 / 1228</td>
<td></td>
</tr>
<tr>
<td>Beltrum</td>
<td>1950</td>
<td>82</td>
<td>77</td>
<td>411 / 403</td>
<td>2494 / 875</td>
<td></td>
</tr>
<tr>
<td>Zieuwente-Harreved</td>
<td>1965</td>
<td>86</td>
<td>82</td>
<td>411 / 403</td>
<td>2494 / 875</td>
<td></td>
</tr>
<tr>
<td>Ruardo</td>
<td>1979</td>
<td>70</td>
<td>79</td>
<td>2133 / 982</td>
<td>4.4 / 2.4</td>
<td></td>
</tr>
<tr>
<td>Lievelede</td>
<td>1994</td>
<td>75</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schanswetering</td>
<td>1953</td>
<td></td>
<td>211 / 170</td>
<td>903 / 279</td>
<td>0.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Nijveen-Kolderveen</td>
<td>1954</td>
<td></td>
<td>3.4 / 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zwammerdam</td>
<td>1962</td>
<td>unchanged</td>
<td>3.2 / 1.7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 23: Comparison of 8 Dutch land consolidation projects using selected figures. Source: * Schenk (1996); ** Oosterbaan (1981)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average number of parcels</strong></td>
<td>7.2</td>
<td>2.5</td>
<td>5.6</td>
<td>5.8</td>
<td>35</td>
<td>104</td>
</tr>
<tr>
<td><strong>Average parcel size</strong></td>
<td>1.8</td>
<td>6.8</td>
<td>1.8</td>
<td>2.0</td>
<td>378</td>
<td>111</td>
</tr>
<tr>
<td><strong>Percentage home-parcel</strong></td>
<td>25</td>
<td>62</td>
<td>41</td>
<td>40</td>
<td>248</td>
<td>98</td>
</tr>
<tr>
<td><strong>Average distance paved</strong></td>
<td>780</td>
<td>356</td>
<td>927</td>
<td>906</td>
<td>46</td>
<td>98</td>
</tr>
<tr>
<td><strong>Average distance unpaved</strong></td>
<td>528</td>
<td>243</td>
<td>481</td>
<td>461</td>
<td>46</td>
<td>96</td>
</tr>
<tr>
<td><strong>% irregular parcels</strong></td>
<td>62</td>
<td>52</td>
<td>39</td>
<td>37</td>
<td>84</td>
<td>95</td>
</tr>
<tr>
<td><strong>Average farmsize</strong></td>
<td>12.9</td>
<td>16.6</td>
<td>10.1</td>
<td>11.5</td>
<td>129</td>
<td>110</td>
</tr>
<tr>
<td><strong>% grassland</strong></td>
<td>80</td>
<td>89</td>
<td>85</td>
<td>93</td>
<td>111</td>
<td>108</td>
</tr>
<tr>
<td><strong>Number of dairy cows and calves</strong></td>
<td>18.5</td>
<td>48.8</td>
<td>15.7</td>
<td>31.7</td>
<td>264</td>
<td>202</td>
</tr>
<tr>
<td><strong>Number of cows per hectare</strong></td>
<td>1.8</td>
<td>3.0</td>
<td>1.8</td>
<td>2.4</td>
<td>167</td>
<td>133</td>
</tr>
<tr>
<td><strong>Modern stables</strong></td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Labour (man-hours per hectare per year)</strong></td>
<td>183.6</td>
<td>138.4</td>
<td>198.1</td>
<td>180.8</td>
<td>75</td>
<td>91</td>
</tr>
<tr>
<td><strong>Machine costs per hectare</strong></td>
<td>1139</td>
<td>1017</td>
<td>1309</td>
<td>1256</td>
<td>89</td>
<td>96</td>
</tr>
<tr>
<td><strong>Income of labour per hectare</strong></td>
<td>846</td>
<td>1118</td>
<td>740</td>
<td>800</td>
<td>132</td>
<td>108</td>
</tr>
</tbody>
</table>

Table 24: From two sample areas - one subject to land consolidation, the second unaffected - various indicators are compared. Source: Jalink (1979)

more than 300 percent. The conclusion is that the Dutch have indeed succeeded in a thorough improvement of the parcelling structure.

There is one important empirical study that not only shows changes in parcel size, but also a number of other farm characteristics. The study is done by Jalink (1979). He defined a sample area of 400 ha in the land consolidation project 'Zieuwent-Harreveld'. He then compared the changes between 1968 and 1978 with a comparable sample area (Ruurlo) close by, but unaffected by land consolidation. The main data from his research are presented in Table 24. The two far right columns demonstrate the extent of change in both sample areas by indices.

Jalink clearly demonstrates that land consolidation did trigger strong changes in farm structure in the area studied. The autonomous development (e.g. Ruurlo) was much slower. The improvement in terms of income for the farmers is much larger in the consolidated sample (132%) than in the sample that had not been subject to land consolidation (108%).
Societal context of fragmentation reduction

Assessing the success of land consolidation cannot be done separate from its context. The developments in agriculture are strongly influenced by developments in other sectors. In this perspective, a number of reflections can be made. Two developments strongly have influenced agriculture: mechanisation and exit of labour (Table 25).

Due to strong economic growth in Western Europe as a whole, the price of labour increased. Agriculture had to save on labour costs. And it did. Post-war experience learns that agriculture has excessively mechanised. Machine traction (instead of horse-power) and mechanised milking have become increasingly important. Mechanisation has led to an increase in labour productivity. Due to higher productivity, the price per unit produce lowers, forcing farmers to raise productivity for a fair income. This rat race has propelled land consolidation initiatives. New investments had to be made for growth of productivity, and improving parceling was often a necessary part of these investments.

The decline in farmers has been due to failing of a successor in two-thirds of the cases. In the other one-third the farmers chose another profession. The decline in other labour (field workers) is almost entirely a matter of changing profession (Maris and Post, 1976). Consequently, the labour per farm declined from 2 persons to 1.39 persons on average.

The essence here is, that what makes a land consolidation program successful is the apparent need for it, from a farmers' point of view. Fragmentation of land ownership in itself may not be felt as a problem. In the Netherlands, macro economic developments called for savings on labour, therefore for mechanisation, therefore for adapting parceling to mechanisation.

Furthermore, the possibilities for adapting agriculture have to be there. Dutch agriculture shows a high amount of labour exiting agriculture. Scaling up inevitably means emitting labour, which in fact was known from the start (Van de Kamp, 1994). The conditions were right. Alternative employment was short at hand, and governmental capital for farm-termination subsidies was available.

<table>
<thead>
<tr>
<th></th>
<th>1950</th>
<th>1960</th>
<th>1965</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractors</td>
<td>24481</td>
<td>82066</td>
<td>130418</td>
<td>156414</td>
</tr>
<tr>
<td>Combines</td>
<td>1204</td>
<td>3025</td>
<td>6105</td>
<td>7500</td>
</tr>
<tr>
<td>Milking machines</td>
<td>3835</td>
<td>38634</td>
<td>78168</td>
<td>85472</td>
</tr>
<tr>
<td>Use of Nitrogen-fertilisers</td>
<td>156,000 tons</td>
<td>no data</td>
<td>no data</td>
<td>406,600 tons</td>
</tr>
<tr>
<td>Male farmers</td>
<td>532,907</td>
<td>389,043</td>
<td>no data</td>
<td>242,400</td>
</tr>
<tr>
<td>Sons</td>
<td>90,000</td>
<td>no data</td>
<td>no data</td>
<td>24,000</td>
</tr>
<tr>
<td>Other labour</td>
<td>97,000</td>
<td>no data</td>
<td>no data</td>
<td>11,000</td>
</tr>
</tbody>
</table>

Table 25: Impression of the extent of intensification in Dutch agriculture.
Source: Agricultural Statistics (1972)
6.6 Strategic analysis

In the introduction to this chapter, we asked ourselves two questions. To what types of fragmentation does the Western experience apply and are they the same as the Central European problems? And: what are the prerequisites for the effective adoption of an instrument? In other words, we want to check the similarity in problems as well as the 'transplantability' of Western experience.

With regard to the similarity between Western Europe and Central Europe, this chapter shows that Western Europe has addressed two types of fragmentation, out of the total four types that are defined in section 2.1. Only the farm-size problem and internal fragmentation have been subject to the fragmentation-reducing instruments. Instruments for the remaining two types (i.e. dealing with ownership fragmentation or with a large gap between ownership and use) have not developed in Western Europe. They probably did not need to be developed because these specific problems did not occur. They can be regarded as particularities of Central Europe that stem from the privatisation process.

One of the two types that Western Europe does have experience with is the same type that in section 5.5 we discovered to be a main fragmentation problem of Central European, namely farm size. Land banking is the instrument that concentrates on this type of fragmentation. Therefore, land banking makes the best match with the Central European fragmentation-problem on the short term, when we take into account whether similarity in problem and experience exists.

But matching goals and problems is just one criterion, because the prerequisites for effectively applying an instrument also have to be considered. For success in one country does not guarantee success in another. Prerequisites are the conditions that allow an instrument to be operational, adopted and achieve its goals. The prerequisites for each of the instruments are derived from Western European practice, and listed in Table 26.

Again, land consolidation appears to make a poor match with the Central European situation. Especially complicating for the application of land consolidation is the absentee-ownership, so typical for rural Central Europe, that collides with the required willingness of the land users to invest in better parcelling. Absentee-owners will face costs and might be wary of loosing their parcel or be subject to other disadvantages. These negative sides are not compensated by advantages, because the absentee owners by definition do not enjoy these positive sides. The implementation of land banking, however, does not seem to face fundamental problems as far as prerequisites are concerned.

Land banking can also help reducing the gap between use and ownership. By acquiring small, leased out parcels and selling them to the present user, a gradual accumulation of user-ownership will occur, with the land banking institution as the driving force that generates transfers of ownership to the most efficient user. This double effect – land
banking can address both farm size and segregation of use and ownership — further stresses the importance and suitability of land banking. The conclusion therefore is that land banking, generally speaking, makes a better match with the Central European land fragmentation.

<table>
<thead>
<tr>
<th>Land banking</th>
<th>Land consolidation</th>
<th>Voluntary parcel exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main agricultural target</strong></td>
<td>Farm size</td>
<td>Parcelling (number, distance, average size)</td>
</tr>
<tr>
<td><strong>Non-agricultural targets</strong></td>
<td>Providing space for infrastructure, water management, etc.</td>
<td>Comprehensively improving regional quality</td>
</tr>
<tr>
<td><strong>Time dimension</strong></td>
<td>Ongoing</td>
<td>Long projects (&gt; 10 years)</td>
</tr>
<tr>
<td><strong>Affects</strong></td>
<td>National farmers population</td>
<td>Between 50 and 300 farmers</td>
</tr>
<tr>
<td><strong>Prerequisites for success</strong></td>
<td>One or more agencies that acquire and redistribute parcels Owners/occupiers that pursue farm enlargement</td>
<td>Owners/occupiers with internal fragmentation Who are willing and able to invest time and money Governmental financing for non-agricultural improvements</td>
</tr>
<tr>
<td><strong>Cross-relations</strong></td>
<td>Involving land-banking parcels can improve effectiveness in voluntary exchanges</td>
<td>Redistribution of land-banking parcels can be integrated in land consolidation projects</td>
</tr>
</tbody>
</table>

Table 26: Tabular overview of characteristics of all three Western European fragmentation-reducing instruments.
7. Considerations of implementation

Up to this point, we addressed the Central European fragmentation from a strategic perspective; which one out of an array of alternative instruments makes a proper fit with local conditions? Thesis points out that land consolidation should not be put in the centre of Central European fragmentation reduction. Central European agriculture mainly suffers from farm-size problems and segregation of ownership and use, whereas land consolidation addresses internal fragmentation. And especially absentee-ownership conflicts with the prerequisites for this particular instrument.

But the information in the preceding chapters gives little clue about what the actual implementation would involve. What choices have to be made and what conditions have to be met before an instrument is actually operational? This chapter considers both land banking and land consolidation, which may seem surprising in the light of the conclusion of section 5.5. However, this conclusion does not imply that land consolidation does not have a role at all. There can very well be regions where internal fragmentation does represent the essence of the structure problem, and where the right prerequisites are present. The information from the case studies does not exclude the existence of such enclaves.

Furthermore, as time goes by and the Central European farming may develop toward a family-farming structure, it can be expected that internal fragmentation will be increasingly important. For land banking and autonomous processes of farm enlargement typically generate dispersion of ownership. In addition, farming efficiency plays a more prominent role in larger farms, contributing to the need to solve internal fragmentation. So, in certain unspecified regions, that are likely to grow in the future, land consolidation may have an important task.

This chapter is structured as follows. Section 7.1 elaborates on how to consider the difference in context when transplanting a complex instrument. It claims that finding an explanation for these differences is essential for making the right choices. The operational aspects of land banking are reviewed in section 7.2. The section that follow highlight developments in Dutch and Bavarian procedures (7.3), as well as the organisation and financing that constitute the driving force behind land consolidation projects (7.4). Section 7.5 concentrates on an operational choice that needs particular attention, namely whether a multifunctional approach is feasible in Central Europe. In the conclusion, recommendations are derived on what guise would fit land consolidation in the Central European case study countries.
7.1 Comparative research key to transplanting land consolidation

Transplanting complex phenomena meets specific difficulties, as Masser and Williams point out in their book 'Learning from other countries' (1986). Fragmentation-reducing instruments are very complex because they are anchored in the legislative, cultural and administrative context of society. Western researchers therefore must 'try to lay aside their Western spectacles and outlook' (Heywood, 2000). Transplanting a procedure will not succeed unless it is modified to make an excellent fit with the context of the receiving nation.

The first implication of this context-dependency is that the more options are known, the more likely it is that a well-suited option can be chosen. So, the researcher must be familiar with a variety of optional strategies in order to make a good advice. This knowledge can be derived from a comparative study in which a range of systems are described and compared. Only then, the eye caps of reasoning out of a one strategy paradigm can be removed.

The second implication is that the researcher must be aware of the relationships between the already being applied procedures and their context. For the receiving country, an exact fit with the local context is essential. The system applied in a context that is strongly similar to the receiving country will have the best chance for successful transplantation. So, comparative research is necessary to assess in what way instrument and context are related in order to allow a founded choice from the variety of optional instruments and their components (Figure 26).

But what exactly is comparative research? The difference in approach between the thorough historic analysis of urban development described by Terhorst and Van de Ven (1997) and the loose collections of papers in for example Hallett (1988) and Avery et al (1980) is enormous, and the usefulness for advisory studies varies greatly.

More detailed reflections on comparative research (Van Dijk, 2002a) assumes that (1) comparative analysis of planning systems can be done at a number of levels of increasing complexity, and (2) advising other countries is the most complex aim, therefore the highest level. Four levels of comparative cross-national study are distinguished, related to the goals indicated.

1. collecting information about planning systems in other countries ('exhibiting')
2. valuing each planning system with a relative value ('valuing'). Examples of valuing comparative research are Priemus and Metselaar (1992) and Spiker and Wolleswinkel (1996). From larger sets of countries, the same pattern of values may be observed in several instances. Through a tentative way of cluster analysis, 'families' of planning may be distinguished, as is done by De Jong (1999) and Newman and Thornley (1996).
3. revealing the variables that determine the outline of the policy instrument ('explaining'). Terhorst and Van der Ven (1997) demonstrate this in their excellent study on differences in urbanisation patterns. Regression analysis can
be an interesting tool in linking planning systems to their context. Studies of agricultural economic researchers Mathijs and Swinnen (1996) show that even complex issues are suited for regression analyses. Pickvance (1986) has published on the specific topic of explanatory comparative research, and warns that 'a correlation which holds good in a statistical sense must also make theoretical sense.'

4. advising countries that do not yet apply this instrument ('advising')

Each successive level aims at more complex goals, but inevitably comprises the lower levels as sub-goals. For example, before you can give a value, you need to collect a number of cases to be able to compare. And before seeking variables, a relative valuation is necessary in order to reveal a discriminating factor. Because each level needs the former, it is necessary to go through the whole process. The division into the first three levels coincides with the three schools of cross-national comparison Lowe and Kemeny (1998) describe. The first and third level as noted above, correspond with their school of divergence and convergence respectively.

Bottom line is that only the relationship is suitable for exporting. This way, a methodological answer can be provided with which a Central European government can construct its own planning procedure. This takes the local context as the starting point, in a founded way choosing from the Western range of possibilities (Figure 27). A researcher must have knowledge about a number of strategies and he must have insight in the relationship between strategy and its context. If a strategic analysis would point out that implementation of one specific instrument is desirable, the fourth level
of cross-national comparison would be needed, although the method uses generalisations to which the receiving country can be an exception. The results of the model can be tested in a pilot (see section 5.4 for the TAMA-pilot).

7.2 Land banking

Let us see what operational issues were raised while implementing land banking. What did it take to make the land-banking concept an operational instrument? Unfortunately, for the diffuse land banking activities in both the Netherlands and Bavaria no written records could be found addressing the operational aspects. The Bavarian fragmented land-banking institutions may explain the absence of overviews in literature, but on Dutch diffuse land banking as well – which is more centralised – reports on the actual operation are hard to find.

On the Dutch concentrated land banking, however, there is an extensive analysis by Schimmel (1987), which was used for this section, unless indicated differently (more details in English on the Dutch polder-land distribution can be found in Van Dijk, 2002b). It is assumed that applying concentrated land banking generated similar questions as does diffuse land banking.

The method of explanatory comparative research from section 7.1 could not be applied due to large differences in Dutch and Bavarian land banking. This section therefore presents tentative conclusions.

Selection procedure

Land banking means distributing parcels with the intention to improve the farm structure. As a consequence, criteria have to be applied on the basis of which beneficiaries can be selected. For not every parcel that is handed over means improvement. In literature about diffuse land banking, it does not become clear what criteria were used. Apparently, the choice was made to decide in a tentative way for each individual case. Unfortunately, we cannot tell how farm size, skill and the financial position of a farm affected the distribution of diffuse land banking parcels. The individual justifications may be preserved in the original documents that are now in archives.

In the Dutch polders, concrete criteria did rule. The Noordoostpolder was the first polder that had explicit criteria. The unexpected large interest in Noordoostpolder-parcels required a clear selection procedure. A total of 1,356 applicants had received a farm by 1957, 83% of which belonged to a special group having suffered damage or coming from a problematic region. For the first 45 farms that were distributed, 190 people applied. The following years showed a ratio of 3,000 applicants on 150 farms.

Selection criteria were age (26-51 years), good reputation, theoretical and technical skills and financial requirements. Eventually 1,801 farms were distributed.

For Eastern Flevoland, the choice was made beforehand to designate 50% of the land to farmers in land consolidation schemes, 25% to farmers damaged by projects for the
common cause and 25% to all interested farmers not belonging to the former two groups. However, two thirds of in total 15,000 applications were filed by farmers who did not belong to the groups of special importance. Again, selection of the applicants was necessary. The criteria hardly differed from those used in the Noordoostpolder. However, the financial requirements were higher than in the other cases. In the end, the projected distribution among interest groups was exactly according to plan. So, land banking parcels are not distributed at random, but transfers were assessed in the perspective of improvement of the farming structure. In diffuse land banking this choice seems to be made on an individual and tentative basis. In concentrated land banking, distribution depended on (1) what the land left behind could mean for others, and (2) if sound continuous farming on the new farm was ensured.

**Acquisition of land**

In concentrated land banking there is a land fund available and it is slowly being depleted. In diffuse land banking, however, there must be a constant flow of new parcels into the fund. New parcels have to be bought in order to be able to distribute them to farms that want to grow. Where did those parcels come from?

In the Netherlands and Bavaria alike all land fund replenishment was on a voluntary basis, and financial stimuli were used to encourage this sale. The financial stimuli tried to compensate the disadvantage of selling. Dutch acquisition, for example, focussed on elderly farmers, whose basic reason for farming was having income until retirement. Especially when no successor was present making investments absent, financial compensation was successful (see section 6.1).

**Types of land use to reserve space for**

Land funds can serve various objectives for spatial policy. We mentioned improvement of farming structure already, but land funds might as well help reserving space for housing, recreation, nature reserves or infrastructure (which in Bavaria was a major driving force behind both land banking and land consolidation).

Increasing importance of non-agricultural goals can be noticed in the land use of the Dutch polders (Table 27). For the first two polders, the agricultural interests clearly prevailed. Out of the 20,000 hectares in the Wieringermeer-polder for instance, only 2,000 involved non-agricultural land use. In Flevoland, non-agricultural land use was a considerable share of the available space, in spite of the very fertile soils. Rapid growth in population, mobility and leisure time, claimed their share.

In 1957, still 84% of Eastern Flevoland was designated to agriculture. The actual situation in 1979 contained 73% of agricultural land and by the late eighties this was down to 67%. In the same period, the space reserved for nature and outdoor leisure rose from 5% to 17%, for which highly productive clay and loam soils were used.

In the creation of the last polder - southern part of Flevoland - in spite of the excellent clay soils, the word ‘agriculture’ was not even mentioned in the goals. The official goals
were: (1) space for dwellings and enterprises, alleviating the overcrowded Amsterdam-region, (2) leisure opportunities both on land and on water, and (3) providing in infrastructure complementing the existing routes.

Size of the new farms

A recurring theme in the construction of the subsequent polders (Dutch concentrated land funds) was the principal question whether to distribute large farms (in order to ensure a wealthy farmers population) or smaller farms (thus alleviating the land-hunger of the existing small farmers). During the 1930s, when the Wieringermeer was built, the crisis, especially coming down hard on the small farms, led to a preference for large parcels. The fear of creating non-viable farms clearly outweighed the advantage of getting people to work. Also financial aspects may have been involved: on balance, large farms mean less farm buildings, thus reducing costs.

When a polder was meant for relieving overpopulated areas or providing maximum employment, the choice became a trade-off of viability and what newcomers can pay. This trade-off was made by economically induced politics, which results in changing priorities through time (see appendix E). In the case of the Noordoostpolder, the government had promised the people who had been working in the construction of the polder their own farm. Because these workers typically lacked sufficient capital, these pioneer-farms had to be relatively small (12 to 18 hectares). And there was the group that existed of farmers from problematic areas (a region called Walcheren and the overpopulated Dutch sandy soil regions). By offering these farmers new opportunities in the Noordoostpolder, these regions would be relieved from overpopulation and consequently improve in farm size structure. But like the polder workers, the Walcheren and sand-soil farmers lacked capital, thus needing relatively small farms. For the rest of the polder there were also social reasons for creating small farms.

Economic and social considerations became even more conflicting in Eastern Flevoland. The problems of overpopulated regions were now more urgent, whereas the minimal size for what was likely to be viable had risen. The last development resulted from the surpluses on the European market, negatively influencing producer prices.
In concentrated land banking, farm enlargement can be part of the deal, provided that immigrants have sufficient financial resources. For example, people moving into Eastern Flevoland from land consolidation schemes were allowed a maximum increase in farm size by one third. In reality, the 370 farms that moved to the polders left behind 11,905 hectares and received 15,170. So, they gained 27% on average, indicating considerable interest in farm expansion.

**Tenure**

In all land banking activities, the legal characteristics on land demand clear choices. The extent of the rights on distributed parcels can vary from full ownership, extensive tenancy rights through heritable tenancy or regular tenancy. A government could even consider cultivating the land in a state company.

The priorities and the pros and cons were explicitly assessed throughout the 60 years of polder-construction, and they hardly changed since. Table 28 shows four types of land use together with their pros and cons. The priorities were:

- Farmers should feel a strong bond with their land
- The government should retain some control over the land
- Even financially weaker applicants should be able to colonise the polder
- The government should be able to profit from future raises in land value

Heritable tenancy repeatedly was regarded the best type in Dutch concentrated land banking, but time and again a mix of several types was chosen, probably as a trade-off between conflicting opinions in the government. The Wieringermeer was to become a mix after a transition period of 100 percent tenure. But warfare and subsequent post-war issues soon led to other priorities. The tenancy arrangements have always stayed in place.

For the Noordoostpolder, the government decided to initially distribute the land under tenancy, while still debating over the final choice. The ministers argued that heritable tenancy would be ideal. Nonetheless, also tenancy was to be applied to an important extent in order to give applicants with little capital a chance.

Do note that over time the implications of legal types can change. For example, important changes did occur concerning the legal status of the Dutch tenant. Legal maximum prices and the right of pre-emption led to considerable improvements. And by the time Southern Flevoland was colonised, ownership and heritable tenancy had shown problems. Distribution in ownership was unattractive because of the high prices relative to tenancy prices. Heritable tenancy still held its advantages, but an unexpected side-effect led to objections. Namely, being an alienable right, the market in heritable tenancy rights was setting extremely high exchange prices by that time. And because the heritable tenancy contracts were distributed for free, this situation was not acceptable.
Parcelling-structure

Another particular issue for concentrated land banking is the dilemma of the parcelling design. The shape and accessibility is a trade-off between construction costs and exploitation costs. A dense road and water infrastructure would mean high costs and

<table>
<thead>
<tr>
<th>Sale of Land Fund Land</th>
<th>Con:</th>
<th>The state would lose control.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro:</td>
<td>• The state should not own more land than required for administrative tasks.</td>
<td>• Future raises in land value would be missed out.</td>
</tr>
<tr>
<td></td>
<td>• The state is not suited for administering these properties.</td>
<td>• When land would be used as an investment, uncertainties may negatively influence the farmers’ attitude.</td>
</tr>
<tr>
<td></td>
<td>• An owner-occupier population is likely to stimulate sound social and economic life in the polder.</td>
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</tr>
<tr>
<td></td>
<td>• Sale would unburden the state.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>State exploitation</th>
<th>Con:</th>
<th>State exploitation lacks the incentive for employees to give their most.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro:</td>
<td>• Construction takes place on account of the civilians’ tax money, therefore the civilians should retain control through the parliament.</td>
<td>• The system holds a danger of bureaucracy.</td>
</tr>
<tr>
<td></td>
<td>• The best managers can be selected.</td>
<td>• Best managers may also be attracted through other types of land use.</td>
</tr>
<tr>
<td></td>
<td>• The employees will receive a constant wage, and thus will the municipalities be ensured of constant tax incomes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The government will gain from the profits made.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Starting private farmers may relatively soon go bankrupt</td>
<td></td>
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<table>
<thead>
<tr>
<th>Tenancy</th>
<th>Con:</th>
<th>The bond between the farmer and his land is weak (depending on the level of tenant protection).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro:</td>
<td>• Tenure enables switching to another type of land use in a later stadium.</td>
<td>• The tenant is not compensated for improvements to the farm.</td>
</tr>
<tr>
<td></td>
<td>• Tenure facilitates the settlement of farmers from all social ranks</td>
<td>• Setting a realistic tenure-fee can be difficult.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heritable tenancy or long lease</th>
<th>Con:</th>
<th>The tenant has less capital than an owner.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro:</td>
<td>• The land user has a long lasting right of use, resulting in a strong bond between farmer and his land.</td>
<td>• Heritable tenure may be rejected because people are unfamiliar with it.</td>
</tr>
<tr>
<td></td>
<td>• The farmer needs less capital in comparison to sale.</td>
<td>• The government partly loses control.</td>
</tr>
<tr>
<td></td>
<td>• Raise in land value is expressed in the lease price, giving the government the possibility to profit.</td>
<td>• Changes in legal type of land use are hard to make.</td>
</tr>
<tr>
<td></td>
<td>• The government stays in control.</td>
<td>• It will be hard for people from outside the area to acquire land.</td>
</tr>
</tbody>
</table>

Table 28: Four different legal types of land use in which land funds land can be distributed, together with their pros and cons. Source: Schimmel (1987)
loss of productive area, but would save the farmer time and money. It was hard to
choose from the alternatives, since the construction costs were short-term and on
account of the government while the exploitation costs were long term and on account
of the farmers.

7.3 Land consolidation: differences explained

For an attempt to reveal the context-dependency of operational details, a specific
period in time has to be chosen, for procedures have been highly variable throughout
their application (see appendix F for an overview). Here, the 1954 Land Consolidation
Acts of Germany and the Netherlands are compared. In these laws, the mechanism of
parcel-exchange can be observed more clearly than in later versions. Despite the more
recent developments, the parcel-exchange mechanism did not change. The most recent
developments – that focus on speeding up and cost-effectiveness – seem to provide
useful perspectives for Central Europe, but since these developments erode the
securities of participants, they are not further considered here. The paradigm relating
to what role land consolidation should play in (rural) society is addressed after this legal
comparison, in section 7.5.

The official aim of land consolidation, as defined in the law text, is slightly broader in
Germany than in the Netherlands. The 1954 Dutch Law on Land Consolidation says:
“Land consolidation is executed based on an agreement or on the law in the interest of
agriculture, horticulture, forestry or cattle breeding.” (§2), and “A land-consolidation
agreement is an agreement in which three or more owners commit themselves to
merge certain real estate they own, reallocate the resulting landmass and distribute the
ownership among each other in a notary act.” (§4, line 1). The German Law on Land
Consolidation from the same period defined land consolidation as follows (Steuers, 1956): “In the interest of agriculture, forestry as well as general rural quality, fragmented or inefficiently shaped rural land ownership can be consolidated -

![Figure 27: The area subject to land consolidation as a percentage of the total agricultural area. Source: Annual reports of the German, Bavarian and Dutch Land Consolidation Services.](image)
considering aspects of farm management - or improved in other ways.\(^{(1)}\)
In appendix G, the Dutch and German land consolidation Laws from 1954 are compared, giving a complete overview of the discrepancies. The appendix seeks to select the most distinct differences for more detailed study. More details can be found in Van Dijk (2001b). In the appendix, a large number of differences in land consolidation legislation are described. However, for the goal of this section, not every difference is equally important or interesting. Minor differences can be a case of coincidence and very hard to give an explanation for. The larger and more profound differences do matter. Here we seek for explanations for the differences that are listed below (with the Dutch and German paragraphs respectively):

<table>
<thead>
<tr>
<th>Provisions regarding tenancy</th>
<th>§18-§27; §28</th>
<th>§70; §71</th>
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<tbody>
<tr>
<td>Decision to proceed</td>
<td>§37-§54</td>
<td>§4; §5</td>
</tr>
<tr>
<td>Valuation procedure</td>
<td>§55-§78</td>
<td>§27-§36</td>
</tr>
<tr>
<td>Title purification (Dutch)</td>
<td>§5</td>
<td>no match</td>
</tr>
<tr>
<td>Body of participants (German)</td>
<td>no match</td>
<td>§16-§26; §151-§153</td>
</tr>
</tbody>
</table>

The major differences that will be addressed in this section justify the assumption that they are not coincidental. Both the Netherlands and Germany are and were democratic countries with an important agricultural lobby in politics. So, provisions that would have unsuitable and damaging for agriculture would have been criticised, while provisions that were regarded as desirable probably would have been introduced. This way, over time the Land Consolidation Law would be the optimal fit between the agriculture subject and that law. Therefore it is to be expected that differences in land consolidation procedures can be explained by underlying factors.

**Provisions regarding tenancy**
(§18-§27; §28 | §70; §71)

According to German Law, tenants of farmland cannot claim an efficient land reallocation. When trying to find an explanation for this lack of tenant protection, the first assumption is that tenancy was quite unimportant in Germany. And indeed, in 1949 only 5 percent of all agricultural land was rented. In the Netherlands the share of tenancy was about 56 percent at the same moment. The low share of tenancy in Germany is aggravated by the fact that tenancy was especially important among the smaller farms (less than 5 hectares), while at the farms above 10 hectares, the user owned nearly all land. Small farmers are likely to have had little influence on tenancy-policies.

However, after World War Two, the importance of tenancy grew rapidly. Not only the average share of tenancy rose to 16.4 percent in 1971, the size of the farms that rented significant amounts of land increased (Table 29). The farms larger than 50 hectares rented twenty to thirty percent of their land in 1971, whereas in 1950 they rented only 3 percent. Despite the increased importance of tenancy, regulations were not altered at this point when the Act was revised in 1976.
A better explanation might be that Dutch tenancy needs more protection because its nature is different. Dutch tenants enjoy increasing protection. In 1941 regulations were adopted for the price of tenancy and the owner of tenancy land had to respect a minimum term when the tenancy agreement was to be ended. Later, tenancy rights could be continued in the family, and the tenant was entitled to pre-emption right (being the first to buy the land he rents when it is for sale).

The German tenant on the contrary was scarcely protected by a Tenancy Act. In fact, here was no Tenancy Act at all. Even today, only the Civil Law has some provisions on tenancy, but does not prescribe minimum terms, nor regulations in case an owner decides to withdraw its land from a tenancy market. In practice, the low protection of tenants caused tenancy agreements to be valid for only a short period (one or several years) and often without any written contract. This made that tenancy could be expected to resettle quite easily after the ownership was reallocated.

**Decision to proceed**  
(§37-§54 | §4, §5)

On first sight, one might get the impression that the Dutch procedure protects the interests of farmers better than does the German procedure. Before a Dutch land consolidation project is started, a request must be filed, followed by a long procedure involving a national Land Consolidation Commission and the province parliament. After that the participants have to vote on whether or not they are interested. The German Law merely notes that the authorities can decide to initiate a land consolidation project.

Historic developments might give a clue about why. When we look at the Bavarian procedure again (having had much influence on the content of the federal Law), a long time the procedure did not differ so much from the Dutch one. There was a similar voting system. Over time however, the demands for a favourable outcome of the voting became less tight (see section F). So when in 1954 the voting system was abolished this was a logical step. But why did the power of the farmers to stop land consolidation erode?

With the decline of the power of farmers in the decision to consolidate, there was an opposite development in their power later on in the process. The 1886 Law provided in a land consolidation authority having complete executive responsibilities in the process. In 1922 however, the Body of Participants is introduced. This meant that the participants received control over the process. Obviously this was a success, because
the federal Law adopted the same principle (top-down initiation; bottom-up execution).
We can state that the decision making process may seem authoritarian, but the top-
down approach is compensated by the influence of the Body of Participants later on.
In other words, because the rest of the process is so democratic, it would not make
sense when an authority would initiate land consolidation without anyone interested in
it.

Valuation procedure
(§55-§78 | §27-§36)

When every parcel within the land consolidation area would have the same quality for a
farmer, reallocation could take place on the basis of acreage. With every farmer
receiving the same acreage as he contributed, the reallocation would be fair. However,
when 5 hectares of well-drained soil are replaced by 5 hectares of very wet soil, the
farmer is likely to protest. The produce on the well drained soil will be much higher
than on the wet soil. That is precisely why valuation is needed.
In both cases, valuation is done on a relative scale. The actual market value is not
determined. It is more important to know that one type of soil is more productive than
the other. So, categories of value are made. In the Netherlands as well as in Germany,
for every project a unique set of categories is determined.
An important difference is the composition of the valuation commission. According to
the federal German Law, the valuation commission consists of agricultural experts.
However, the Board of the Body of Participants must be present to advise the experts
on region-specific details. The advice can be ignored by the experts. In the
Netherlands, the valuation commission consists of farmers, preferably from the project
area. They are trained in objectively valuing the land of other participants.
One would expect that in Germany there are more factors that are important but not
related to the soil. Germany is much more hilly than the Netherlands, so there are
microclimates within valleys. The microclimates can cause specific sites to be subject to
regular hailstorms or late frosts. Experts who do not know the area and come valuing
on a sunny afternoon are unaware of these factors. The Board must fill them in on
these details. In the Netherlands, factors that cannot be derived from soil
characteristics seem much less important than in Germany.
Maybe the German legislation has been more perceptive to the disadvantage of
valuation by locals. The danger namely is that locals will cater their own interests.
People from outside are more impartial. On the other hand, the eventual expert report
has to be approved by the participants.
Dutch and German legislation both use the production potential as a value for
reallocating. The Dutch procedure also values the contextual factors. However, this
'broad value' is not used for the reallocation, but for determining what share in the
total costs every farmer has to bear. For a long time, the Bavarian procedure has been a
remarkable exception, using the broad value for the reallocation (Schlögl, 1951),
despite the drawbacks mentioned above. The specific reasoning behind this choice is not clear. This broad valuation was abolished in the 1954 Act.

*Title purification*  
(*§5 Dutch Law*)

The Dutch land consolidation projects are concluded by adoption of all new owners’ rights into the land registry. Only then the newly established allocation is legally official. The German practice is the same. However, Dutch Law specifically states that the newly established situation is definite. Normally, proper legal evidence can lead to reconsidering rights that have been in place for years. For example, Mr. Green has bought land from Mr. Brown nine years ago, and has used it since. When Mr. Miller can prove that at that time Mr. Brown had falsely presented himself as the owner and Miller in fact was the owner, the ownership of Mr. Green can be drawn into question.

According to the Dutch §5 no reconsideration is possible after the new rights, arising from the reallocation, are established in the land registry. The prime reason is that investigation into the history of a parcel is impossible by definition for a newly created parcel, because it did not exist before the land consolidation project. Naturally, before this title purification takes place there has to be a very accurate check and appeal procedure to ensure that no rights are lost in this action.

The advantage of this title purification is substantial. A notary normally would have to check whether or not a selling party indeed is the rightful owner. This check might involve extensive research into the history of the real estate involved. Title purification means that research before the time of purification is not necessary any more. This way — although it must qualified as a side-effect — the land registry becomes more reliable; the chance that a transaction will prove not valid becomes smaller.

So why don’t the Germans use this mechanism? The advantages are clear and the effort is relatively small. The explanation is that they don’t use it because they don’t need it, since their land registry is basically different from the Dutch land registry. In the Netherlands, transactions are recorded (deeds registration). If a transaction is legal, the buyer is by definition the new rightful owner of the real estate. As explained above, this holds a certain degree of uncertainty for the right holder, because in exceptional cases it might turn out that the transaction was not fully legal. Title purification mitigates this uncertainty.

In the German *Grundbuch*, from each real estate object the owner is recorded (title registration) which means that the right holder is considered the owner by law. A transaction will change the owner in the register, potentially causing similar reliability problems as in the Netherlands. However, in the *Grundbuch*-system the mutations (i.e. transactions) are checked so thoroughly that the accuracy is beyond any doubt.

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7 With proper and accurate information-management, a deeds registration can render it virtually indistinguishable from title registries, as is the case in the Netherlands right now. See Zevenbergen (2002) for more elaborate information on land registry systems.
The reliability of German land registry is further underlined by §30, line 2 that states that the old situation, as recorded in the land registry, is considered beyond any doubt and is therefore not surveyed. In the Netherlands it is surveyed, updating the existing cadastral information.

**Body of Participants**

(§16-§26; §151-§153 German Law)

From the law texts, one might get the impression that the law does not give the Dutch participants much influence during the project. After voting in favour or against the land consolidation project, the participants seem to be left waiting and hoping for a favourable ending.

However, in practice participants have more influence than the law text suggests. Namely, a very important extralegal stage in the execution is the wish-session. On this session, every participant has a personal conversation with the local Committee. The participants can express their thoughts about the parcelling problems in the area in general and their farm in particular. Furthermore, participants can deposit up to three alternative changes in their personal parcelling. These alternatives are recorded in writing and serve as a basis for the design of the reallocation plan. The alternatives can also include the wish to preserve the original parcelling, although no guarantees can be made.

Although the wish-session softens the seemingly extreme autonomy the local Committee has after the voting, the Bavarian procedure is still much more participatory; participants remain control over the proceedings throughout the project. The history of the Body of Participants goes back to the Bavarian Land Consolidation revision of 1922 (see appendix F). At that point the Body of Participants was introduced ('Genossenschaftsprinzip'). From that moment on, every land consolidation project in Bavaria has started with all participants merging into a body of public right. In 1954 the Federal German Law also adopted this principle, and has not changed it until today.

The Body elects a Board from their midst. The Board has far reaching authority within the project. It takes decisions concerning public facilities and cost distribution among the participants. In Bavaria the responsibilities are even more extensive, comprising the design of the reallocation plan, valuation of land and reservation of land for public facilities (Bisle, 1986). During the process, the Board is chaired by a land consolidation official. He contributes legal knowledge and agricultural expertise. In addition, he has a decisive vote when the Board is indecisive.

The reason for the emergence of the Body of Participants must be sought in the emancipation of the citizens throughout the German society (Schlosser, personal comment). World War II marked the end of the Bavarian monarchy that had disregarded the interests of civilians for so long. The counter effect right after the fall of the Wittenbacher-monarchy was a strong call for civilians' participation in the governmental process in many different facets of everyday life. The Body of
Participants has proved to be a very effective element in the German procedure. All participants feel responsible and involved in the process. There is no room for freewheeling nor for free riding. This might explain why it has survived until today. Today, this principle still holds its actuality. The main idea is 'not against but in cooperation with the farmers' ('Nicht gegen sondern mit den Bauern'). In the Netherlands, a similar movement has started in the 1980s (Van Lier, 2000), when the top-down approach encountered increasing resistance.

Conclusion

This section sought for explanations for the differences that were discovered as a result of the comparison. Most paragraphs from the Laws have a counterpart in the other country. The exact content differs more or less in most cases. In addition, there are paragraphs that are unique for one of the countries. The differences sometimes are coincidental. For instance, the importance of local knowledge in the valuation commission does not have a clear correlation with the diversity in growing conditions, assuming that factors that are not related to soil type are more important in case of hilly topography.

For four differences, a plausible explanation was found. The explanations would have been more certain and more generally applicable in case of a larger set of countries. But even then, mathematical regression analysis in order to postulate general patterns is not permitted between cases (Yin, 1994). Generalisation of case study results should be done through so-called analytic generalisation. In that instance, you generalise to theoretical proposition and not to populations or universes. It seems reasonable to assume that there can be various reasons for differences between countries:

- The status of tenants in a project depends on the level of tenancy-protection. In the Dutch case, tenants had a very firm claim on the land they used, which caused land consolidation to reallocate land use in an efficient way, and not only land ownership. But since Hungarian and Bulgarian tenants are relatively weak, in a legal-technical sense, it does not seem sensible to consider their interests in reassigning parcels. If bureaucracy and transaction-taxing is not too restricting, tenancy can rearrange itself after ownership has been rearranged, like in Bavarian projects. This goes for all rights to land that allow simple informal rearranging.

- The desirability of title purification depends on how reliable the land registry is. Central European land registries typically are in the process of being established. Most countries have a German-type title registration. So, when the establishment of a land registry is performed thoroughly and privatisation matters are eventually resolved, title purification can be refrained from.

- The origin of the Body of Participants-concept can be traced down a public need for civilians' participation. If we relate this to the Central Europeans' scepticism toward government interference, it seems very sensible to apply this type of democratic project-management. It furthermore enables top-down initiation of projects, which allows the government to set priorities on which regions
optimisation of agricultural production can take place and which regions are to be preserved because of their scenic or environmental qualities.

The settlement pattern determines the usefulness of village-renewal and farm-reallocation. The Dutch landscape is dominated by separate farmsteads scattered across the landscape. Farm-reallocation was widely practised here in order to achieve a more balanced dispersion of farms. In the clustered settlement pattern of Bavaria, farm-reallocation was useful for villages that were too congested with farming activity for acceptable working and living conditions, but the expected disruption of social structures prevented its excessive use. Farmers' villages remained to be the standard, and therefore village-renewal emerged. A concept that entirely fails in the Netherlands. Since the Hungarian and Bulgarian overall rural settlement structure is clustered as well, village renewal is a logical choice.

Bottom line is that the findings – when a region is ready for land consolidation – suggest that Hungary and Bulgaria should choose for an ownership consolidation based on the Body of Participants-concept, which concentrates on improving conditions for farming, leads to title purification and is supported by village-renewal.

7.4 Organisation and financing of land consolidation

When a government pursues goals, like improving food security and rural standards of living, its policy can benefit from special legislation. Particularly when private interests are directly affected. In the case of land consolidation, however, legislation alone is not enough. Land consolidation is too complex and too costly for spontaneous action by farmers. Bavaria and the Netherlands both have established offices for the management of land consolidation projects, and heavily subsidised land consolidation as well. Both factors are considered to have been essential to the success of land consolidation in these areas.

The complication is that few things are more temporary than institutions. There has been a constant turn-over of targets, internal structures, supervisors and names. This section compares the organisational structures and the costs involved in Dutch and Bavarian practice for the late seventies; when the 1954 Laws were in effect and section 7.3 refers to. At that time, namely, land consolidation was specifically focused on fragmentation reduction and the organisation and finances are assumed to articulate this target. Later on, considerations other than land fragmentation grew in importance (see appendix F) and the executive structures changed accordingly in order to allow

<table>
<thead>
<tr>
<th></th>
<th># LCA offices</th>
<th>average size</th>
<th># LCA offices</th>
<th>average size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baden-Württemberg</td>
<td>23</td>
<td>1,552</td>
<td>Rheinland-Pfalz</td>
<td>13</td>
</tr>
<tr>
<td>Hessen</td>
<td>16</td>
<td>1,313</td>
<td>Schleswig-Holstein</td>
<td>5</td>
</tr>
<tr>
<td>Niedersachsen</td>
<td>9</td>
<td>5,267</td>
<td>Bayern</td>
<td>7</td>
</tr>
<tr>
<td>Nordrhein-Westfalen</td>
<td>17</td>
<td>2,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 30: Indication of the density of regional land consolidation offices in the various parts of the German federation. Source: Gamperl (1955). Average size in km² of administrative area (own calculations).*
multi-faceted decision-making (Hidding et al., 2002). The characteristics of that more recent type of rural planning are assumed here not yet to be relevant for Central European rural areas (see section 7.5) and are therefore left out here.

**Organisational structures**

The organisational structure concerning land consolidation is different for every Land⁸ in the federation (Gamperl, 1955). The Law leaves room for this difference, applying the general terms ‘land consolidation authorities’ (LCA) and ‘higher land consolidation authorities’ (HLCA), without naming the exact organisations. In all cases however, the LCAs are regional offices, all covering a certain part of the Land. Their most important task is to advise and support the executive bodies. The main difference is who exactly is the HLCA. In some Länder, the HLCA is a department in the Ministry of Agriculture, in other cases the HCLA is an organisation separate from the Ministry, thus constituting an intermediate level consisting of one or more offices.

The Bavarian structure provides for 7 regional offices (Flurbereinigungämter), resulting from a gradual decentralisation of land consolidation administration between 1926 and 1951. On average, the Bavarian LCA-offices cover large areas in comparison to the offices in other Länder (Table 30) and the task per staff-member is relatively high (Table 31). The size was assumed to be advantageous in 1955 already (Gamperl, 1955), reducing staff and costs and justifying modern equipment. The regional office structure has hardly changed since. However, the responsibilities of the regional offices expanded in 1970 (Kast, 1986). Up to then, a special Ministry department had been the

<table>
<thead>
<tr>
<th>Regional Office</th>
<th>1951</th>
<th>1960</th>
<th>1970</th>
<th>Acreage</th>
<th>To be consolidated after 1951</th>
<th>Average ha to be cons./staff**</th>
</tr>
</thead>
<tbody>
<tr>
<td>München</td>
<td>208</td>
<td>193</td>
<td>216</td>
<td>1,738,411</td>
<td>648,332</td>
<td>3359</td>
</tr>
<tr>
<td>Würzburg</td>
<td>159</td>
<td>308</td>
<td>368</td>
<td>737,191</td>
<td>314,071</td>
<td>1020</td>
</tr>
<tr>
<td>Bamberg</td>
<td>158</td>
<td>291</td>
<td>377</td>
<td>979,275</td>
<td>536,592</td>
<td>1844</td>
</tr>
<tr>
<td>Ansbach</td>
<td>121</td>
<td>203</td>
<td>243</td>
<td>1,190,377</td>
<td>596,290</td>
<td>2937</td>
</tr>
<tr>
<td>Neuburg a. Donau*</td>
<td>121</td>
<td>181</td>
<td>253</td>
<td>718,489</td>
<td>360,549</td>
<td>1992</td>
</tr>
<tr>
<td>Krumbach</td>
<td>93</td>
<td>189</td>
<td>235</td>
<td>447,115</td>
<td>129,958</td>
<td>688</td>
</tr>
<tr>
<td>Landau a. Isar</td>
<td>75</td>
<td>172</td>
<td>240</td>
<td>1,134,666</td>
<td>549,488</td>
<td>3195</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,945,524</td>
<td></td>
<td>3,135,280</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 31: Impression of the size of the land consolidation workforce in Bavaria in relation to the size of the task. Source: left three columns Kast (1986); right two columns Schlögl (1951). *This office moved to Regensburg in 1966 **Ratio of consolidation task and the staff size in 1960.*

⁸ Germany is a federation, before the reunification consisting of 9 so called ‘Länder’. Each Land has considerable freedom in taking its own decisions, therefore having its own ministries. Each Land consists of a number of departments (Regierungsbezirke), in turn constituted by ‘Landkreise’ which contain communities (Gemeinde).
HLCA. From 1970 on, the tasks of both LCA and HLCA were integrated in the regional offices.

The structure within the regional offices is strongly hierarchic. Up to 1970 (Kast, 1986), the office was led by a board. The board supervised a number of department leaders. It was their task to provide information when the board needed to take important decisions. Each department consisted of 3 sections, led by somewhat older, more experienced engineers. Each section in turn was divided in 3 working groups. The working groups were directly involved in land consolidation projects and the working group head was chairman of the BoPs.

The hierarchy changed from 4 to 3 levels in 1970 (Schrüfer, 1986). Each office has 3 departments (with München as an exception 2), each addressing 2 or 3 Landkreise. The department leader supervises his staff, but tries to promote the public cause as well. The department is divided into 6 sections (so-called Referate), each employing 7-10 people simultaneously executing 10-20 projects. These sections have the knowledge and the equipment to do all the technical design and the legal tasks. The sections have a leader and a referee. The leader is mainly concerned with the section itself, whereas the referee, being the chairman of the Body of Participants, is the link between the participants and the section. He announces and chairs BoP-gatherings and supervises land valuation and reallocation design.

The Dutch organisational model is far less consolidated and transparent than its Bavarian counterpart. In the Netherlands, several interconnected organisations are involved in land consolidation projects.

The core of Dutch land consolidation is the Central Consolidation Commission (CCC). The commission represents various interests, since it is constituted by delegates from several ministries and of agricultural interest organisations. This composition ensured agreement between public bodies and agricultural interests, and as such was crucial for a harmonious and intensive land consolidation campaign.

All requests for land consolidation must be submitted at the CCC, which decides upon initiation. The CCC is the only body that can initiate a project, but cannot do so without prior request by parties that are allowed to. The CCC is supported by the Land Consolidation Service (Cultuurstechnische Dienst, or CD in Dutch), an expertise centre that is part of the Ministry of Agriculture. The CD plays a vital role in implementing land consolidation policy. It provides knowledge, manages the procedure (through providing the secretary of the local commission) and holds the secretary of the CCC. The CD performs soil-improvement, drainage, landscaping, roads and canals.

This central organisation seems to be similar to the Bavarian Flurbereinigungsamt, with one important distinction: the actual design of the new parcelling (and as such the actual addressing of land fragmentation) is the exclusive task of the Dutch Cadastre. The CD does not touch that subject. The Cadastre provides an engineer that supports the local commission (that is the legally responsible body) throughout the process of (1) preparing the list of right-holders, (2) executing land valuation, (3) making the
reallocation design, and (4) determining the share of the costs that each participants has to bear.

The cadastral engineer tries to integrate policy and participants' preferences within the framework of local possibilities and the restrictions dictated by the law (Bogaerts, 1982). He collects the required information and makes the plan. These planning tasks differ from the traditional recording of rights on land by cadastral engineers. In this situation he advises the project management as well as the participants. This impartial position of the cadastral engineer is regarded to be an important benefit (Besemer, 1998; Sonnenberg, 1991). It softens the far-reaching freedom of the commission in altering land use rights. Furthermore, the involvement of the cadastral engineer facilitates a swift establishment of the reallocated situation in the land registry, enhancing the free land market. Until 1974, the Dutch Cadastro had a separate division for land consolidation with regional offices that grew to 12 in number.

**Financing**

The principle of the government partly financing land consolidation has been a constant factor in post-war land consolidation (judging by Gamperl, 1951 and Meuser, 1992). Although the first legal provisions lacked the subsidising provisions (and soon proved to trigger few or no projects), wartime increased the urgency for structural improvements in agriculture, resulting in state support for land consolidation. In spite of the fact that land consolidation is an investment in private capital (family farms), the state support was justified for its effects on social welfare and food security.

Each participant contributed to the (not-subsidised) remaining costs by paying a proportionate share depending on the actual gain they have from the reallocation. In the Netherlands, a special second land valuation took place in order to determine this

![Dutch governmental expenditures](image)

*Figure 28: Dutch governmental expenditures on improving agricultural production structure.*

*The abbreviations 'DRF' and 'SBL' are explained in section 6.1.*

*Source: appendix of Van den Brink (1990)*
actual benefit. And the state pre-financed the costs, enabling participants to pay in instalments and against a low interest rate. German farmers can pay by helping in the physical adjustments to the landscape. Planting trees or digging trenches reduces the amount of money that a participant owes.

The partial dependence on state capital makes land consolidation practice susceptible for political sentiments. General budgetary shortage and shifts in priorities can reduce the state support available and thus reduce the number of newly started projects. A clear example of political priorities can be found in Dutch practice. Until 1962, there was a declining trend in the land consolidation budget. The in 1963 newly elected government, however, was convinced of the ongoing importance of land consolidation, thus increasing the budget by 20 percent (Figure 28). Reduction of the subsidised share in the project’s costs was the general trend in the Netherlands after 1972. The state subsidies dropped from over 70% to around 62% in 1979 (Werkgroep Heroverweging Ruilverkaveling, 1981). Not only were the participants expected to pay a growing share themselves, a declining part of these costs were pre-financed. Cash payments grew from 5.6% before 1972 to around 30% in 1979. Information on the developments in Bavarian subsidies were not available.

A comparison of the actual amounts spent on land consolidation encounters an array of methodological problems. The definitions of costs composing the total expenditures differ or are unclear and the translation into current prices is hazardous. The stacked bar diagrams give an impression of the developments of the expenditures through time expressed nominally in local currency. Some comparison may be possible when considering that (1) at that time the German Mark to be approximately 0.9-1.0 times the value of the Dutch Florin, while (2) the acreage involved in land consolidation was twice as big in Bavaria.

The relative importance of land consolidation may be expressed by relating the land consolidation budget to the budget of the Ministry of Agriculture or the state (Table 32). Schatt (1986) gives us a clue on this relative importance in Bavaria.

<table>
<thead>
<tr>
<th>Year</th>
<th>State budget</th>
<th>Budget Ministry of Agriculture</th>
<th>Land consolidation</th>
<th>Land consolidation (% Min.Agr.)</th>
<th>Land consolidation (% state budget)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bavaria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1926</td>
<td>500 mio. RM</td>
<td>20 mio. RM</td>
<td>2 mio. RM</td>
<td>10%</td>
<td>0.4%</td>
</tr>
<tr>
<td>1955</td>
<td>no data</td>
<td>75 mio. GM</td>
<td>11 mio. GM</td>
<td>15%</td>
<td>no data</td>
</tr>
<tr>
<td>1985</td>
<td>39 billion GM</td>
<td>1.5 billion GM</td>
<td>260 mio. GM</td>
<td>17%</td>
<td>0.7%</td>
</tr>
<tr>
<td>The Netherlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1955</td>
<td>1.7 billion DFI</td>
<td>no data</td>
<td>74 mio. DFI</td>
<td>no data</td>
<td>0.92%</td>
</tr>
<tr>
<td>1965</td>
<td>4.0 billion DFI</td>
<td>161 mio. DFI</td>
<td>0.83%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>15.8 billion DFI</td>
<td>241 mio. DFI</td>
<td>0.32%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 32: Indication of relative size of the land consolidation budget in Bavaria and the Netherlands, as a share of the state budget and the Ministry of Agriculture budget. RM=Reichs Mark. GM=German Mark. DFI=Dutch Florin.

Source: Bavarian figures by Schatt (1986); Dutch figures from Dutch Central Statistical Office; own calculations.
As for the cost effectiveness of land consolidation activities, the money spent per hectare is a useful measure. Gamperl’s (1955) overview suggests that Dutch projects are twice as expensive as the German projects (1320 GM compared to 650 GM). These are expenditures for physical adaptations to the landscape. More recent data are hard to come by since it would mean manually analysing numerous project reports. Existing analyses of Dutch projects indicate an average price level of around 2500 Dfl/ha in the 1960s.

Another measure is the government expenditures per hectare. Government expenditures do not represent the full costs (because only part is subsidised), but do include organisational costs. For Bavaria, a rough indication is calculated. From the period 1965 to 1970, the total acreage completed is divided by the total government expenses made in that period. This renders some 3600 GM/ha. For the Netherlands, the same calculation indicates 6900 Dfl/ha. Given the above-mentioned methodological difficulties, the Dutch projects seem quite expensive still. The reason for the high costs of the Dutch project may well be the integration of extensive soil improvement efforts in land consolidation projects.

Conclusion

In comparison to procedures, the organisational differences are much harder to relate to the context. In essence, the Dutch and German agencies represent two different solutions for one problem: how to structure the actors and interests intersecting in a land consolidation project, namely (1) the private interests of participants, (2) the policy articulated by the Ministry of Agriculture, and (3) the technical, legal and surveyors’ knowledge that is required.

The German solution to this problem is the most centralised, which may be a matter of another culture in the design of institutions. Clearly, the Dutch organisational structure, representing a negotiation model of various interests, is induced by a fear of power abuse. The Bavarian Body of Participants concept, safeguarding democracy throughout the process, eliminates the need for such a complex structure.

Do note that an institution not only reflects its target but the role of the government as well. For instance, the former CLC in the Netherlands would not fit the current decentralised governance, even if the problems in agriculture were the same as at the time that the CLC was active. Therefore, it is beyond the scope of this thesis and my knowledge to make firm statements about what institutional model would be best for Central Europe. But it can be useful to know about the alternative models.

7.5 Feasibility of the multifunctional approach

The analyses of the German and Dutch land consolidation reveal a distinct breakpoint, where society demands consideration of other values of the countryside besides agriculture (see section 6.2). Both countries made a shift around 1980 from "agricultural
restructuring’ to ‘comprehensive land reallocation’. The paradigm changed, but the basic concept of land exchange proved flexible enough to stay useful.

Strategically speaking, multifunctional land consolidation is desirable. As several authors argue, Central Europe is best helped with our most modern insights. Western Europe has long passed the agriculture-oriented stage, now even regretting the irreversible damage to landscape, cultural heritage and nature. Brooks were straightened and lush meadows were turned into billiard-sheets. The quality of the countryside raised in terms of production-efficiency but worsened in most other respects.

Central Europe should not be burdened with our outdated agriculture-oriented land consolidation. Implicitly, it is assumed that export of land consolidation knowledge can be treated similar to export of technology. For technology, it would be a waste of time when less far developed regions would go through a costly and lengthy innovation process when state of the art techniques are readily available outside those regions. In other words, it is possible to skip development stages. The question is whether this analogy is justified in addressing the land consolidation issue.

There are several reasons to question the assumption that land consolidation in Central Europe should be multifunctional. The most important misunderstanding in the analogy described above is that technology improves, whereas land consolidation has only changed. The current Western European system is not necessarily better than before, but the claims of society on rural space altered, and the system followed. Currently, Germany and the Netherlands are characterised by high population densities, a high level of wealth, marginalisation of the economic importance of agriculture, much leisure time and enormous mobility. These factors are directly linked to the changing paradigms on land consolidation by Schlosser (1999), Van Lier (2000 and personal comment), De Haan (1988) and Andela (2000).

A major drawback for applying the multifunctional approach in Central Europe is the inevitable concession to private interests. The private interests do not coincide with the non-agricultural interests, the latter typically being supra-regional or serving needs of visitors rather than residents. This conflict between private interest and non-agricultural goals means that only after reduction of the power of the participating landowners, non-agricultural goals can be met (Gorter, 1990; Thöne, 1997). This reduction already raised some discussion in Germany over the past years, but is bound to be a very sensitive issue in Central Europe (Kopeva, personal comment).

These concessions to private interests are not necessary when the project includes land fund parcels that can serve a non-agricultural goal. In that case, the room for alternative land use does not have to be created on the expense of private land ownership. The land fund parcels only need another allocation.

Other obstacles for multifunctional land consolidation that were brought forward during the interviews were the financial drawbacks (non-agricultural targets are typically expensive and in principle are borne by the government), the knowledge and size of the government agencies (Bulgaria did not have the capacity to spend the first SAPARD-funds, thus leaving them partly idle), and the extent in which interest-groups
are organised (in order to lobby and stress the importance of ecological and scenic quality, interest groups must be organised).

7.6 Conclusions

Addressing a problem like the Central European fragmentation problem involves two stages. The first stage is exploring the array of potential solutions and selecting the one that is likely to be the most effective for tackling the problem at hand. This is what section 2.5 called the strategic choice. This thesis confines the array potential solutions to policy instruments that have been applied in Western Europe. The strategic analysis in section 6.6 points out that land banking makes the best fit with the Central European situation. Land consolidation has a role in more advanced regions, which implies that its role will grow in importance in the future.

After the strategic choice, there is a second stage, which involves the implementation; building the bridge between the concept of the instrument and the operational reality. For one concept can be implemented in many ways, as international comparisons make clear. Making proper operational choices is enhanced by collecting various examples that serve as a source of ideas. And when we succeed in linking the various options to the context in which they are applied, we can copy from that source of ideas in a well-founded way.

The land banking systems that are operational in the Western European case study countries are so completely different in appearance that deriving relationships with contexts are hardly possible. Some tentative links to the Central European case are given here. The implementation of the land-banking concept implies deciding on:

- how to do the acquisition of parcels that are pulled into the land fund. Voluntary buying is a straightforward option in the Central European context. Financial stimuli can propel the process.
- who to select as recipients of land bank parcels when demand for parcels exceeds the supply in the land fund. This will be a matter of agricultural policy; the types of farms we prefer to be the dominant ones will be allowed to profit from the additional acreage that is available in the land fund.
- what size the newly created farms in concentrated land funds should have. It is a dilemma between viability of the new farms (which at that time meant creating large estates) and the creation of new employment (which would be greater when small farms are established). Taking into account the shrinking rural population in Hungary and Bulgaria, viability would be the more important consideration.
- in what type of tenure the land fund parcels will be distributed. Developments in legislation on land tenure will affect the best choice. Main point is that land users must have solid rights to land. When a tenant has solid rights, tenancy may be attractive because the owner of the land fund parcels obtains a stable income from the distributed parcels.
For the instrument of land consolidation, an operational comparison was possible. On the basis of context-dependency (section 7.1), Central European exponents of land consolidation are recommended to:

- consider only long-term rights (i.e. ownership) in the reallocation of parcels. Tenancy in Central Europe is too little protected, registered and institutionalised to involve them in time-consuming projects like land consolidation projects are.
- apply the German Body of Participants concept, in which participants (i.e. landowners) have full control over the project in a democratic structure. Its counterpart, top-down planning, feeds sentiments of possible duping, abuse of power and hidden agendas.
- refrain from title purification when there is a proper title-registration being established.
- integrate village renewal in land consolidation projects because clustered settlement patterns need to develop in order to allow agricultural progress.

The organisations that support land consolidation and land banking activities respectively mainly differ in their level of centralisation. In land consolidation, Bavaria is more centralised than the Netherlands, but in land banking it is exactly the other way around. A centralised organisation can be controlled more effectively by the policymaking ministry, it allows the use of more sophisticated and more expensive equipment and personnel and it may be less confusing to the outside world than several interconnected bodies. On the other hand, if one organisation has a monopoly, this may lead to unfair treatment of participants’ interests.

Of both instruments, land consolidation puts the largest claim on finances. The amount of money that the Netherlands and Bavaria spent on land consolidation projects is considerable. Cutting down on subsidies is hardly an option in Central Europe, because the consequently higher costs for participants would negatively affect the attractiveness of participating in a land consolidation project.

Costs of land banking can be very low when distributed parcels raise the same value as they cost at the moment of acquisition. And distributing parcels from an existing land fund can even generate a positive cash flow. Expenditures on land banking are financial stimuli that encourage sale to the land fund, as well as reserving parcels for non-agricultural objectives.

Comprehensive multifunctional projects that improve rural areas in many respects bear the prospect of swiftly and thoroughly climbing the development ladder. Unfortunately they are likely to face resistance of landowners, financial constraints and the lack of articulation of non-agricultural interests due to a low degree of organisation. The multifunctional approach belongs in regions where non-agricultural interests are explicitly articulated by policy-makers or interest groups and where land fund parcels allow those claims on space to fit in without negatively affecting private property.
8. Conclusions and recommendations

The Central European farmers are facing disrupted agricultural structures resulting from far reaching reforms, among which land privatisation has had profound effects. They are inventive and have found temporary solutions to battle land fragmentation, for example by annually consolidating parcels and by farming an array of leased parcels as one unit. But a competitive and stable private farming system has not yet emerged and land fragmentation is one of the impediments.

The accession to the European Union, which is near already, aggravates the urgency of making improvements in Central European farming. Agricultural policy constitutes a major expenditure of EU money that is already criticised upon. When the candidate members would actually join without seriously improving their agricultural sectors, budgets will have to increase to intolerable levels.

The land fragmentation issue is a hard case to solve. Due to the events in recent history, land issues are sensitive matters. Moreover, market forces have only limited potential to create an optimal farming structure, since land cannot be multiplied, transaction costs are high and it is immovable. Policy instruments are needed when short-term and socially acceptable changes are demanded.

A dissertation is a quest for an answer, which in this case was triggered by two propositions: (1) agricultural land in Central Europe is fragmented and (2) Western Europe has experience in reducing fragmentation of land. The objective of the research underlying this thesis was – besides verifying and refining these propositions – to assess whether the tentative link between the two is actually there. In other words, whether Western fragmentation-reducing instruments can help solving problems of land fragmentation in Central Europe. To what extent can Western instruments provide solutions for Central European land fragmentation?

Copying Western instruments might prevent Central Europe from needlessly reinventing the wheel. However, the Central European fragmentation problem is a unique case in itself (both in historical emergence and current status) and drawing parallels with its Western counterpart may prove so imperfect that transplanting instruments must be rejected.
Three pillars support the conclusions on the main research question. The first pillar is an analysis of the Central European land fragmentation issue, in which the core of the problem is sought, thus preventing us from addressing symptoms instead. Secondly, with this problem-analysis in mind, alternative Western instruments are reviewed and assessed on how they match—a so-called strategic perspective. The third pillar is the operational side of the matter, in which more detailed choices in terms of procedures, institutions and financing are derived.

**Pillar 1: Analysis of the problem**

What we see in Central Europe is a bimodal structure. There are relatively few very large farms that are mostly remnants of socialist agricultural production units that have been renamed and internally restructured. They typically use land they rent from a host of landowners, although this underlying ownership structure cannot be observed in the physical landscape. Besides these large farms, there are numerous very small farms that originate from the private plots under socialism and the privatisation afterwards. A middle class is practically absent.

For a more detailed analysis on the core of the Central European problem, we must acknowledge that there are several definitions for fragmentation, each one with its own practical implications. The disadvantages of internal fragmentation of a farm (i.e. one farm is divided into too many parcels) are generally the most prominent and negatively affect the level of production and time efficiency. But fragmentation can also refer to the situation of too many farmers on each square kilometre (i.e. a small average farm size), which results in low income per farm and lower yield per hectare because mechanisation is hard on parcel borders are relatively space consuming. A third type of fragmentation is segregation of use and ownership, which gives the land user uncertainty about whether he can use sufficient parcels next year and he has no collateral which makes loans harder to get.

This multiple definition of fragmentation proves to be essential in this thesis, not only for analysing the Central European problem, but for selecting effective instruments as well. The term fragmentation by its multiple nature seems to have lead to a Babel-like confusion that in practice blurs analysis and strategic choices.

Confronting the various types of fragmentation with the farming structure, it appears that problems of land fragmentation differ along the division of bimodality. For the smallholders, the farm size limitations are most constraining. Internal fragmentation and separation of ownership and use are less urgent impediments. For the large farms the most urgent problem is internal fragmentation and they are also the ones that cope with loose rights to land. So, the problem really is about whether the land ownership pattern (or other solid rights to land) corresponds with an efficient farming pattern.

The real challenge in my opinion is not optimising land use within each farm, but enabling the transfer of solid rights on land (ownership or to be developed tenancy structures with a firm long-term continuity) to farms of a viable size. Adjustments to the land use units (i.e. farming structure) are on the long run ineffective as long as
ownership and use remain as widely separated as they now are. In a situation where commercial land users do not have solid rights to their land, basic requirements for economically healthy farming are impeded: investments (through rural financing), competitiveness and autonomous changes in farm-size. Efficient allocation of solid rights to land has to precede optimisation on the farm level.

This conclusion learns that the current Central European agricultural land distribution is thus fundamentally different from the Western European situation at the time of large-scale fragmentation reduction, despite the treacherous similarity when we look at statistics on farm-size distribution. Statistics on farm size do not reveal the bimodality nor the problem of ownership fragmentation that is hidden underneath. In addition, there are far more landowners than land users, while in Western Europe ownership and use to a considerable extent coincide.

**Pillar 2: Choosing from alternative instruments**

The fundamental gap between Central and Western Europe demands caution with respect to expecting too much from Western instruments. This gap is not surprising when we consider the historical events that triggered the current fragmentation. Around 1990, a transition to market economy was made. Many civilians had been deprived of the rights to land they originally had and called for historic justice. This lead to the privatisation of collective and state-farm land. Various mechanisms were used throughout Central Europe but in all cases privatisation took much longer than initially expected and it led to transferring land ownership to millions of new landowners of which many were unable or not willing to actually use their land.

Although Western instruments cannot simply be copied, they may still be useful. For a strategic assessment on the use of Western instruments, we asked ourselves two questions. To what types of fragmentation does the Western experience apply and are they the same as the Central European problems? And: what are the prerequisites for the effective adoption of an instrument? In other words, we wanted to check the similarity in problems as well as the ‘transplantability’ of Western experience.

During the second half of the twentieth century, Western governments have actively intervened in agricultural structures using three instruments: land banking, land consolidation and voluntary parcel exchange. The three instruments have been used for addressing two types of fragmentation: the farm-size problem and internal fragmentation. Instruments for the remaining two types (i.e. dealing with ownership fragmentation or with a large gap between ownership and use) have not developed in Western Europe. They probably did not need to be developed because these specific problems did not occur. They can be regarded as particularities of Central Europe that stem from the privatisation process.

One of the two types that Western Europe does have experience with is the same type that we discovered to be a main fragmentation problem of Central European, namely farm size. Land banking is the instrument that concentrates on this type of fragmentation. Land consolidation, the instrument that is more prominent in the
debate on Central European land fragmentation, spatially optimises land use of each participant but by definition does not change the amount of land of each participant. Therefore, land banking makes the best match with the Central European fragmentation-problem on the short term, when we take into account whether similarity in problem and experience exists.

But matching goals and problems is just one criterion, because the prerequisites for effectively applying an instrument also have to be considered. For success in one country does not guarantee success in another. Prerequisites are the conditions that allow an instrument to be operational, adopted and achieve its goals. The prerequisites for each of the instruments are derived from Western European practice.

Again, land consolidation appears to make a poor match with the Central European situation. Especially complicating for the application of land consolidation is the absentee-ownership, so typical for rural Central Europe, that collides with the required willingness of the land users to invest in better parcelling. Absentee-owners will face costs and might be wary of loosing their parcel or be subject to other disadvantages. These negative sides are not compensated by advantages, because the absentee owners by definition do not enjoy these positive sides. The implementation of land banking, however, does not seem to face fundamental problems as far as prerequisites are concerned.

So, matching problems with targets and prerequisites with local conditions, points out that land banking makes the best fit in both respects. It addresses farm-size problems, mitigates the bad land markets and can even help close the ownership-use gap.

Land consolidation addresses internal fragmentation, which is topical among larger farms. However, a prerequisite is the cooperation of landowners, which is not very likely to be met considering the large number of absentee-owners that large farms typically lease from. It may have a role in more advanced regions and on the longer term.

Voluntary parcel exchange in Western Europe has proved to be useful for smaller adjustments in land ownership.

**Pillar 3: Implementation**

A strategic choice is one, but actually implementing a chosen concept is the second hurdle. In other words: with what modifications can Western instruments be applied? For the two main fragmentation-reducing instruments, a number of considerations are reviewed.

The land banking systems that are operational in the Western European case study countries are so completely different in appearance that deriving relationships with contexts are hardly possible. Some tentative conclusions can be given on the main operational decisions:

- on the acquisition of parcels that are pulled into the land fund: voluntary buying is a straightforward option in the Central European context. Financial stimuli can propel the process.
on the selection of recipients of land bank parcels: this will be a matter of agricultural policy; the types of farms that are preferred to be the dominant ones will be allowed to profit from the additional acreage that is available in the land fund.

- On the size of newly created farms in concentrated land funds: it is a dilemma between viability of the new farms (which would mean creating large estates) and the creation of new employment (which would be greater when small farms are established). Taking into account the shrinking rural population in Hungary and Bulgaria, viability should be the more important consideration.

- on what type of tenure the land fund parcels will be distributed: developments in legislation on land tenure will affect the best choice. Main point is that land users must have solid rights to land. When a tenant has solid rights, tenancy may be attractive because the owner of the land fund parcels obtains a stable income from the distributed parcels.

For the instrument of land consolidation, an operational comparison was possible. On the basis of context-dependency, the Central European context is assumed to demand for:

- consideration of only long-term rights (i.e. ownership) in the reallocation of parcels. Tenancy in Central Europe is too little protected, registered and institutionalised to involve them in time-consuming projects like land consolidation projects are.

- application of the German Body of Participants concept, in which participants (i.e. landowners) have full control over the project in a democratic structure. Its counterpart, top-down planning, feeds sentiments of possible duping, abuse of power and hidden agendas.

- refraining from title purification when there is a proper title-registration being established.

- integration of village renewal in land consolidation projects because clustered settlement patterns need to develop in order to allow agricultural progress.

The organisations that support land consolidation and land banking activities in the Netherlands and Germany respectively mainly differ in their level of centralisation. A centralised organisation can be controlled more effectively by the policy-making ministry, it allows the use of more sophisticated and more expensive equipment and personnel and it may be less confusing to the outside world than several interconnected bodies. On the other hand, one organisation has a monopoly, which may lead to (alleged) unfair treatment of participants' interests.

Costs of land banking can be very low when distributed parcels raise the same value as they cost at the moment of acquisition. In fact, distributing parcels from an existing land fund can even generate a positive cash flow. Expenditures on land banking are financial stimuli that encourage sale to the land fund, as well as reserving parcels for non-agricultural objectives.

Land consolidation lays a much larger claim on finances. Cutting down on subsidies is hardly an option in Central Europe, because the consequently higher costs for participants would negatively affect the attractiveness of participating in a land consolidation project.
Comprehensive multifunctional projects that improve rural areas in many respects bear the prospect of swiftly and thoroughly climbing the development ladder. They do have to connect to actual sentiments and interests in society, which asks for a certain degree of organisation of interest groups, a prerequisite that was not observed in the region during this research. In addition, it is desirable that multifunctional projects include land fund land within the project boundaries in order to have the space for non-agricultural and supra-regional goals without intervening in participants' interests and rights.

The main conclusion

Considering these three constituent analyses, the answer to the main question must be that Western European experience does indeed hold a instrument that is promising for helping to solve Central European land fragmentation. However, it is not land consolidation that appears to make a good match, but land banking instead. Land consolidation is likely to meet a growing demand when land banking is effective. For both instruments, the international variation in the exact operation shows that a number of choices have to be made connected to implementation.

Recommendations

Improvement of Central European farming structure is best helped with land banking. It should be one central institution that is easily accessible, managed in a transparent way and well known to the farmers' population. It should be equally active in acquiring from those who are no longer interested in their land as in distributing to those who want to obtain additional land. The institution, by playing an intermediary role, enhances speed and effectiveness of land transactions in absence of a well-functioning land market. Actively but on a voluntary basis, supported by financial stimuli for making sale to the land bank more attractive.

The application of land consolidation must be confined to regions in which private land ownership prevails in combination with large but internally fragmented farms. These regions will grow in size and number when land banking is successful. When applying multifunctional projects, these must correspond with actual non-agricultural claims on rural areas as articulated in national policy or by interest groups. Land fund land will be important to reserve space for non-agricultural land use, without having to reduce the power of the farmers. Multifunctionality may be placed in modules that can be added to a agriculture-oriented land consolidation approach.

Full and irrevocable assignment of rights to land, and dealing with unsolved privatisation matters are basic necessities to a stable farming structure. Effort must be made to improve the solidity of rights to land. Not only ownership must be considered, but improved tenancy legislation could be a solution as well. Finally, there is the human side to all this, which may be more decisive for future developments than all that is said in this thesis so far. Accuracy, reliability and transparency must characterise communication between policy-makers and the people
that are personally affected by implementation of policy, for negative sentiments can paralyse even the best concepts. Capable staff has to be attracted and trained to run agencies and projects. And the rural population that is engaged in agriculture must receive education and training on modern and efficient farm management through locally held courses and workshops, because this knowledge will not come spontaneously.

**Similar views**

The conclusions suggest that many people have been inaccurately projecting land consolidation in the centre of Central European structural policy. Of course, other considerations than the ones included in this thesis might relay this statement, but it is still interesting to speculate on the reason for this misconception. I think it mainly was a combination of the confusing term ‘fragmentation’, various nationalities communicating in English and the pressure to find instant solutions. This mix lead to the impression that there was a general and accurate understanding of the problem, and together with the urge to find solutions – caused by the initial conviction that transition was a straightforward process taking only a few years – a comparison of alternative options and actual problems was never made. This made land consolidation, being by far the most prominent instrument that was ever used for restructuring rural areas, the sole promise for improvement.

So this thesis opposes to the popular line of thinking. But I am not the only one who reaches this conclusion. Similar views appear in more recent publications. Graefen (2002), for instance, concentrating on Bulgarian agriculture, suggests that land banking deserves to have a higher priority than land consolidation. And Bromley (2000) stresses the importance of ‘marketisation’ of land assets in order to cope with problems of agricultural structure.

**But are package instruments the right track?**

Although package instruments are the explicit focus of this thesis (section 2.4), some reflection on other instruments would be appropriate here. Throughout the research, I kept stumbling over all kinds of variations of tenure that sounded intriguing, to say the least, in the light of fragmentation-reduction. I found that across the Western world, various legal provisions have been established (typically extensions to standard types of tenure) with which the rights of land users are expanded.

Section 6.1 already presents one option that is used in Bavaria, namely assessing all rural land transactions on effectiveness from the perspective of farm structure. Farmers surrounding a parcel on sale have a pre-emption right (the right to be the first to bid on that object). The rights attached to tenancy in the Netherlands (see section 7.3) are also a way to enforce the position of land users, in this case by giving them pre-emption rights and protection against sudden contract-termination by the owner.
Other expanded rights of tenure are the right to use fallow land, the right to cross other people’s property in order to access own land, the right to be compensated for improvements made to rented farmland and buildings and the right to pay a reasonable tenancy price (through tenancy-price regulation). Many legal ways have been found to make land use more efficient and to ensure continuity of land use.

By changing tenure-legislation in such a way that the desirable current land use is enforced and is thus granted better chances to survive and prosper, Central European governments may be able to improve farming without spending large sums of money on package instruments. By legally strengthening the position of desirable current land users, this group will also become increasingly successful in an economic sense, and therefore the market forces – that so far have not provided lasting solutions to land fragmentation – may actually result in improvements. In my opinion, it is important to invest in further research in this direction.

Hungary has already endeavoured onto this path by establishing the 2002 land law. In this new land law, whole families of farmers and individual members of farming families have pre-emptive rights on both the purchase and lease of farms and farmland. The newly created National Land Fund also precedes the land-holding agricultural companies in acquiring agricultural real estate. The latter party regards this situation extra-legal and wants it removed from the land law.

A complex matter...

Doing research on the possible benefit one region can have from instruments in another region proves to be very complex. The researcher should constantly be aware of subjective argumentation and misinterpretation of conditions or phenomena. The links between the subject of study – in est land fragmentation – and the society it is embedded in are so strong and intriguing that isolating this specific topic involved constantly adjusting the course of the research, the course that availability of information and personal preferences were trying to disturb.

Much is left to be said about Central European agriculture, how it will develop and how policy instruments can or cannot enhance these developments. It is my sincere wish that scientific analyses like this thesis make a positive contribution.
A recurring theme in the interviews with Central European refugees was the delicacy of any interference in individual property rights. Past experience provides so many examples of governments seducing and betraying people, and the genuine attempts to make the world a better place so often ended in misery instead. Central European governments have to regain the confidence of the civilians, that in principle are sceptical about all policy. About whether promises will be held, whether hidden agendas will pop up in due course, and whether it is not just an old song with a new voice.

Politics. It is ideal if a government did not have to intervene in people’s lives at all? Could a utopian world of harmony and universal freedom ever really exist? Unfortunately, societies have become too complex to do without the guidance of political interest. Ultimate individual freedom would then become a fiction, since almost all activities and decisions of one person affect the lives of many others. Moreover, the rural problems of General European countries represent problems so complex to expect autonomous improvement.

For the nearly complete absence of systematic and reliable evidence on the exact source and severity of this allergy to government-interference, I would have liked to give it a place in this thesis. It is a subject in which profound differences may be revealed and the interaction between government and civilians will have to be thoroughly researched, which would not hurt for Western European readers considering the increase in right-wing movements that indicate popular discontent towards the establishment.

Moreover, it would ever indulge in this matter I would like to keep in mind. First, democracy is not a good solution for all political systems we tried proved worse (free elections in Russia). Democracy still needs considerable attention in order to actually connect administration to people’s heart and minds. Second, isn’t it a shame that (especially local) governments fail to allow civilians to propose ideas and solutions for policy-making by making them co-owners of the problems, questions and uncertainties that
politicians face. It is comparable to conflict-management between parents and children. Modern experts (Gordon, 1970 was one of the first) acknowledge that by discussing about a problem on the basis of equality and an open attitude, both parties can reach a solution that is not a compromise but a real gain-gain situation that has the full support of everybody involved, and even when difficulties do occur, less negative attitudes will emerge because all did contribute to and agree on the option that was chosen. Wouldn't it be great if society could work like that?

Terry van Dijk
English summary

Dealing with Central European land fragmentation
A critical assessment on the use of Western European instruments

Introduction and research question
Ownership of agricultural land is highly fragmented in Central Europe. Western European countries in the past have faced fragmentation of similar severity. This thesis explores the possibilities for transplanting Western instruments to Central Europe. Agriculture is often mistaken for a conservative and static part of economy. This certainly does not apply to Central European agriculture. To the socialists, land was an asset that belonged to the community and as such it should not be in private hands. The implementation of this ideology did not mean a disruption of a tradition comparable to modern Western land ownership concepts per se, since private rights on land in concept are quite recent indeed. Nowadays, private land ownership prevails in Central Europe. After the fall of the iron curtain, agricultural land was privatised. The subject of how to deal with land fragmentation was made topical around the turn of the millennium by FAO, that held a survey in order to define the nature of the problem. The enlargement of the European Union raised the urgency of making amends. The enlargement is a challenge because enlargement may jeopardise decision-making but may lead to an explosion of the claims on structural funds as well. The simultaneous modification of EU agricultural policy and Central European adjustments to agriculture makes it hard to find solutions. Even before the actual accession, EU has invested billions of euro’s to make the Central European applicant countries ready for joining.
The developments in land ownership in Central Europe can be divided into three phases: collectivisation, privatisation and facilitating private farming. The first two phases are covered by a host of thorough studies. The third is currently in progress and is the focus of this thesis. It is assumed that ongoing problems of privatisation, that still exist, are dealt with eventually.
Throughout literature, the reference ‘Central Europe’ may have several geographical definitions. Here, the common narrow geographical definition is used: Poland, Hungary, Slovakia, the Czech Republic, Romania and Bulgaria.
The study explicitly involves Western knowledge under the – to be debated – assumption that Western experience on similar problems can be useful in Central Europe, especially given the parallel development until 1945. The starting position for this thesis is that there is no need to re-invent the wheel. The perspective is foremost on policy instruments and on strategic choices, in the last chapter complemented with operational considerations.
The research question is formulated as follows:
To what extent can Western European fragmentation-reducing instruments provide solutions for the fragmentation of Central European agricultural land?
The fact that this thesis is confined to the land fragmentation problem does not mean that the thesis claims it to be the only of the most important problem of Central European agriculture. Land is only one means of production and it takes more than land alone to run a competitive farm.

From the start, a rigid quantitative research method – like surveys and experiments – was not considered to be an option. The method had to allow room for adjustments resulting from new insights gathered during the research, thus clearly demanding a case study approach. For overviews of an array of countries, the thesis relies on papers and articles from academic literature, preferably of local experts, as well as statistics. In addition, interviews were held with local experts, especially those that were interested in questions relevant to the research question mentioned here.

The number of countries involved in the study has been limited, however with the intention to derive more generally applicable statements. From the Central European region, Hungary and Bulgaria were studied, since they are opposites in terms of collectivisation history, privatisation and general economic development. The Western European case study countries are the Netherlands and Bavaria, since they have a long-standing history of land consolidation although the applied instruments differ considerably.

Conceptual framework

Strictly speaking, fragmentation is derived from ‘fragment’, which in general refers to an incomplete part, or a piece that is detached or isolated from a whole it originally belonged to. Fragmentation of land generally addresses the parcelling (a physical characteristic) or the legal claims on land (invisible), two layers that in theory can be totally different. Fragmentation can be considered on various levels of scale. The scale determines what is the ‘whole’. Four types of land fragmentation are used in this thesis: fragmentation (1) of land ownership, (2) of land use, (3) within a farm, and (4) separation of ownership and use.

Fragmentation has a number of positive effects. Apart from ecological and scenic advantages, in farming fragmentation can be valued for reducing the risk of all crop being destroyed by disease of extreme weather. Some types of farming also need spatially separated parcels so they can be used for various agricultural purposes.

The negative effect of use-fragmentation and internal fragmentation is that it raises the production costs and lowers the total yield that the land produces. Namely, larger parcels need less time for cultivation and have relatively little loss of space and yield along the borders. Ownership fragmentation leads to separation of ownership and use, which in turn results in tenancy – which is relatively expensive and impedes making proper investments.

But under what conditions and to whom precisely does fragmentation become a problem can not be determined since fragmentation is not a matter of black and white. In Western Europe, the trigger for actively reducing fragmentation was that the standard of living in cities was considerably higher than in rural areas, the rural population was aware of this and fragmentation was believed to be an obstacle for
levelling this difference. This implies that no fixed figures or calculations can be given with which a farm can be labelled 'fragmented'. Moreover, the urge to reduce fragmentation can vary widely between a farmer, a regional politician, an EU official and someone that has a comprehensive image of world food security. The second keyword in this thesis is 'instrument', that in this context relates to public policy. Instruments are subject to policy and can be a package of legal, financial and communicative components. Here we assume that policy is made through rationally confronting society's preferences and all policy alternatives and selecting the policy that will probably be the most efficient.

How do these matters blend in the conclusions? This book gives a general Central European overview of fragmentation (Ch. 3) which illustrates the different guises of fragmentation and their emergence. In the two case studies (Ch. 5) the core of the problem is sought, with special attention to private farming. On the other hand an inventory is presented of Western instruments for improvement of farming structure (Ch. 4). The instruments in the Western case study countries are analysed in more detail (Ch. 6). The conclusions (Ch. 8) are supported by three 'pillars': the analysis that leads us to the core of Central European fragmentation (Ch. 5.5), the strategic balancing of problems goals and prerequisites in both regions (Ch. 6.6), and operational considerations (Ch. 7).

The Central European situation

As a consequence of socialist policy between 1945 and 1990, private ownership as well as private revenues had to be replaced by communal farms that would allow equal distribution of wealth. These large-scale production-units came in two types: collective farms and state farms. The establishment of collectives involved transferring only part of the rights from the owners to the collective; the right to use and the right to alienate. Farm workers in collective farms were renumerated at the end of the year with a return on their inputs, based on the performance of the collective farm. Besides these large production-units, where the actual production took place, all systems allowed small personal plots for the workers. The state farms, collective farms and personal plots were in fact three degrees on government regulation of land tenure, which varied in importance throughout Central Europe.

Although the socialist logic of equal distribution of wealth is commonly known, a number of persistent misconceptions have emerged among outsiders. Private ownership, in contrast to common thinking, was not erased after 1945. Socialism meant a continuous redistribution and redefinition of property rights that differed in each country, and many landowners never lost their title to land, despite collective management. Another misconception is that collectivised agriculture was uniform throughout the region, but in reality collectivisation proceeded in quite different ways, on different timetables and with different consequences. And collectivised agriculture was not a failure either; some regions were very successful in farming and achieved growth levels that were equal or higher than in Western Europe.
The early 1990s brought Central Europe a transition from a centrally planned to a market economy, which involved privatising agricultural land. Most Central European countries chose to reconstitute (implies returning the land to the original owners) collective farm land. Distribution (giving original owners a new piece of land) is applied for part of the collective farm land in Hungary and Romania. State-farm land was usually leased pending sale. Only in Hungary compensation (giving money or vouchers in return for lost assets) is applied for part of the state-farmland. Most important in choosing from the various ways of privatisation was the legal ownership status at the outset of the reforms. Private ownership underlying collectively used land was restored. Another important factor was how this choice would affect land ownership among ethnic groups, a factor that made the Poles decide not to reconstitute the land of state farms. In addition, when an elite had control over land prior to collectivisation, the demand for historical justice was overruled by a cry for social equity.

The success of actually replacing large-scale communal farming with small-scale private farming proves to be higher when (1) collective farming was little productive, (2) collective farming was labour intensive, (3) a large share of employment was in agriculture and (4) the costs of leaving the collective were low. Privatisation directly resulted in the current excessive fragmentation. Part of the privatisation is not fully completed yet. Full privatisation means assessing validity, physical determination of claims and transferring a certificate of full ownership, but figures on the proceeds of privatisation can ignore the importance of the latter steps.

As said, the current fragmentation differs strongly across the region. As an indication, let us take into account the importance of private land use. In Poland, private farms use 76% of all agricultural land in farms of on average 6.3 ha (50% under 5 ha). In Bulgaria these figures are 53% and 1.48 ha (86% under 1 ha), in Romania 52% and 1.94 ha (40% under 1 ha). The other three countries clearly differ: only 17% of Hungarian land is used by private farms, in units of 0.81 ha (but with 42% over 10 hectares) and in the Czech Republic and Slovakia it is even less dominant. Before turning to the instruments, as means of actively improving farming structures, it is useful to explore the possibility of spontaneous improvement. Spontaneous improvement depends on the level of activity on the land market, combined with small parcels being merged into larger units, two factors that in turn depend on economic growth and liberal agricultural policy respectively. We cannot be certain that either one will be the case in the near future.

Instruments for reducing fragmentation
When a government faces fragmentation and decides to correct it, two strategies are at hand. One way to act is by stimulating forces of spontaneous improvement. During the second half of the twentieth century, Western European countries have applied the second strategy: applying specific policy instruments. When observing the Western instruments, it is important to bear in mind that in that region, fragmentation had resulted from growth in rural population and – depending on heritage legislation – the
splitting up of farms. Three instruments have been used to directly address fragmentation of agricultural land: land banking, land consolidation and voluntary parcel exchange.

A farmer that wants to expand his property has to overcome a key constraint on agricultural land tenure, namely that all farms are enclosed by other people’s private ownership. The fact that land is finite discerns it from other means of production, and it has high transaction costs as well. The deadlock can be avoided by introducing a new type of player on the land market; an owner that is interested in distributing its land to surrounding farmers. This buffer, a land fund, can be an instrument for agricultural policy.

The possibilities of applying land funds for policy purposes (‘land banking’) depend on the degree of concentration. When land funds are massive units, farmers will have to move there in order to be able to expand their farms. When land funds consist of many small units throughout the country, it will be easier to improve existing structures.

The second instrument is land consolidation, a term that should be read here in its neutral meaning, i.e. a locally supported voluntary procedure for establishing a new spatial allocation of ownership and/or use within a predefined rural area. It is the project-wise improvement of all physical limitations on agricultural production.

Land consolidation projects typically involve several hundreds of participants, which lead to adopting a majority-rule that can force a stalling minority to co-operate for the sake of the project as a whole. The concept has been used for many ages, but legal provisions emerged around 1900 in most countries. Initially, this instrument aimed at increasing agricultural productivity, but after 1945 considerations of nature and environmental conservation and regional development respectively gained weight.

The voluntary exchange of parcels between three or more owners, thus resulting in improved parcelling, however without changing their shape and size is called voluntary land exchange. A limitation to the application of this instrument is the low level of complexity of problems that can be dealt with. The Hungarian Act on Land explicitly provides in voluntary parcel exchange already.

A number of drawbacks for applying these Western instruments in Central Europe can already tentatively be listed. Perhaps the most crucial discrepancy is the unfavourable economic situation in Central Europe that impedes the outflow of labour from agriculture. Equally complicating is the widespread absentee-ownership of agricultural land. In addition, land ownership is emotionally charged, instead of the economical approach that dominates in Western Europe. Infrastructure may have to be adapted in order to facilitate farming in smaller units and unfinished privatisation matters may locally block any change in the legal situation.

In the Central European region, attempts and systems have emerged that allow farmers to cope with the fragmented situation. Poland, the Czech Republic and Slovakia have legal land consolidation in place that is not very active though. Quite vital are the informal consolidation efforts that on a limited scale rearrange land use rights on a
yearly basis. Particularly in Romania and Bulgaria, these informal consolidations are popular.

**Farms and land in Hungary and Bulgaria**

For the Central European case study countries, let’s have a closer look into the actual problem, without making the mistake to concentrate on symptoms instead. Hungary is the plainer of the two, and the smaller as well with more inhabitants than Bulgaria has. Bulgaria is warmer and more arid.

Hungarian privatisation was a mix of several mechanisms that applied to the various types of claimants. It was completed relatively swiftly, since it was finalised mid 1994. The total number of landowners had exploded, but the large-scale farms for the greater part continued to exist after internal reorganisations. In contrast, the Bulgarian privatisation was changed many times during the process due to several elections that kept inverting the power balance in the national government. This made the process slow and hard to comprehend, and resulted in many legally complex cases as well.

In Hungarian agriculture, arable and mixed farms are dominant. Although 86% of the land is privately owned in small plots, only 54% is actually cultivated by private farmers. The gap between private ownership and private use is particularly large in the large enterprises (one-third of enterprises measures over 100 ha) that lease parcels from numerous owners and exploit them as contiguous units. The trend in private farming is positive – there is growth in total acreage and average size as well – but slow. The presence of the large number of farms under 1 hectare in size is mainly a matter of statistically defining ‘farm’. The Hungarian rural population is aged and decreasing.

The southern Bulgarian climate facilitates the growth of more exotic crops. The developments after 1990 led to a sudden reduction in labour-intensive agricultural activity. The recent statistics that are available on Bulgarian agriculture fail to provide a clear image of the situation on private farms, since enterprises and privates are not specified separately. There are signs of positive trends in private farming. Ageing and depopulation of rural Bulgaria is troublesome and has its roots in the socialist urbanisation policy. Irrigation is required to enable farming in a large part of the country and needs consideration in the process of restructuring agriculture.

The limited data that are available on how fragmentation is affecting every-day farm management indicate that in Hungary internal fragmentation of private farms is not alarming. Large distances between parcels are only felt disadvantageous by the larger farmers. Lease plays an important role among private farms, for consolidation and for creating large private farms. The desire to concentrate parcels is considerable among Hungarian respondents but attempts have not always worked out positively.

In Bulgaria too, internal fragmentation of private farms is not alarming. Leasing plays an important role in the establishment of large farms, although unregistered in most cases and paid in kind. Those who feel a need for consolidation of parcels mostly achieve this consolidation in an informal way.
It is hard to measure the public attention on the land fragmentation issue in these countries. The interviews led to the impression that it is neither high on the political agenda nor on the scientific one. Politicians seem anxious not to burn their fingers on land-related issues that proved to be so delicate and complicated in recent history. The attitude among the rural population on consolidation seems to be slowly relaxing.

The Hungarian parliament has approved of the establishment of a land fund, for which the details are now legally confirmed. The fear that a land fund would give way to misuse and thus do more harm than good has led to provisions that ensure that locals and the parliament keep control over land fund activities.

Hungary has also executed a pilot project on land consolidation, named TAMA. On four locations throughout the country, a consolidation was done with a minimum of force and in a most transparent way. It proved too ambitious though, and the insufficient time, budget, management and local support caused the project to fail. This did not keep the government from preparing a Law on land consolidation that contains similarities to German legislation (like the Genossenschaftsprinzip), whereas the voting and the use of outside experts parallels the Dutch way of land consolidation. Bulgaria has not put much effort in designing land consolidation legislation, but does try to improve farming namely through leasing out state land. Although not officially qualified as land banking, the land fund parcels are distributed with the intention to decrease fragmentation and to support landless applicants and peasants. Bureaucracy holds back the positive potential.

The bimodal production structure that we see in both Hungary and Bulgaria corresponds with a bimodal fragmentation problem. Large enterprises suffer from segregation of ownership and use as well as internal fragmentation. The private farms are mainly constrained by their size. Room for enlargement is present considering the declining rural population, land funds and fallow land. It seems contradictory that the most fragmented case study country has put the least effort in developing legislation for land consolidation.

What appears to be the real challenge in the land fragmentation problem in Central Europe is not only achieving farms of viable size and internal outlay, but foremost stimulating that solid rights to land are in those viable farms. Ownership on land now resides at the wrong parties. The first priority must be to facilitate a flux of solid rights to land to those who make the best economic use of them. As long as those rights stay where they are, all adjustments to agricultural structure are only addressing symptoms where they should aim at the core problem instead.

The Western instruments in practice.

The first thing we want to know about Western European fragmentation-reducing efforts is whether Western Europe has encountered the same problems as Central Europe. The second factor that is key to making a match between Central Europe and Western instruments is the prerequisites for successfully applying an instrument.
Both the case study countries are situated in the temperate zone. Bavaria is twice as large as the Netherlands but, being inhabited by the same number of people, considerably less densely populated.

The emergence of land banking fits UN-surveys from the middle of the twentieth century, indicating problems in farm size. In the Netherlands, the smallholder problem was explicitly debated upon. In Bavaria, this public awareness seems to have been missing, but this may stem from the part-time farming that was and is common in that region and made farm-size less restricting to family income.

Only the Netherlands have applied concentrated land banking by using land reclamation (the polders) as an instrument to relieve overcrowded regions. Diffuse land banking activities emerged as well and they were integrated in the Land Consolidation Service. The replenishment of the land fund was stimulated by farm termination subsidies. Land banking grew to be increasingly multifunctional.

In comparison to the Dutch land banking practice, with a specific budget and an explicit task for agro-structural improvement, land banking in Germany as a whole is less centralised and less specific. The Body of Participants (local commission in a land consolidation project) can perform land banking on a local level, especially when infrastructure-related projects are concerned. Secondly, there are private investors, buying land assets, and a special law that forces every seller of a parcel to sell it to the farmer that has the most benefit from the parcel. As a third way of land banking there are special Land Societies that can be active in land banking among other real estate activities. They were involved in reallocating half a million hectares to growing farmers throughout former Western Germany.

Land consolidation is the most prominent of the Western instruments, but surprisingly no specific policy documents indicating problems on internal farm fragmentation were found. Land consolidation apparently has been a pragmatic answer to operational needs that groups of farmers articulated to their governments. Land consolidation improves physical production conditions, especially those that cannot be improved by individual efforts.

In the Netherlands the concept gained momentum in the 1950s, when an improved law was introduced and the number of applications rose sharply, making it necessary to install a priority scheme. The first decades of success also brought scepticism about the negative effects for nature and landscape that led to a multifunctional law in 1985. It was hard to break the dominance of agricultural interests in land consolidation projects and new efforts for creating the right procedure in which interests are balanced were made in the 1990s, together with changes in terms of time- and cost-efficiency.

Developments in Bavarian land consolidation are similar to those in the Netherlands. Although having a very old legal basis, Bavarian land consolidation had its heydays in the period 1945-1970 and complemented Germany's economic restructuring plans. Bavaria has been particularly successful and active in dealing with fragmentation problems in agricultural land. The call for including non-agricultural goals was heard quite early already. Legal changes did not prevent ecological and agricultural interests to seriously collide until the 1990s.
A third instrument is voluntary land exchange. The Dutch acreage involved in voluntary land exchange was only small as compared to land consolidation. The instrument does serve a need, however, since after it lost its attractiveness due to increasing complexity and time involved, a successor regulation became popular again. Bavarian voluntary parcel exchange has been equally modest in importance, but a recent increase in interest was observed in both countries.

Farm reallocation is an important activity that is supporting the instruments in achieving their targets. It brings farms from areas where farms are concentrated (under-supply of land) to over-supply areas. In Dutch practice, it typically took shape in voluntary reallocations that were performed with considerable financial state support. Many hundreds of farms have been reallocated over the years, mainly in the framework of land consolidation projects.

From Bavarian land consolidation it must be noted that generally a village renewal project is integrated, although it is not provided for in legislation. Because German farms show a high level of concentration, village renewal is important for sound agriculture. The Dutch landscape is scattered with separate farmsteads, which may explain the presence of farm reallocation instead.

As for the benefits of land consolidation, these occur in two steps: improvement of physical conditions for agricultural production and secondly improved farm management. Analyses about the first effect, the direct impact of fragmentation-reducing efforts, fail from literature. German yearly reports, however, show that land consolidation projects on average achieve an increase in parcel size of around 300%. An imperfect estimation of autonomous development (the overall change in parcelling) shows minimal improvement, indicating a strong ongoing fragmentation having a counter effect. In Dutch projects, the improvement in parcel size proved to be equally big. In not-consolidated areas there was an improvement too, but it was much slower than in the consolidated areas.

When assessing the actual effects of efforts to reducing fragmentation, we do have to consider the historical framework. The economic conditions allowed – and demanded – rapid exit of labour from agriculture and the emergence of mechanisation.

After studying the Western case study countries, we must conclude that Western Europe has only addressed two types of fragmentation, out of the total four types we defined, namely farm-size and internal fragmentation. The first is also very important in Central Europe, the second proved to be less problematic. On the second criterion, the prerequisites for applying an instrument, we see that land consolidation especially collides with absentee-ownership. The prerequisites for land banking seem to be present or achievable.

Considerations of implementation
Up to this point, little is said about what choices have to be made and what conditions have to be met before an instrument can actually be operational. Although from the strategic analysis it is concluded that land consolidation is not fitted for the current
land fragmentation problems in Central Europe, this instrument is included here for reasons of regional diversity and future developments.

Transplanting instruments meets specific difficulties. Adapting an instrument to the specific Central European context asks for familiarity with as many options as possible. In addition, we must be aware of the relationships between the already being applied instruments and their context, which allows a founded choice from the variety of optional instruments and their components. Thus, comparative research, more specifically: research in which differences between various instruments are explained, is key to institutional transplantation.

Unfortunately, for the diffuse land banking activities in both case study countries no written records could be found addressing the operational aspects. On Dutch concentrated land banking, however, an extensive operational analysis is available that by and large is relevant for diffuse land banking as well. Choices have to made about:

- who to sell or give land fund parcels to when demand exceeds supply. By defining selection criteria, the land banking authority can enhance the situation in a specific group or region
- how to replenish the slowly shrinking land fund. Active but voluntary acquisition was standard in the Netherlands and Bavaria, together with financial stimuli that made sale of land more profitable
- what land use should be established on the space the land fund provides. Besides enhancing the farming structure, in cases it might be sensible to create space for infrastructure, processing industry, town improvement or nature conservation
- how large newly established farms in a concentrated land fund must be. Large farms may be economically stronger but they generate relatively little employment; the question is what has more weight
- what type of tenure distributed land should be in: ownership, tenancy, state exploitation or new types of rights to land

In land consolidation a comparative explaining analysis was possible. The 1954 laws from the Netherlands and Bavaria were compared. A number of differences were assumed to be essential and some plausible explanations could be found.

- the rights of the Dutch tenant and owners within a land consolidation project are identical. This may be explained by the different nature of Dutch tenancy that is quite heavily protected and regulated, whereas German tenancy is typically short term and does not involve specific protection or additional rights
- after a Dutch land consolidation project, all titles to land are declared irrevocable, which is advantageous for the quality of land registry. This fails in Bavaria because the rights recorded in the German land registry already are beyond doubt by definition
- the early 1900 breakdown of a long tradition of authoritarian regimes in Bavaria may be the reason of the highly participatory decision-making during land consolidation as compared to Dutch practice. Bavarian project commence with top-down assignment, but are managed and controlled by the participants
themselves. The Dutch projects have to be voted for, which can be seen as a compensation to the little participatory process

- inclusion of village-renewal depends on prevailing settlement patterns; Dutch farmsteads are typically scattered across the landscape, which calls for farm reallocation rather than village renewal

Apart from legislation, organisation and financing is decisive in the effectiveness of land consolidation. In this thesis, the pre-1970 situation is considered since at that time the system was primarily focussed on fragmentation-reduction. In every German Land, the organisation behind land consolidation can be different. Bavaria has one central office and 7 relatively large regional offices (which allows each office to have state of the art facilities) with strongly hierarchic structures. The Dutch central organ is a commission in which several interest groups are represented. It decides on newly initiating projects. Two organisations are executive bodies: the cadastre for designing the reallocation of parcels and the Land Consolidation Service for the process-management.

Part of the costs is typically financed by the government, which makes the effectiveness of the instrument susceptible for political sentiments. Data on Dutch expenditures as a share of state budget do not prove a systematically higher cash flow than in Bavaria. Dutch projects are relatively expensive, but farmers do not have to pay their contribution at once.

Conclusions and recommendations

Considering the three constituent analyses, the answer to the main question must be that Western European practice holds an instrument that is promising for effectively dealing with Central European land fragmentation: land banking. Land consolidation is likely to meet a growing demand when land banking is effective.

The main recommendation therefore is that improvement of the Central European farming structure is best helped with land banking. The application of land consolidation must be confined to region in which private land ownership prevails in combination with large but internally fragmented farms; regions that will grow in size and number when land banking is effective. Accuracy, reliability and transparency must characterise communication between policy-makers and the people that are personally affected by the implementation of policy, for negative sentiments can paralyse even the best concepts.

Although this conclusion opposes to the popular line of thinking – that may have been affected by the multiple meaning of the word fragmentation – similar views can already be found in literature.

It may be interesting what the value of smaller instruments can be, for instance legal provisions that expand the rights to land within a group that is considered to need support, or changing rules on land transactions in order to make the land market reduce land fragmentation. Hungary has already made such efforts by granting family farms pre-emption rights on land.
Nederlandse samenvatting

Omgaan met versnijperde landbouwgronden in Centraal-Europa
Een kritische beschouwing omtrent de mogelijkheden van West-Europese instrumenten

Introductie en onderzoeksvraag
Het grondeigendom in Centraal Europa is zeer versnipperd. West-Europese landen hebben versnippering van een soortgelijke omvang gekend. Dit proefschrift probeert vast te stellen of er mogelijkheden zijn om Westerse instrumenten voor het oplossing van dit probleem in te zetten in Centraal Europa.
Landbouw wordt ten onrechte gezien als een statistische en behoudende economische sector. Dit beeld is zeker niet terecht in Centraal Europa. Door de socialisten werd grond gezien als een gemeenschappelijk bezit dat niet thuis hoort in individueel zeggenschap. Dat de socialisten deze ideologie implementeerden betekent niet altijd een onderbreking van een lange traditie van grondeigendom zoals we dat tegenwoordig kennen, omdat individuele rechten op grond in feite een relatief recent verschijnsel zijn. Vandaag de dag domineert in Centraal Europa het private recht op grond. Na de val van het ijzeren gordijn is de landbouwgrond namelijk geprivatiseerd.
De vraag hoe om te gaan met versnippering van landbouwgrond werd actueel rond de millenniumwisseling. De wereldvoedselorganisatie FAO hield toen een veldonderzoek om de ernst en aard van het probleem in kaart te brengen. De op handen zijnde Europese uitbreiding verhoogt de urgentie van het oplossen van het probleem. De Europese uitbreiding is een uitdaging omdat de huidige besluitvorming niet op zoveel lidstaten berekend is, maar bovendien zal op de financiële ondersteuning van de landbouw een zware wissel getrokken gaan worden. Door het samenvallen van hervormingen in het Europees landbouwbeleid en de veranderingen in Centraal Europa laten oplossingen hiervoor zich niet gemakkelijk vinden. De Centraal-Europese landen krijgen miljarden euro's om zich klaar te maken voor de toetreding.
De ontwikkelingen omtrent grondeigendom in Centraal Europa zijn te verdelen in drie fases: collectivisatie, privatisering en de het mogelijk maken van individueel boerderijen. De eerste twee fases worden besproken en geanalyseerd in een scala van serieuze studies. De derde fase voltrekt zich momenteel en dit proefschrift concentreert zich daarop. Daarbij wordt verondersteld dat de slepende kwesties rondom de privatisering uiteindelijk opgelost zullen worden.
In de literatuur kan de aanduiding ‘Centraal Europa’ uiteenlopende geografische definities hebben. Hier wordt de gebruikelijke smalle definitie gebruikt: Polen, Hongarije, Slowakije, Tsjechië, Roemenië en Bulgarije.
Het proefschrift betrekt Westerse ervaringskennis expliciet in de – ter discussie staande – veronderstelling dat Westerse ervaring op gelijkssoortige problemen nuttig kan zijn in Centraal Europa, mede ingegeven door de parallelle ontwikkeling tot 1945. Uitgangspunt is dat het niet nodig is het wiel opnieuw uit te vinden. Het proefschrift
redeneert primair vanuit beleidsinstrumenten en strategische keuzes, het laatste hoofdstuk richt zich op operationele overwegingen. De onderzoeksvraag is als volgt geformuleerd: *In hoeverre kunnen West-Europese instrumenten die versnippering verminderen bijdragen aan het oplossen van versnippering van de Centraal-Europese landbouwgrond?* 

Dat dit proefschrift zich beperkt tot het probleem van de versnippering van grond betekent niet dat er verondersteld wordt dat dit het enige of belangrijkste probleem van de Centraal-Europese landbouw is. Naast grond zijn nog vele andere randvoorwaarden en productiefactoren nodig voordat er sprake kan zijn van een concurrerend bedrijf. Bij aanvang van het onderzoek was het duidelijk dat een starre kwantitatieve onderzoeksmethode – zoals vragenlijsten en experimenten – niet geschikt zou zijn. De methoden moest ruimte bieden om in te kunnen spelen op inzichten die gedurende het onderzoek verworven zouden worden. Case studies werden duidelijk als meest geëigende methode beschouwd. Voor de overzichten over de situatie in de hele regio werden congresbijdragen en artikelen uit de academische literatuur geraadpleegd, bij voorkeur van lokale experts, evenals statistieken. Daarnaast werden interviews gehouden met lokale experts, met name met hen die waren geïnteresseerd in vragen die ook relevant voor dit proefschrift waren.

Het proefschrift heeft betrekking op een selectie van Centraal-Europese en West-Europese landen, echter met het idee om het afleiden van meer algemeen toepasbare conclusies mogelijk te maken. In Centraal Europa zijn Hongarije en Bulgarije geselecteerd omdat zij tegenpolen zijn waar het gaat om collectivisatie, privatiseren en algemene economische ontwikkeling. De West-Europese case study landen zijn Nederland en Beieren omdat zij een lange traditie van herverkavelen hebben terwijl de manieren van herverkavelen aanzienlijk verschillen.

**Conceptueel kader**

Strikt genomen is ‘versnippering’ een woord dat is afgeleid van ‘snipper’, dat een algemene aanduiding is voor een stukje dat is losgemaakt van een geheel waar het oorspronkelijk toe behoorde. De term versnippering van landbouwgrond richt zich doorgaans op de parcellering (een fysiek kenmerk) of de juridische relaties met grond (onzichtbaar). Deze twee lagen kunnen theoretisch geheel verschillend zijn. Versnippering kan op diverse schaalniveaus worden beschouwd. Het schaal niveau dicteert wat als het geheel beschouwd moet worden. Vier types versnippering worden in dit proefschrift onderscheiden: versnippering (1) van grondeigendom, (2) van grondgebruik, (3) binnen een boerderij, en (4) scheiding van eigendom en gebruik. Versnippering heeft een aantal positieve effecten. Afgezien van ecologische en landschappelijke voordelen kan versnippering in de landbouw worden gewaardeerd omdat het leidt tot risicopenspreiding; de kans wordt kleiner dat alle oogst worden vernietigd door ziektes of extreme weersomstandigheden. Sommige vormen van landbouw zijn ook gebaat bij ruimtelijk gescheiden percelen omdat die voor verschillende onderdelen van het productieproces gebruikt kunnen worden.
Het negatieve effect van versnippering van landgebruik en versnippering binnen een bedrijf is dat het leidt tot een stijging van de productiekosten en een daling van de totale opbrengst van het land. Grote percelen hebben namelijk minder tijd nodig voor de bewerking ervan en ze hebben relatief weinig productieverlies langs perceelsranden. Eigendomsversnippering leidt tot een scheiding van gebruik en eigendom, hetgeen een groot aandeel pacht tot gevolg heeft dat relatief duur is en een gezond investeringsniveau verhindert.

Maar onder welke omstandigheden en voor wie precies is versnippering een probleem? Daar kan niet zonder meer een antwoord op worden gegeven omdat versnippering niet een kwestie van zwart en wit is. In West-Europa lijkt het omslagpunt om actief in versnippering te gaan ingrijpen te liggen bij het verschil in levensstandaard tussen stad en land, de bewustwording van dit verschil door de plattelandsbevolking en de oorzakelijke relatie met versnippering. Dit betekent dat er geen vaste cijfers of berekeningen te geven zijn waarmee je een boerderij als ‘versnipperd’ kan diagnosticeren. Bovendien zal de drang om versnippering te bestrijden verschillend zijn voor een boer, een regionale politicus, een EU-official of iemand die zich inzet voor het wereldvoedselprobleem.

Het tweede steekwoord in dit proefschrift is ‘instrument’, dat hier in de zin van implementatie van beleid wordt gebruikt. Instrumenten zijn volgend ten opzichte van het beleid en kunnen een bundeling zijn van juridische, financiële en communicatieve componenten. Er wordt verondersteld dat politieke doelen worden bepaald door middel van het rationeel vergelijken van de voorkeuren in de maatschappij en alle beleidsalternatieven en het selecteren van het beleid dat waarschijnlijk het meest effectief zal zijn.

Hoe komen deze zaken samen in de conclusie? Dit proefschrift geeft eerst een algemeen overzicht van de Centraal-Europese versnippering (Hoofdstuk 3) waarin duidelijk gemaakt wordt dat versnippering uiteenlopende verschijningsvormen heeft en op meerdere manieren kan ontstaan. In de twee case studies (H. 5) wordt de kern van het probleem gezocht met de nadruk op zelfstandige boeren. Anderzijds wordt een inventarisatie gemaakt van de Westerse instrumenten die erop gericht zijn versnippering te verminderen (H. 4). De instrumenten die worden gebruikt in de West-Europese case study landen worden nauwkeurig geanalyseerd (H. 6). De conclusies (H. 8) rusten op drie ‘pilaren’: de analyse waarin de kern van de Centraal-Europese versnippering wordt beschreven (H. 5.5), de strategische weg van doelen en voorwaarden in beide regio’s (H. 6.6) en operationele overwegingen (H. 7).

De Centraal-Europese situatie

Als gevolg van het socialistiche bewind tussen 1945 en 1990 werden individueel eigendom en dito inkomsten in communale boerderijen ondergebracht zodat een gelijke verdeling van welvaart mogelijk werd. Er waren twee types van grootschalige productie-eenheden: collectieve boerderijen en staatsboerderijen. In tegenstelling tot de staatsbedrijven behelsde het optichten van collectieve bedrijven het overbrengen van slechts een deel van de individuele rechten van de burgers naar de boerderij; het recht
van gebruik en het recht van vervreemding. De werkrachten op het bedrijf ontvingen aan het eind van elk jaar een aandeel in de opbrengst naar rato van de ingebrachte productiemiddelen. Naast de grootschalige productie-eenheden, waar de eigenlijke productie plaatsvond, stonden alle landen toe dat werkers kleine percelen in eigen gebruik hadden. De staatsboerderijen, collectieve boerderijen en persoonlijke percelen waren feitelijk drie gradaties van overheidsregulering van de landbouw, die niet overal evenveel voorkwamen.

Hoewel het socialistische gedachtegoed van gelijke verdeelving van welvaart algemeen bekend is, bestaat er een aantal hardnekkige misverstanden. Privaat grondeigendom is, anders dan algemeen wordt aangenomen, nooit volledig verdwenen na 1945. Socialisme betekent een aanhoudende hervordering en heroverweging van eigendomsrechten, een proces dat in elk land anders verliep. Een groot deel van de grondeigenaren hebben juridisch gezien hun eigendom nooit verloren ondanks het collectieve beheer ervan. Een ander misverstand is dat collectieve landbouw overal hetzelfde was, maar in werkelijkheid voltrook zich de collectivisatie op behoorlijk verschillende manieren, in verschillende tempo’s en met verschillende gevolgen. En collectieve landbouw is evenmin een mislukking geweest; in sommige regio’s was het zeer succesvol en werd een groei bereikt die gelijk of hoger was dan in het Westen.

In de negentiende eeuw van de vorige eeuw heeft Centraal Europa omwending doorgemaakt van planeconomie naar markteconomie, wat onder andere de privatisering van landbouwgrond nodig maakte. In de meeste Centraal-Europese landen is ervoor gekozen om de collectief gebruikte grond te restitueren (het teruggeven van de grond aan de oorspronkelijke eigenaren). Een deel van het collectief gebruikte land in Hongarije en Roemenië werd gedistribueerd (als schadeloosstelling een alternatief perceel aanbieden). Staatsgrond werd doorgaans verpacht in afwachting van verkoop. Alleen in Hongarije is compensatie (het aanbieden van geld of waardepapieren als schadeloosstelling) toegestaan en wel op een deel van de staatsgrond.

Van groot belang voor de keus hoe te privatiseren was de juridische status van de grond bij de aanvang van de privatisering. Overal werd de collectieve grond die juridisch nog in privaat eigendom was teruggegeven. Eveneens belangrijk was de uitwerking van een mechanisme onder etnische groepen, hetgeen de Polen deed besluiten hun staatsboerderijen niet te restitueren. Verder kon, wanneer er sprake was van grootgrondbezit voorafgaand aan collectivisatie, de drang naar historische gerechtigheid overstemd worden door de roep om sociale rechtvaardigheid.

Het succes van het daadwerkelijk verruilen van grootschalig communaal boeren tegen kleinschalige individueel boeren blijkt hoger te zijn wanneer (1) collectief boeren een lage productiviteit had, (2) collectief boeren arbeidsintensief was, (3) een groot deel van de werkgelegenheid in de landbouw lag en (4) de kosten van het verlaten van het collectieve bedrijf laag waren.

De huidige versnippering is een direct gevolg van de privatisering. Voor een deel van de grond zijn de procedures nog niet afgerond. Volledige privatisering behelst het vaststellen van de geldigheid van een aanspraak op grond, het fysiek bepalen van welke
grond zal worden overgedragen en het overhandigen van een eigendoms certificaat. In
de cijfers die worden verstrekt omtrent de voortgang van privatisering wordt het
belang van de laatste stappen vaak niet onderkend.
Zoals gezegd is er binnen de regio nogal wat variatie in versnippering. Laten we als
indicatie eens kijken naar het aandeel privaat landgebruik. In Polen hebben private
boerderijen 76% van alle landbouwgrond in gebruik in bedrijven van gemiddeld 6.3 ha
(50% is kleiner dan 5 hectare). In Bulgarije is dit respectievelijk 53% en 1.48 ha (86%
kleiner dan 1 ha), in Roemenië 52% en 1.94 ha (40% kleiner dan 1 ha). De andere drie
landen wijken duidelijk af: slechts 17% van de Hongaarse landbouwgrond wordt door
private boeren gebruikt, en wel in eenheden van 0.81 ha (maar met 42% groter dan 10
ha) en in Tsjechië en Slowakije is het nog minder voorkomend.
Voordat we ons op de instrumenten richten, die een manier zijn om bedrijfsstructuren
teveranderen, is het van belang de mogelijkheid van spontane verbetering te
beschouwen. Spontane verbetering hangt af van de activiteit op de grondmarkt, en aan
ekleine percelen die door transacties in grotere percelen opgaan. Deze twee factoren zijn
teverwachten bij sterke economische groei en een liberale landbouwpolitiek, die geen
van beide in de nabije toekomst te verwachten zijn.

Instrumenten om versnippering te verminderen
Wanneer een overheid te maken heeft met versnippering en besluit om het te gaan
bestrijden zijn er twee strategieën beschikbaar. Een manier is het stimuleren van de
autonome krachten die versnippering verminderen. De tweede manier werd gedurende
de tweede helft van de vorige eeuw toegepast: het aanwenden van specifieke
beleidsinstrumenten. Voor een nadere beschouwing van die instrumenten is het
belangrijk te beseffen dat de West-Europese versnippering het gevolg was van
bevolkingsgroei en — afhankelijk van het erfrecht — het splitsen van boerderijen. Drie
instrumenten zijn gebruikt om versnippering te bestrijden: grondbanken,
hverkaveling en kavelruil.

Een boer die zijn bedrijf wil vergroten krijgt te maken met een basale beperking in het
agrarisch grondgebruik, namelijk dat elk bedrijf is ingesloten door andermans bezit.
Het feit dat land eindig is onderscheidt het van andere productiefactoren, evenals de
hoge transactiekosten. Dit probleem kan worden verholpen door een nieuwe speler op
de grondmarkt te introduceren; een eigenaar die graag zijn grond wil verde len onder de
omringende boeren. Zo een speler is een grondbank en kan een landbouwstructuur
instrument zijn.

De mogelijkheden voor het toepassen van grondbanken voor beleidsdoeleinden
hangen af van de mate van concentratie. Wanneer de te verdelen grond in grote
eenheden bijeen ligt zullen boeren er naar toe moeten verhuizen om ervan te kunnen
profiteren. Wanneer er echter sprake is van vele kleine clusters verspreid over het land
zal het eenvoudiger zijn om bestaande structuren te verbeteren.

Het tweede instrument is hverkaveling, wat in dit proefschrift moet worden opgevat
als een verzamelterm voor wettelijke instrumenten (onder andere ruilverkaveling) die
met instemming van de deelnemers het bestaande eigendom opnieuw ruimtelijk
rangschikken. Het is een projectmatige verbetering van alle fysische beperkingen voor landbouwkundige productie.
Hervorkavelingsprojecten betreffen doorgaans enige honderden deelnemers, hetgeen gehele heeft tot het definiëren van een meerderheid die een onwillige minderheid kan dwingen mee te werken voor de bestwil van het project als geheel. Het concept wordt al eeuwen gebruikt maar een wettelijke basis werd in de meeste landen pas rond 1900 gelegd. Aanvankelijk richtte dit instrument zich op de verhoging van agrarische productie maar overwegingen van natuur- en milieubescherming en plattelandsontwikkeling respectievelijk wonnen snel aan belang na 1945.
Kavelruil is de vrijwillige uitruil van percelen tussen drie of meer eigenaren, aldus resulterend in een verbeterde structuur, maar zonder aanpassingen van vorm en grootte. Een beperking voor de toepassing van dit instrument is de geringe complexiteit die het aankan. De Hongaarse wet op grond voorziet reeds expliciet in kavelruil.
Gevoelsmatig kan een aantal obstakels voor het toepassen van deze instrumenten worden opgesomd. Wellicht het meest opvallende verschil is de ongunstige economische situatie in Centraal Europa hetgeen de uitstoot van arbeid uit de landbouw verhindert. Eveneens zeer problematisch is het wijdverspreide fenomeen afwezige-eigenaren. Daarnaast is grondbesit een beladen onderwerp in tegenstelling tot de meer economische benadering die in West Europa overheers. Infrastructuur kan aanpassing vragen wanneer het landschap aan kleinere boerderijen plaats moet gaan bieden. En de onafgeronde privatisering, tenslotte, kan lokaal elke verandering in de juridische situatie blokkeren.
Er kunnen reeds pogingen en strategieën worden waargenomen in Centraal Europa die het de boeren mogelijk maken de versnippering het hoofd te bieden. Polen, Tsjechoë en Slowakije hebben een wettelijke ruilverkaveling, hoewel het aantal projecten bescheiden is. Van groot belang zijn de informele hervorkavelingen die op een kleine schaal gebruiksrechten herschikken op basis van jaarlijkse afspraken. Vooral in Roemenië en Bulgarije zijn deze informele verkavelingen populair.

Boerderijen en grond in Hongarije en Bulgarije
De Centraal-Europese case study landen zijn nader onderzocht, waarbij is geprobeerd te vermijden dat symptomen in plaats van de eigenlijke problemen de aandacht krijgen. Hongarije is het vlakkere land en de kleinste met meer inwoners dan Bulgarije. Bulgarije is warmer en droger.
De Hongaarse privatisering was een combinatie van uiteenlopende mechanismen die werden toegepast naar gelang het type claim. Het proces werd relatief snel afgerond, te weten halverwege 1994. Het totaal aantal grondeigenaren steeg explosief maar de grootschalige boerderijen bleven voor een groot deel bestaan, zij het na interne reorganisaties. Bulgarije daarentegen paste het privatiseringsproces meerder malen aan als gevolg van verkiezingen die de machtsverhoudingen steeds deden omkeren. Het proces werd traag, moeilijk te overzien en resulteerde en vele juridisch lastige zaken.
Akkerbouw en gemengd bedrijf overheersen in Hongarije. Hoewel 86% van het land in handen van privé personen is, wordt slechts 54% door private bedrijven bewerkt. Het verschil tussen eigendom en gebruik door particulieren is vooral groot in de grotere bedrijven (eenderde van de bedrijven is groter dan 100 ha) die talloze perceeltjes pachten en gebruiken als aaneengesloten eenheden. In de private landbouw is een positieve trend waar te nemen – zowel het totale oppervlak als de gemiddelde grootte groeit – evenwel slechts langzaam. De aanwezigheid van het grote aantal boerderijen kleiner dan 1 ha lijkt vooral een kwestie van statistische definitie. De Hongaarse plattelandbevolking is vergrijd en krampend.

Het meer zuidelijke klimaat van Bulgarije maakt de teelt van exotische gewassen mogelijk. De ontwikkelingen na 1990 leidden tot een plotselinge reductie in arbeidsintensieve activiteiten. Recente landbouwstatistieken maken geen onderscheid tussen bedrijven en private boeren. Er zijn wel positieve trends te ontdekken in laatstgenoemde groep. De vergrijzing en ontvolking op het Bulgaarse platteland is zorgelijk. De oorzaak voor deze processen ligt in de socialistische urbanisatiepolitiek. Aangezien een groot deel van Bulgaar slechts met irrigatie vruchtbaar is moeten watertoevoerende voorzieningen bij de reconstructie van het platteland in beschouwing genomen worden.

De beperkte gegevens over hoe versnippering de bedrijfsvoering op boerderijen beïnvloedt suggereren dat versnippering binnen Hongaarse private boerderijen niet ernstig is. Grote afstanden tussen percelen worden alleen door een deel van de grotere boeren als probleem ervaren. Pacht speelt een belangrijke rol onder private boeren, om gebruik percelen bijeen te leggen en om additioneel land aan te trekken. De wens om percelen bijeen te leggen is aanzienlijk onder Hongaarse respondenten maar ervaringen in het verleden waren niet altijd positief.

Ook in Bulgarije blijkt de versnippering binnen private boerderijen van ondergeschikt belang. Pacht speelt een belangrijke rol bij het vestigen van grote boerderijen. De pacht wordt nauwelijks geregistreerd en vaak betaald in natura. Diegenen die bijeenlegging van percelen wensen bereiken dit op een informele manier.

Het is moeilijk om een uitspraak te doen over de publieke aandacht die versnippering in deze landen ten deel valt. De afgenomen interviews wekten de indruk dat het op zowel de politieke als de wetenschappelijke agenda niet hoog geplaatst staat. Politici lijken beducht om hun vingers te branden aan het omstreden dossier van de grondeigendom. De allergie van de plattelandsbevolking omtrent herverkaveling lijkt te verminderen.

Het Hongaarse parlement heeft ingestemd met het opzetten van een grondbank. De operationele details daarvan zijn inmiddels in een speciale wet hun beslag gekregen. De angst voor een te grote invloed en misbruik van de grondbank heeft geleid tot een aantal waarborgen die zorgen dat de regie in handen blijft van de lokale bevolking en het parlement.

Hongarije heeft ook een herverkavelingspilot gehouden genaamd TAMA. Op vier locaties verspreid over het land werd herverkaveling met minimale dwang en maximale transparantie. Het bleek echter te ambitieus en de ontvloekende middelen – in termen

De tweeledige productiestructuur die we zien in beide landen valt samen met een tweeledig versnipperingsprobleem. Grote bedrijven hebben te lijden onder zowel de scheidung van eigendom en gebruik als versnippering binnen het bedrijf. De private bedrijven hebben primair hun geringe grootte als belemmering, waarvoor de groeiquote kan worden gevonden in de krimpende plattelandsbevolking, grondbanken en braakliggende grond. Het is frappant dat het meest versnipperde case study land de minste inspanningen in ruilverkavelingswegving heeft verricht.

De echte uitdaging voor Centraal Europa blijkt niet te zijn het bereiken van boerderijen met voldoende land en gunstige verkaveling, maar vooral stimuleren dat solide rechten op grond in handen van dergelijke boerderijen komen. De zeggenschap over de grond ligt nog bij de verkeerde partijen. De eerste prioriteit moet zijn grondtransacties mogelijk te maken en wel in de richting van de meest efficiënte gebruikers. Zo lang die rechten niet overgedragen worden zijn alle veranderingen in de landbouwkundige structuur symptoombestrijding.

De Westerse instrumenten in de praktijk.
Met betrekking tot de mogelijkheden van de Westerse instrumenten tegen versnippering is het relevant of de versnipperingsproblemen in West-Europa hetzelfde waren als in Centraal-Europa. Daarnaast zijn de voorwaarden voor een succesvolle toepassing van elk instrument essentieel voor de aansluiting van West-Europese aanpak en Centraal-Europese problematiek.
Beide West-Europese case study landen liggen in een gematigd klimaat. Beieren is tweemaal zo groot als Nederland maar, gezien het ongeveer gelijke aantal inwoners, beduidend minder dichtbevolkt. De opkomst van het grondbankieren ligt in de lijn van de naoorlogse VN-onderzoeken, waarin met name problemen omtrent bedrijfsgrootte voor het voeltlicht gebracht werden. In Nederland was het kleineboerenvertrouwstuk duidelijk onderwerp van debat. In Beieren lijkt dit publieke bewustzijn veel minder te zijn geweest. Een verklaring daarvoor ligt wellicht in het veelkomende nevenberoep, waardoor een beperkte bedrijfsgrootte minder bedreigend voor het gezinsinkomen is. Alleen in Nederland is een geconcentreerde grondbank actief geweest, waarbij poldergrond is ingezet om overbevolkte zandgronden te ontlasten. Diffuse
grondbankactiviteiten deden zich eveneens voor en waren ondergebracht in de Stichting Beheer Landbouwgronden. Het weer aanvullen van de reserves van de grondbank werd gestimuleerd door bedrijfsbeëindiging te subsidiëren. Grondbankieren werd door de tijd heen steeds multifunctioneler.

In vergelijking tot het Nederlandse grondbankieren, met een eigen budget en een duidelijke taak ter verbetering van de landbouwstructuur, is de Duitse praktijk veel minder gecentraliseerd en minder doelgericht. De Teilnehmergemeinschaft (lokale commissie) kan op lokaal niveau aankopen doen, vooral wanneer hoofdinfrastructuur ingepast moet worden. Daarnaast zijn er beleggers die grond aankopen en een speciale wet dwingt hen bij verkoop eerst geïnteresseerde boeren aan bod te laten komen. Ten derde zijn er ook speciale grondbedrijven die kunnen grondbankieren naast allerhande andere onroerendgoedactiviteiten. Laatstgenoemde waren betrokken bij het overdragen van een half miljoen hectare aan groeiende boeren in West-Duitsland.

Hoewel herverkaveling het meest dominante Westerse instrument was zijn er geen specifieke beleidsdocumenten te vinden die de noodzakelijk luidden omtrent versnipping binnen boerderijen. Herverkaveling was blijkbaar een pragmatisch antwoord op operationele beperkingen die groepen boeren aan de overheid voorlegden. Herverkaveling verbetert fysieke productieomstandigheden, vooral welke niet met individuele inspanningen behaald kunnen worden.

Het instrument sloeg echter aan in de vijftiger jaren toen er een sterk verbeterde wet beschikbaar kwam en het aantal aanvragen enorm toenam. Deze toename noopte tot een prioriteitschema. De eerste succesvolle decennia gingen gepaard met toenemend scepticisme over de negatieve weerslag op natuur en landschap en in 1985 kwam er een multifunctionele wet. Om de dominantie van de landbouwbelangen daadwerkelijk te breken werden gedurende de negentiger jaren opnieuw wijzigingen voorgesteld, ook wijzigingen ter verhoging van snelheid en kostenefficiëntie.


Een derde instrument is kavelruil. De oppervlakte die in Nederland via dit instrument werd verbeterd was maar klein vergeleken met ruilverkaveling. Toch blijkt het in een vraag te voldoen, gezien het feit dat er, nadat het in onbruik raakte door toenemende complexiteit en tijdsbeslag, een opvolger kwam die snel weer populair werd. Beierse activiteiten omtrent kavelruil waren eveneens beschiden in omvang, maar recentelijk is in beide landen een opleving te zien.

Boerderijverplaatsing is in belangrijke mate bepalend voor het effect wat ruilverkaveling kan bereiken. Het verplaatsen boerderijen uit verdichte clusters (waar een tekort aan land is) naar plaatsen waar genoeg land is. In de Nederlandse praktijk waren
boerderijverplaatsingen gewoonlijk vrijwillig en financieel ondersteund. Vele honderden boerderijen zijn verplaatst, meestal in ruilverkavelingsverband.

Zoals in Nederland herverkaveling en boerderijverplaatsing hand in hand gingen zien we in Duitsland een sterke gepaardheid met dorpsvernieuwing, hoewel dit niet in de wet is vastgelegd. Omdat in veel streken boerderijen geconcentreerd in dorpen bijeenliggen is dorpsvernieuwing cruciaal voor een gezonde landbouw.

De effecten van herverkaveling zijn direct (verbetering van fysieke productieomstandigheden) en indirect (verbeterde productie op de boerderij). In de literatuur wordt aan de directe effecten nauwelijks aandacht besteed. Duitse jaarverslagen laten echter zien dat herverkavelingen resulteren in gemiddeld driemaal grotere percelen. Aangezien de autonome ontwikkeling nauwelijks verbetering laat zien is er waarschijnlijk sprake van een tegengesteld proces. De directe effecten van Nederlandse projecten zijn ongeveer even groot. In gebieden die niet zijn herverkaveld is er ook een verbetering, maar die verloopt beduidend langzamer.

Bij het beschouwen van verbeteringen in de landbouwstructuur dienen we ons wel bewust te zijn dat de economische omstandigheden destijds een grote en snelle uitstoot van arbeid en de intree van mechanisatie mogelijk maakten.

Uit de vergelijking van de Westerse case study landen kan worden afgeleid dat West-Europa slecht twee van de vier onderscheiden types van versnippering hebben aangepakt, te weten de grootte van afzonderlijke boerderijen en versnippering binnen de boerderij. De eerste blijkt tevens een belangrijk Centraal-Europese probleem te zijn, terwijl de tweede daar van minder belang is. Met betrekking tot het tweede criterium, de randvoorwaarden voor het toepassen van een instrument, zien we dat vooral herverkaveling bots met de Centraal-Europese omstandigheden, met name de afwezige eigenaren. De randvoorwaarden voor grondbanken zijn aanwezig of maakbaar.

**Overwegingen van implementatie**

Tot nu toe is weinig gezegd over de keuzes en voorwaarden die nodig zijn voor het daadwerkelijk operationeel maken van een instrument. Hoewel de strategische analyse herverkaveling afwijst als oplossing voor de kern van het Centraal-Europese probleem wordt dit instrument hier toch besproken om redenen van regionale diversiteit en toekomstige ontwikkelingen.

Het transplanteren van instrumenten geeft specifieke moeilijkheden. Voor het aanpassen van een instrument aan de Centraal-Europese context is het nuttig om zoveel opties te kennen. Daarnaast moeten we ons bewust zijn hoe bestaande instrumenten door de lokale context gevormd zijn, want zo kunnen we tot een onderbouwde keuze uit een reeks van mogelijkheden komen. Daarom is vergelijkend onderzoek, lees: onderzoek waarin verschillen tussen uiteenlopende instrumenten worden verklaard, essentieel voor het transplanteren van instrumenten.

Helaas zijn er over diffuse grondbanken geen verhandelingen te vinden over de operationele aspecten. Over de Nederlandse geconcentreerde grondbanken echter is er
een uitgebreide operationele analyse beschikbaar die grotendeels voor diffuse grondbanken ook opgaat. Er moeten keuzes gemaakt worden omtrent:

- aan wie de grondbank percelen gaat uitgeven wanneer de vraag het aanbod overschrijdt. Door het vaststellen van criteria kan de positieve uitwerking gestuurd worden
- hoe kun je de krimpende grondbank weer aanvullen. Actieve maar vrijwillige verwerving was de regel in Nederland en Beieren, al dan niet ondersteund door financiële prikkels om verkoop van de grond te stimuleren
- welk landgebruik wordt gevestigd in de ruimte die de grondbank genereert. Naast verbetering van de landbouwstructuur kan het verstandig zijn ruimte te creëren voor infrastructuur, verwerkende industrie, stadsverbetering of natuurbouw
- hoe groot nieuwe boerderijen in een geconcentreerde grondbank moeten worden. Grote boerderijen kunnen economisch sterker zijn maar genereren relatief weinig werkgelegenheid; de vraag is welk belang zwaarder weegt
- in welke juridische vorm grond wordt uitgegeven: eigendom, pacht, staatsexploitatie of (een variant op) erfpacht

Voor hervarkaveling was een vergelijkende verklarende analyse mogelijk. De Nederlandse respectievelijk Beierse wetten van 1954 werden vergeleken. Een aantal verschillen werd als wezenlijk aangemerkt en redelijke verklaringen konden worden gevonden.

- de rechten van de Nederlandse pachters en eigenaren binnen een project zijn gelijk, dit in tegenstelling tot in Beieren. Dit kan verkiard worden door de aard van Nederlandse pacht, die zwaar beschermd en gereguleerd is, terwijl Duitse pacht gewoonlijk voor korte duur is een geen verdere beschermende rechten met zich meebrengt
- na een Nederlandse hervarkaveling worden alle rechten op land onherroepelijk hetgeen het de kwaliteit van het kadaster bevordert. Dit element ontbreekt in Beieren omdat het Duitse kadaster wettelijk reeds onaanvechtbaar is
- een reden voor de zeer participatieve besluitvorming tijdens hervarkavelingsprojecten in Beieren kan gevonden worden in de lange traditie van autoritaire regimes waaraan rond 1900 een einde kwam. Beierse projecten worden top-down in gang gezet maar worden uitgevoerd en gecorrigeerd door de deelnemers zelf. De Nederlandse projecten vangen pas na stemming aan, hetgeen als compensatie kan worden gezien voor de weinig participatieve uitvoering
- het toepassen van dorpsvernieuwing hangt samen met overheersende structuren in bebouwing; Nederlandse boerderijen liggen verspreid in het landschap zodat boerderijverplaatsing meer nodig is dan dorpsvernieuwing

Naast wetgeving zijn organisatie en financiering bepalend voor de effectiviteit van beleidsinstrumenten die versnippering verminderen. Elke Duitse deelstaat heeft een anders opgezette ruilverkavelingsorganisatie. Beieren heeft één hoofdkantoor en 7 relatief grote regionale kantoren (waardoor het mogelijk is elk regiokantoor van goede faciliteiten te voorzien) met sterk hiërarchische structuren. In de hoogtijdagen van de hervarkaveling in Nederland was het centrale orgaan een commissie waarin
Over het algemeen wordt een deel van de kosten door de overheid gedragen, hetgeen de daadkracht van het instrument vatbaar maakt voor politieke overwegingen. De uitgaven aan herverkaveling in Nederland blijken, afgezet tegen de staatsbegroting, niet systematisch hoger te zijn dan in Duitsland. Wel zijn Nederlandse projecten relatief duur, waar tegenover staat dat boeren hun bijdrage niet ineens hoeven te voldoen.

Conclusies en aanbevelingen

Uitgaande van de drie analyses die dit proefschrift ondersteunen moet het antwoord op de onderzoeksvraag zijn dat de West-Europese praktijk inderdaad een instrument verschaf dat effectief zou kunnen zijn in Centraal-Europa, en wel grondbanken. Herverkavelingen zal een groeiende vraag kunnen gaan bedienen wanneer grondbanken effectief zijn.
De voornaamste aanbeveling is derhalve dat de verbetering van de agrarische bedrijfsstructuur in Centraal-Europa het meest gebeurt bij de inzet van grondbanken. De toepassing van herverkavelingen moet worden beperkt tot regio’s waar privaat grondbesit overheerst, evenals interne fragmentatie; deze regio’s zullen in omvang en aantal gaan toenemen naarmate grondbanken effect sorteren. Nauwkeurigheid, betrouwbaarheid en transparantie moeten kenmerken zijn van de communicatie van beleidsmakers en de mensen die persoonlijk worden beïnvloed door de implementatie van beleid, want negatieve sentimenten kunnen zelfs de beste concepten verlammen.
Hoewel deze conclusie niet overeenstemt met de gangbare benadering – hetgeen wellicht veroorzaakt is door de meervoudige mening van het woord versnippering – kunnen er soortgelijke geluiden worden beluisterd in de literatuur.
Het lijkt interessant te onderzoeken wat de waarde van subtielere instrumenten zou kunnen zijn, zoals wettelijke uitbreidingen van de rechten op grond van groepen die ondersteund zouden moeten worden, of het veranderen van regels omtrent grondtransacties zodat de grondmarkt een gunstig effect op versnippering van landbouwgronden zal hebben. Hongarije heeft een dergelijk instrument reeds ingezet door familiebedrijven het rechte van eerste koop op grond te geven.
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## Appendices

### A. Interviewed experts

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<td>October 2, 2000</td>
<td>Mr. and Ms. Zrobec</td>
<td>Professors at Warmia and Masuria University, Olsztyn, Poland</td>
<td>Agricultural problems in Poland; problems for using the land funds in Western Poland</td>
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<td>October 3, 2000</td>
<td>Mr. Muszynski</td>
<td>Lecturer at Warmia and Masuria University, Olsztyn, Poland</td>
<td>Extensive Polish experience on land consolidation; current agricultural problems</td>
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<td>November 28, 2000</td>
<td>Mr. Franz Schlosser</td>
<td>Bavarian Flurbereinigungsmamt; chairman land consolidation projects</td>
<td>Post-war land consolidation; reason for democratic project management; visit to Untermettenbach, a recently completed project near Dachau Modern Bavarian land consolidation</td>
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<td>November 29, 2000</td>
<td>Mr. Rolf Meindl</td>
<td>Researcher TU Munich Library of faculty of Landentwicklung</td>
<td>Modern developments in Bavarian land consolidation</td>
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<td>Mr. Holger Magel</td>
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<td>March 19, 2001</td>
<td>Mr. Pokoly and Kecskes</td>
<td>Department of Lands and Mapping, Ministry of Agriculture, Budapest</td>
<td>Newly emerged farm structure; intention on land funds</td>
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<td>March 20, 2001</td>
<td>Ms. Judit Nyiri</td>
<td>College for Surveying and Land Management, Székesfehérvár</td>
<td>Psychological obstacles to parcel exchange; operation of Hungarian cadastral Policy on farming</td>
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<td>Ms. Detti Csonka</td>
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<td>March 21, 2001</td>
<td>Mr. Ferenc</td>
<td>Parcella-project European Delegation</td>
<td>Political burden of agriculture; new emerged farm structure; changed export position; backlog land registry; use of land funds</td>
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<td>Mr. Erik Papp</td>
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<td>Knowledge of designing reallocation plans; development of land registry</td>
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<td>March 22, 2001</td>
<td>Mr. Gabor</td>
<td>Agriculture attaché Dutch Embassy</td>
<td>Restrictions on land market; subsistence farming; political obstructions to acts on land consolidation; social side of problems in agriculture</td>
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**Bulgaria**

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<td>March 18, 2002</td>
<td>Mr. Andonov</td>
<td>Assoc. Professor University of Architecture, Civil Engineering and Geodesy</td>
<td>Bulgarian education in land consolidation</td>
</tr>
<tr>
<td></td>
<td>Mr. Kasabov</td>
<td>Director Dept. Information Technology, Ministry of Agriculture</td>
<td>Governmental efforts for starting pilot projects; public opinion on improving parcelling</td>
</tr>
<tr>
<td>March 19, 2002</td>
<td>Ms. Monica Hristova</td>
<td>Senior Researcher at the Institute of Agrarian Economics</td>
<td>Regional Development plan; most interesting regions for visiting</td>
</tr>
<tr>
<td></td>
<td>Ms. Diana Kopeva</td>
<td>Senior Economist, Institute for Market Economics, Sofia</td>
<td>Restitution mechanisms; not-registered land use and tenancy; land market; misunderstandings on</td>
</tr>
<tr>
<td>Date</td>
<td>Person(s)</td>
<td>Affiliation</td>
<td>Conversation subjects</td>
</tr>
<tr>
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</tr>
<tr>
<td>March 20, 2002</td>
<td>Ms. Barbara Henkes</td>
<td>Golden Struma foundation</td>
<td>land value among land owners; use of land funds; simple land consolidation project needed; land tax</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sandanski Land Office</td>
<td>Visit to Sandanski region</td>
</tr>
<tr>
<td>March 21, 2002</td>
<td>Ms. Ilieva</td>
<td>Assoc. Professor Geography at Bulgarian Academy of Sciences</td>
<td>Fragmentation; land registry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Geography of Bulgaria</td>
</tr>
<tr>
<td></td>
<td>Mr. Gegov</td>
<td>Sector head of Dpt. of Cadastre and Geodesy, Ministry of regional development and public works</td>
<td>Relevant differences between Bulgaria and the Netherlands; position of cadastre; land tax; physical planning; value of foreign advise</td>
</tr>
</tbody>
</table>
B. Munich Statement

The Munich Statement
on land consolidation as a tool
for rural development in CEE/CIS countries

Who we are
We, representatives of civil society, governments, academic and research institutions from 23 countries as well as representatives from international organizations concerned with land fragmentation and its consequences for rural development in countries of Central and Eastern Europe (CEE) and of the Commonwealth of Independent States (CIS), have come together in Munich, Germany, from February 25-28, 2002, to discuss these issues, to express our concerns and to develop solutions to it.
In doing so, we drew on the foundations laid by previous initiatives including the Vienna Conferences on the Development and Maintenance of Property Rights in CEEC (1999, 2000), the Potsdam Rural 21 Conference (2001), and the Bonn Conference on Land Access (2001).

Expressing Our Basic Concerns
We have examined the different experiences and perspectives of land fragmentation in CEE and CIS countries. Notwithstanding the remarkable success of the land reform process, land fragmentation exists as a side effect with detrimental implications for private and public investments, sustainable economic growth and social development, and natural resources. Less-favoured and least developed regions with economies still depending on agriculture have witnessed negative growth rates, soaring unemployment, increasing rural poverty and as a result, serious social and economic disintegration and wide-spread disappointment among local actors and stakeholders.
The agricultural sector is adversely affected by land fragmentation. Although the experiences of land tenure and its reforms varied widely across the region, the countries of Albania, Armenia, Bulgaria, Czech Republic, Croatia, Georgia, Hungary, Latvia, Lithuania, Romania, Slovak Republic, Slovenia, and Yugoslavia share the concern that the majority of farms are small (1-2.5 ha), and are frequently divided into many parcels which are often badly shaped for agricultural purposes. As a result, it is difficult for farmers to implement new production patterns, and to utilise machinery and appropriate technologies. Most private farmers are restricted to subsistence agriculture and cannot participate in commercial production, which leads to migration and the abandonment of farmland, especially in areas distant to markets.
The small and fragmented parcels, sometimes scattered over different political, juridical and administrative boundaries obstruct spatial/territorial planning especially in terms of land administration, land use planning, and land management. This hampers the implementation of rural regional development policies, strategies, programmes, and projects aimed to improve rural livelihoods.

Land consolidation: a gate towards sustainable rural development
A main objective of land consolidation is to improve the land holdings of farmers by concentrating their farms in as few parcels as possible, and to support the farms with roads and infrastructure when needed. Protecting the environment and fostering better livelihoods
in rural communities have become increasingly important elements in land consolidation. Land consolidation can be carried out in a variety of forms, ranging from the simple reorganization of farmlands to comprehensive rural development projects including community renewal. These interventions can enable rural areas to develop as multifaceted areas for living as well as for economic and cultural activities. As such, land consolidation can play a major role in guaranteeing food security, alleviating poverty and achieving a sustainable rural development.

Executed properly, land consolidation contributes to improvements in the productivity, efficiency, and competitiveness of the agricultural sector. It secures jobs in rural areas. It leads to better land use planning and land management. It facilitates private and public investment in rural space. It supports environmental protection and natural resource management if it is done in a comprehensive way. Otherwise, effects of land consolidation might be negative. Experiences from Western European countries show that land consolidation which solely focuses on increases in productivity without taking into consideration ecological or cultural aspects easily leads to a loss in biodiversity, erosion and/or the destruction of the landscape. Land consolidation should therefore be included within broader rural development programmes including regional planning, village renewal and provision of rural infrastructure. Land consolidation is a proven instrument for agricultural and rural development in western European countries. The new European Union policy for rural development (Agenda 2000) recognizes prominently land consolidation (re-parcelling), with village renewal, as a key component of EU instruments such as SAPARD, LEADER+. All these countries have institutions, legislation in place.

Guiding Principles for Land Consolidation

Each country in transition must identify its own solution for land fragmentation, taking advantage of lessons learned in western European countries as well as other CEE countries. While each country must find its own way, there are some common guiding principles. The application of land consolidation should be seen in the framework of an overall agricultural and rural development policy, and as an essential tool within a range of instruments to achieve sustainable rural development.

There needs to be good governance and the development of required institutions. Civil society needs scope for participation and assumption of responsibility. Policy formulation as well as legislative and implementing procedures must ensure the effective and equitable participation of all stakeholders and beneficiaries. Government agencies should accept citizens as partners. Land consolidation has to be participatory, democratic and community driven, which requires the creation of an enabling environment to allow all stakeholders to participate actively, and to assume responsibility. The focus is on rural livelihood rather than on primary production of food staples. The community defines new usage of its resources and re-organises its parcels accordingly. Existing informal land consolidation practices should be integrated.

The level and standards of technologies and procedures should be adapted to the financial situation, institutional capacity etc. and allow a reasonable balance between costs and benefits. Methodologies should introduce savings in costs and time by using simple and advanced tools and methods (GIS, RS, Spatial Data Infrastructure, etc) as appropriate. Land consolidation requires a comprehensive, multi-disciplinary, cross-sector approach, integrating elements of rural-regional development including rural-urban links. It has to consider geographical and cultural differences and tailor-made practices should be
implemented. Local area development plans and land use plans should form a basis of land consolidation. There should be development of required skills and expertise in countries. Pre-conditions should be identified and satisfied. These include a functioning land registration system, the necessary legal basis, and operational land administration structures. It also should be taken into consideration that there is an interdependency of land consolidation and land markets. Countries still in the process of land privatisation should ensure that future privatisation projects are designed so they do not cause problems of land fragmentation.

It is recommended that:

- CEE and CIS countries should include land consolidation as an essential instrument for rural development within rural and agricultural sector development programmes including the allocation of resources.
- CEE and CIS countries, with the assistance of the development community, should create an enabling environment to strengthen their capacity to design and implement land consolidation projects.
- Further research should be carried out in areas where the implications and repercussions of land fragmentation has not yet been assessed (e.g., in forest areas, water systems, bio-diversity) and should include a comprehensive analysis of costs and benefits (financial, social, technical).
- The existing cooperation between CEE and CIS countries, national and international development agencies, professional associations, NGOs, private sector, and universities be broadened and strengthened.
- Relevant information on land consolidation from individual countries should be made more easily available to others.
- Land consolidation guidelines be prepared.
- CEE and CIS countries should implement pilot projects.
- Based on the experiences of pilot projects and other lessons learned, CEE and CIS countries should develop and implement appropriate legislation, institutions and technical procedures for undertaking land consolidation.
- Land consolidation should be an essential part of on-going programmes, including pre-accession programmes for EU candidate countries such as SAPARD.
- Bilateral and multilateral donor agencies should give due consideration to land consolidation in their financial and technical cooperation projects for CEE and CIS countries.

We, the participants of the Munich Symposium, call upon the European Union, FAO, GTZ, the World Bank, and other international organizations, as well as the countries in the CEE/CIS region, to take due notice of the above recommendations, and implement them accordingly in their programmes and activities.

Munich February 28th, 2002
C. International differences in land consolidation procedures

Differences in procedure: initiative
In the great majority of countries covered by Meuser (1992), the interested parties may
themselves take the initiative in view of consolidation. In Denmark, moreover, the operation
may be undertaken only if at least one landowner has so requested. In other countries,
requests of interested parties may be exercised along with the initiative of agricultural
associations, local government or the ex officio decisions of the competent authorities.
In Belgium, three owners or tenants, without regard to the area, may request consolidation.
After investigation of the desirability of the operation – investigation which may also have
been ordered on the authorities own initiative – the proposal to proceed is submitted
separately to a vote of the owners and usufructuaries and to a vote of the tenants. The
proposal is accepted if it is approved by a majority, both personal and in respect of areas,
in each of these groups. If the double majority is attained only in one group, the authorities may
order consolidation notwithstanding if the public interest so requires.
In Switzerland, one or more owners may take the initiative for a consolidation. The operation
becomes mandatory when it has been assented to by the majority of the owners owning at
least one half of the land area to be consolidated.
In several countries, the coercive character of consolidation plans approved by a majority of
the parties concerned is strengthened by a special provision. Parties concerned who abstain
from voting on the decision are presumed to be in its favour. This rule exists in the legislation
of Belgium, the Netherlands (until 1974) and Switzerland. The contrary applies in Sweden.
In France, the prefect appoints the communities were consolidation will be prepared. A
infrastructure related consolidation raises the priorities. Then a survey takes place, assessing
the use of land consolidation in the specific area. The prefect again can order establishment of
the land consolidation measures. At the same time the nature and size of the measurements
are stipulated.

<table>
<thead>
<tr>
<th>Country</th>
<th>The first step: application by interested parties or the initiative of an authority</th>
<th>Decision upon voting</th>
<th>Decision upon authority (compulsory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>At the request of 1/3 of the landowners, representing at least half of the value of the estates, or at the request of 50 per cent of the landowners.</td>
<td></td>
<td>Is possible, but very seldom applied.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Three owners or operators or a public body</td>
<td>Landowners and usufructuaries vote in one group and the operators in another. In both groups a majority by the number of heads and by the area is required.</td>
<td>If only one group has voted for the project the King can decide upon its execution if 25% of the other group voted for the consolidation.</td>
</tr>
<tr>
<td>Denmark</td>
<td>One landowner</td>
<td>Mostly voluntarily; after consent to the project of 0 per cent of the owners, representing 2/3 of the area, the government can decide upon execution.</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>The first step: application by interested parties or the initiative of an authority</td>
<td>Decision upon voting</td>
<td>Decision upon authority (compulsory)</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------------------</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>France*</td>
<td>Prefect places community at land consolidation scheme</td>
<td></td>
<td>Prefect decides</td>
</tr>
<tr>
<td>Germany*</td>
<td>Higher land consolidation authority itself applies</td>
<td></td>
<td>Higher land consolidation authority decides</td>
</tr>
<tr>
<td>Ireland</td>
<td>One or more landowners or the Land Commission</td>
<td></td>
<td>Decision by the Land Commission</td>
</tr>
<tr>
<td>Italy</td>
<td>Land owners or by public body</td>
<td></td>
<td>Is applied</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Landowners, or companies or foundations working in agriculture, or the government or other authorities</td>
<td>A majority among the owners, either by the number of heads, or by the area</td>
<td>Decision by the Minister of agriculture if at least ⅓ of the majorities have given their consent</td>
</tr>
<tr>
<td>Norway</td>
<td>One land owner, land owning authorities¹</td>
<td></td>
<td>The Land consolidation Court decides</td>
</tr>
<tr>
<td>Spain</td>
<td>Most 60 percent of the land owners, representing 60 percent of the area</td>
<td></td>
<td>Minister of agriculture</td>
</tr>
<tr>
<td>Sweden</td>
<td>One landowner</td>
<td>Majority by the number of heads and by the taxation value</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td></td>
<td>Majority by the number of heads and by the area</td>
<td></td>
</tr>
</tbody>
</table>

Table 33: The inauguration of a land consolidation project. Source: ILRI (1959), where necessary and possible updated or completed by* Meuser (1992)

Differences in procedure: voluntary versus obligatory

The choice between the voluntary and compulsory method can be considered as a fundamental issue. The decision must be made on the basis of the historical and social background of the country and must take into account both the need for speeded action and the wish to keep compulsion at a minimum.

The common attitude is that a land consolidation project should not be started until a considerable part of the participants are in favour of the project legislative. Administrative approaches therefore should comprise preliminary steps, which secure that the policy of the authorities will be carried out by the greatest possible sector of the village population.

Even in very individualistic orientated countries, such as France, compulsory action is to some extent part of the procedure. In the Netherlands and Switzerland where the execution of a project dependent on the consent of the participating owners absence is construed as consent to consolidations procedures. This provision has done much to reduce the need for compulsory action.

In some countries, as for instance Denmark, Norway and Sweden, land consolidation procedures can only be initiated upon application from a land owner in the area, in Denmark subject to a positive vote of a majority of the owners controlling 2/3 of the land. The final decision is then made by the consolidation authorities. In Sweden a majority both in terms of
participants and of tax values is required for the execution of the scheme. In Norway the
decision is not voted but is made by the Land Consolidation Court.
Both Belgium and the Netherlands recognise the need (a) for initiative to be taken by the
owner or by agricultural associations or (b) for initiative taken by governmental bodies.
In the Netherlands, if public interest requires the execution, the Minister of Agriculture can
order the project to be carried out if at least ¾ of the majorities mentioned above have
approved the project.
In Germany and France land consolidation is inaugurated by a public body which will act
mostly upon application from land owners or from an association of landowners. In Ireland
land consolidation schemes are initiated, prepared and implemented by the Land Commission,
which alone is responsible for the administration of the Land Settlement Programme.

**Differences in procedure: determining of rights and valuation**

Determining rights over properties subject to consolidation is an operation of the utmost
importance. Consolidation is a land exchange operation. Most legislative systems provide that
the interested parties must, in principle, receive after reallocation, land equivalent to that
which they have brought into the project after various factors have been taken into account.
The proper valuation of land is therefore an essential operation, which takes on even more
importance when farm resettlement is undertaken simultaneously with consolidation.
In Austria and Germany, land values are determined by experts, designated by the
consolidation authorities, after the Body of Participants has been heard. In the Netherlands,
the local consolidation commission names experts who determine land values, working in
teams each containing an odd number of members. In Denmark, valuations are made by
experts appointed by the committee of owners, under the direction of a land inspector. In
Sweden, the classification of land is the responsibility of the official Land Survey Service. In
Belgium, properties are classified by the consolidation committee; assisted by an advisory
commission. In Spain, land valuation is carried out by a working party of the local
consolidation commission. In France, land categories are determined by the communal
commission.

In general, the value is computed on the basis of the productivity of the land.

**Differences in procedure: financing**

Costs for land consolidation can be divided into (1) the money paid for the procedure (2) for
acquisition of land and (3) for the work involved. In all cases, part of the costs is subsidised,
but the type of costs and the subsidising rates differ. The rest of the costs have to be borne by
the participants, and the government can provide in beneficial paying arrangements.
In the Netherlands and Spain all costs are pre-financed by the government; on a later moment
the participants have to refund a small part of it. In Denmark the government usually bears
the administrative and technical costs of land reallocations and normally finances and
subsidises the costs of land improvement and road construction, etcetera. Sweden again has a
different approach. The tariffs for surveying and other Government services are reduced
below cost price and can in special circumstances be publicly defrayed in its entirety. All other
costs are divided between the participants and are collected by their own executive
representative. In Switzerland, federal and cantonal contributions are granted to cover a
considerable part of the costs of the consolidation operation. The remainder is financed by
loans.
D. Central European land markets

Agricultural economists tend to give little attention to land consolidation, considering the absence of the issue in their journals. There is a widespread opinion that fragmentation will eventually be solved by the market mechanism. Indeed, land markets are an essential requirement for successful farming; with the lease and sale of land, historically established farm boundaries may change and farms can be expanded to reach their optimum size (Schulze, 2000). However, the ongoing application of land consolidation in almost all Western European countries proves that a land market cannot guarantee an optimal ownership distribution. Even in developed economies, land markets are not fully transparent, transaction costs are high and the exclusive and by definition limited nature of land blocks the creation of optimal distribution by 'the invisible hand'. For reform countries (for Latin America, see Vogelgesang, 1998), like the countries in Central Europe, these drawbacks are even more important.

Land markets are currently ill developed in Central Europe. The table gives a number of indicators on the land market in Central Europe. The type of enterprise gives a clue on the tenancy market. Family farms with privately owned land generally lease relatively little land, whereas partnerships with privately owned land lease most of their land.

What is more important, there are only few transactions, as compared to Western market democracies. Empirical evidence by Dale and Baldwin (2000) suggests that there is a direct correlation between progress in the transition towards market economy and the level of market activity although the performance is much stronger in urban than in rural areas. Also, in general, reforms have progressed fastest in the land registration and cadastres and less quickly in valuation and financial services. The figures on the actual amount of transactions show that even if the necessary institutional framework has been created, this will not always result in a rapid development of land and tenancy markets.

There are three reasons for that. The first reason is the unprofitable macro-economic conditions in agriculture. This makes that on the one hand farmers lack the resources to buy any land. Credits are hardly affordable (Polish interest rates on loans are about 40% a year). On the other hand, the lack of employment possibilities outside agriculture prevents small farmers to sell their land because the land is their only security of living. Also, people hold on to the land because its importance as worth-stable capital. The expected value-raise at EU-accession (which for other real estate is proved false by Sanderson and Battle, 2001) stimulates this behaviour.

Secondly, when land registration is expensive, landowners can refrain from registering. The ownership structure remains unclear, and a land market is hard to establish. Thus, the ownership of land does not change very much. The plots that do change owners are mainly located near cities or in recreational areas, a location contributing to expectations of high rise in value (Trivelli, 1997).

The third reason is the government, disturbing the land market with regulations, inhibiting a free land market to evolve. Government action can also be price disturbing, like in Poland, where millions of hectares are on sale, leading to a depression of land prices. The FAO legal papers online give an overview of all limitation on land ownership in Central Europe. Although these limitation are constantly shifting, this momentary recording is typical to the Central European land market.
• The Bulgarian Article 5 (1) of the Encouragement and Protection of Foreign Investments Act allows foreign persons to acquire ownership rights in buildings as well as other real property rights, but not the ownership of land. However, foreigners can acquire use rights. Also, these limitations do not apply to Bulgarian partnerships or companies with foreign participation, or to companies with majority foreign ownership registered in Bulgaria. Recent changes allow such entities even to purchase agricultural land.

• Section 17 of the Czech Foreign Currency Act establishes limitations on foreign ownership of 'immovables' (for instance land). The law distinguishes between "foreign exchange foreigners" and "foreign exchange nationals". The latter (Czech registered companies and permanently resident individuals) can freely rent and buy land but "foreign exchange foreigners" can only acquire land in limited circumstances such as inheritance or restitution. Czech companies with foreign participators may have to pay a higher price. Among the exceptions are that foreigners and foreign companies may only acquire land through inheritance; as part of a diplomatic mission; or, rather uniquely, for a foreign spouse in the joint acquisition of property where the other spouse is a Czech national.

• In Hungary, under the Land Law (Act VI of 1994) foreigners may acquire land, except agricultural land, with the permission of the Ministry of Finance according to set criteria, though a resident foreigner with a Hungarian ID card does not require such permission. Purchase of land by foreigners is limited to 6,000 square meters; leases may be granted for 10 years for up to 300 hectares. A Hungarian company with foreign participation can own land with the prior permission of the Ministry of Finance. Generally no permission is needed for tenancy. The Land Law prohibits foreigners from purchasing agricultural land, due to concerns about foreigners taking excessive control over agriculture. Efforts to liberalise restrictions on arable land ownership were derailed – at least temporarily – in 1997.

• In Poland, foreign individuals and companies registered abroad or controlled by foreigners can buy land with the permission of the Minister of Internal Affairs and, depending on the location of the land, consent of the Ministers of Defence and Agriculture. Applicants are required: to prove their ties with Poland (not a formal requirement); that they are licensed to do business in Poland; and the acquisition of the property must be justified by "actual needs". Under liberalised requirements passed in 1996, foreign individuals and firms may

<table>
<thead>
<tr>
<th>Common type of enterprise</th>
<th>Common type of ownership</th>
<th>Purchase of land by non-nationals</th>
<th>Lease to non-nationals</th>
<th>Land transactions (% of AA)</th>
<th>Area leased (AA)</th>
<th>Land market indicator score according</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>family farm</td>
<td>private</td>
<td>-</td>
<td>+</td>
<td>ca. 0</td>
<td>70-80</td>
</tr>
<tr>
<td>Hungary</td>
<td>family farm</td>
<td>private</td>
<td>-</td>
<td>-</td>
<td>no data</td>
<td>&gt;70</td>
</tr>
<tr>
<td>Poland</td>
<td>family farm</td>
<td>private</td>
<td>+</td>
<td>-</td>
<td>1.67</td>
<td>20</td>
</tr>
<tr>
<td>Romania</td>
<td>family farm</td>
<td>private</td>
<td>-</td>
<td>-</td>
<td>0.089</td>
<td>7</td>
</tr>
<tr>
<td>Slovakia</td>
<td>partnership</td>
<td>private</td>
<td>+</td>
<td>-</td>
<td>0.29</td>
<td>&gt;96</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>partnership</td>
<td>private</td>
<td>+</td>
<td>-</td>
<td>0.21</td>
<td>ca. 90</td>
</tr>
</tbody>
</table>

Table 34: A number of indicators of the land market. Note: AA means all agricultural land.
Source: Schulze (2000), unless indicated differently

* Dale and Baldwin (2000), on a scale 0 (command economy) to 5 (market economy, EU)

** Heidhues and Schreider (2000), on a scale 1 (centrally planned economy) to 10 (completed market reforms)
own an apartment, 0.4 hectares of urban land or up to one hectare of agricultural land without the need for a permit. These provisions are independent of the special regime in place for EU companies.

For Romania, in April 1997 Law 35/1991 was modified to clearly stipulate that a Romanian legal entity with partial or total foreign capital can acquire ownership over land. Under the Foreign Exchange Act, only Slovak legal persons may own real estate, though foreign persons or business entities may own real estate through establishment of a legally registered Slovak company.
## Tables on polder farm distribution

<table>
<thead>
<tr>
<th>Polder</th>
<th>Number</th>
<th>Number of farms</th>
<th>% of farms</th>
<th>Average size</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wieringermeer</td>
<td></td>
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<tr>
<td>Private farms</td>
<td>513</td>
<td></td>
<td>23% &lt; 15 ha</td>
<td>32 ha</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>23% ranging from 15 to 30 ha</td>
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<td></td>
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<td></td>
<td>18% ranging from 30 to 40 ha</td>
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<td></td>
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<td></td>
<td>23% ranging from 40 to 50 ha</td>
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<td></td>
<td></td>
<td></td>
<td>12% &gt; 50 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Noordoostpolder</td>
<td></td>
<td></td>
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<tr>
<td>Private farms</td>
<td>1801</td>
<td></td>
<td>10% measured 7 ha</td>
<td>25 ha</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>20% was 12 ha; 11% was 18 ha</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>34% was 24 ha; 7% was 30 ha</td>
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<td></td>
<td></td>
<td></td>
<td>7% was 36 ha; 2% was 42 ha</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>9% was 48 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>71</td>
<td></td>
<td></td>
<td>28 ha</td>
<td></td>
</tr>
<tr>
<td>Eastern Flevoland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private farms</td>
<td>777</td>
<td></td>
<td>11% &lt; 30 ha</td>
<td>41 ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>61% 30-50 ha</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>23% 50-70 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5% &gt;70 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southern Flevoland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private farms</td>
<td>137</td>
<td></td>
<td>8% &lt; 25 ha (orchards)</td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26% 25-45 ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>69% 45-65 ha (mainly arable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4% &gt;65 ha (all arable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State farms</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 35: Farm structure of each polder, shortly after all land was distributed.*

*Source: Schimmel (1987)*
<table>
<thead>
<tr>
<th>Applicants per advertised farm on average</th>
<th>Participants in land consolidation schemes</th>
<th>Those that suffered damage</th>
<th>Those without a special reason</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Applications</td>
<td>Sustained</td>
<td>Applications</td>
</tr>
<tr>
<td>1963</td>
<td>11.0</td>
<td>339</td>
<td>64</td>
</tr>
<tr>
<td>1964</td>
<td>20.4</td>
<td>273</td>
<td>45</td>
</tr>
<tr>
<td>1965</td>
<td>17.4</td>
<td>123</td>
<td>41</td>
</tr>
<tr>
<td>1966</td>
<td>20.9</td>
<td>234</td>
<td>34</td>
</tr>
<tr>
<td>1967</td>
<td>20.7</td>
<td>239</td>
<td>31</td>
</tr>
<tr>
<td>1968</td>
<td>23.4</td>
<td>269</td>
<td>28</td>
</tr>
<tr>
<td>1969</td>
<td>21.4</td>
<td>292</td>
<td>29</td>
</tr>
<tr>
<td>1970</td>
<td>23.7</td>
<td>160</td>
<td>15</td>
</tr>
<tr>
<td>1971</td>
<td>21.6</td>
<td>142</td>
<td>14</td>
</tr>
<tr>
<td>1972</td>
<td>19.8</td>
<td>67</td>
<td>13</td>
</tr>
<tr>
<td>1973</td>
<td>29.7</td>
<td>143</td>
<td>10</td>
</tr>
<tr>
<td>1974</td>
<td>27.0</td>
<td>182</td>
<td>12</td>
</tr>
<tr>
<td>1975</td>
<td>28.8</td>
<td>144</td>
<td>11</td>
</tr>
<tr>
<td>1976</td>
<td>33.4</td>
<td>124</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18.4</strong></td>
<td><strong>2,731</strong></td>
<td><strong>370</strong></td>
</tr>
<tr>
<td><strong>%</strong></td>
<td><strong>18.1</strong></td>
<td><strong>50</strong></td>
<td><strong>14.8</strong></td>
</tr>
</tbody>
</table>

Table 36: Interest in Eastern Flevoland farms and the actual annual distribution of farms. The interest is calculated per farm that was announced for distribution, a number that deviates from the actual distributed numbers. Source: Van Dijk (1979)
F. Procedural changes through time

Land consolidation is executed according to a procedure that is laid down in a special law. The procedure secures the interests of participants (their rights and duties throughout the phases of the project) and the bodies and agencies involved. Section 6.2 demonstrates the dynamics in goals of land consolidation. This appendix elaborates on the changes of the Dutch and Bavarian procedures in particular. The procedures contain the operational details of land consolidation. As it turns out, the concept of land consolidation is a framework within which the details can have various guises.

Changes in Dutch legislation

Table 37 gives an overview of the successive Dutch Land Consolidation Laws and their approximate content. Land consolidation by law in the Netherlands started in 1924. Later than in most neighbouring countries, a Land Consolidation Act was adopted. This first law stipulated that a request for land consolidation had to be supported by a quarter of the landowners. For the final decision on the execution of the project a double majority was needed: half of the landowners had to vote in favour and those in favour had to represent half the project area. Participants, who refrained from voting, were counted as being in favour. Under this first Law, very little projects were executed. Between 1924 and 1936, only 36

<table>
<thead>
<tr>
<th></th>
<th>Request</th>
<th>Decision</th>
<th>Costs</th>
<th>Tenants rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924 Law</td>
<td>25% of owners</td>
<td>Double majority</td>
<td>All costs paid by owners in 10 annual instalments</td>
<td>Tenancy is reallocated with ownership</td>
</tr>
<tr>
<td>1937 Tenancy Law</td>
<td>Tenancy rights had to be in writing and the agreement could not be dissolved suddenly</td>
<td>20% of owners, agricultural interest organisations, bodies of public right</td>
<td>Overhead costs paid by state. Subsidy on construction work. Rest in 30 instalments or in land</td>
<td>Unchanged</td>
</tr>
<tr>
<td>1938 Law</td>
<td>20% of owners, agricultural interest organisations, bodies of public right</td>
<td>Single majority</td>
<td>Overhead costs paid by state. Subsidy on construction work. Rest in 30 instalments or in land</td>
<td>Unchanged</td>
</tr>
<tr>
<td>1941 revision</td>
<td>The discount is allowed to exceed 5% under special circumstances</td>
<td>Unchanged</td>
<td>Number of subsidy arrangements increased</td>
<td>Considerations of tenancy and ownership are equally important</td>
</tr>
<tr>
<td>1954 Law</td>
<td>Unchanged</td>
<td>Unchanged</td>
<td>Number of subsidy arrangements increased</td>
<td>Considerations of tenancy and ownership are equally important</td>
</tr>
<tr>
<td>1975 revision</td>
<td>Tenants receive the right to vote Non-voters no longer are pro-voters</td>
<td>Unchanged</td>
<td>Number of subsidy arrangements increased</td>
<td>Considerations of tenancy and ownership are equally important</td>
</tr>
<tr>
<td>1985 Law</td>
<td>Land consolidation was no longer an autonomous instrument, but subject to considerations of spatial policy.</td>
<td>Unchanged</td>
<td>Number of subsidy arrangements increased</td>
<td>Considerations of tenancy and ownership are equally important</td>
</tr>
</tbody>
</table>

Table 37: Developments in land consolidation legislation.
Sources: Krumbeen (1951) and Greve (1981)
requests were filed for only 12,000 hectare, from which 2,500 hectares were never executed because they were voted against.

The double-majority rule was not changed until a new Land Consolidation Act came into place in 1938. From then on, half of the owners of owners representing half the project area had to vote in favour. In addition, the 1938 revision of the Land Consolidation Law meant that demands from then on could not only be filed by farmers (with a minimum of one-fifth of all owners), but also by interest organisations, municipalities, Water Management Boards and other institutions. However, economic recession and wartime inhibited a real boom in requests.

A turning point for the success of land consolidation was the introduction of the new Land Consolidation Act in 1954, that coincided with strong economic growth. The most important changes were (Van der Wulp, 1967; Greve, 1988):

- a subsidy for reallocated farm buildings (for details see section 6.4),
- land consolidation was going to include more physical measures (road reconstruction, water management like drainage)
- a subsidy for farm termination. Little farmers could get a fair price for their land when selling to the state department (for details, see section 6.1),
- a maximum of 5% of the land could be transferred for public use
- considerations of tenancy were given equal weight as considerations of ownership. In other words, the Dutch consolidated land use and not land ownership.

Under these conditions, the number of requests practically exploded (Figure 29) and a high and stable acreage became subject to land consolidation projects. The resistance, expressed in the number of projects voted against, diminished.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Settlement in court</th>
<th>Sustained</th>
<th>Partially sustained</th>
<th>Denied</th>
</tr>
</thead>
<tbody>
<tr>
<td>First valuation</td>
<td>69</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td>Parcelling plan</td>
<td>269</td>
<td>15</td>
<td>20</td>
<td>6</td>
<td>228</td>
</tr>
<tr>
<td>Financial arrangements</td>
<td>260</td>
<td>3</td>
<td>50</td>
<td>11</td>
<td>196</td>
</tr>
</tbody>
</table>

Table 38: Statistics about complaints handled by the court, from 1954 until 1966.

Source: Van der Wulp (1967)
The voting system remained the centre of dispute, however. Small farmers, in certain cases without real interest in land consolidation projects, formed a large majority, although in acreage they could represent only a small share. They were not prepared to vote, but counted pro. The remaining farmers were often offended, convincing each other that they did not have a chance in stopping the project. Consequently, large numbers refrained from voting and because non-voters were counted as pro-voters, the project nonetheless would be executed. In 1959 there was a vote for the 'Koningsdiep'-project. Out of 2860 owners, 215 voted in favour and 1176 voted against (Smit and Koning, 1973). But as the rest refrained from voting, according to the law this was a positive voting-result. In 1975 the rule of non-voters are pro-voters was abolished.

Land consolidation fuelled some sentiments of mistrust. Van den Broecke and De Vries (1965) concluded from their fieldwork that especially traditional, introvert communities as well as areas dominated by owner-occupancy, expressed a negative attitude toward land consolidation. No wonder, since participation means trusting the Local Committee to reallocate your land. When you participate, there is no way back. It is possible, that for the sake of the project area as a whole, a participating farmer will be worse off after land consolidation than before. This uncertain aspect gives rise to mistrust and suspicion.

One example is people thinking that the neighbour bribes the commission for the best land. Another case is the farmers thinking the state is pursuing its own benefit. Or the state is suspected of manipulating the process, by choosing the project-area boundaries in a way that the area contains much of the state land reserves, making the farmers powerless in advance to stop the project.

Mistrust can be conquered by making the process as clear and democratic as possible and providing in possibilities of appeal. On three important occasions, participants can raise objections. The first occasion is when the value of the 'old' ownership is determined. Secondly, the designed new parcelling structure can be a reason for complaining. Third, when the financial arrangements are presented, and each farmer is notified what share he has to pay, there also can arouse feelings of injustice. There are three levels to file complaints:

- local land consolidation commission (at the same time the maker of the plan)
- judge-commissioner
- court, without possibility of appeal

Basically, authorities on each lower level will try their best to solve the problems, avoiding settlement by higher level authorities. In Table 38, the number of complaints that have been handled by the court are given. It should be noted, that by complaining a farmer can only get better. Giving negative signals about the assigned parcels, or the financial arrangements can only be a benefit.

In the mean time, computerisation grew. Initially for handling the large amounts of ownership and tenancy data. But almost simultaneously, the allocation process was computerised (in the initial ATOR/ARAK tandem which has developed into TRANSFER that is used today). Computerisation meant that designing the allocation plan was less time-consuming and from then on various alternative designs could be offered to the participants, out of which the most-supported choice could be made.

Not until the 1990s, land consolidation practice was reformed again. A broad discussion was held, giving the opportunity to all interested to bring in ideas for improvement. They resulted from a bottom-up analysis of conflicts between land consolidation and the highly dynamic Dutch society. Governmental budgets for agricultural restructuring were dropping and the projects took so much time that plans were outdated before they were completed.
Ideas for improvement were generated by several working groups. The process was called 'herijking' and the main objectives were to save time and money. According to Groot Nibbelink and Sonnenberg (1999) it lacked a proper analysis of the delaying factors. The actual discussion was entangled in a broader administrative restructuring which is not relevant here. Here we list some of the suggestions that were brought forward.

- **Restricting the reallocation plan to exchanged parcels only** The normal land consolidation procedure in the Netherlands affects all parcels within the project boundaries. So, all parcels are valued and surveyed. All parcels are newly inscribed in the land registry. However, some 60 percent of the parcels do not change owners at all (Holtslag, 1997). Much of the effort for valuing, surveying, certifying and inscribing seems unnecessary and can thus be saved. Groot Nibbelink and Sonnenberg (1999) point out that separating the exchanged parcels from the untouched parcels means additional work, whereas the seemingly unnecessary effort in the normal procedure in fact does not need extra work.

- **Improving parcel exchange** In many projects, relatively limited goals are justified. Choosing for parcel exchange, that would save time because it does not require a comprehensive analysis of all interests and problems that affect the project area, like land consolidation projects do. Section 4.3 and Holtslag (1997) argue that the obstacle of a more large-scale application of parcel exchange could very well be the absence of regulation that allow forcing unwilling participants to co-operate. By creating an intermediate instrument, the power of both could be joined. The simplicity and transparency of parcel exchange united with the majority-rule of land consolidation.

- **Concentrated public inspection** In the Dutch procedure, the (1) list of participants, (2) first valuation, (3) reallocation plan, (4) second valuation and (5) financial arrangements (Boers and Mulder, 1997) are subject to public inspection, thus stalling the process. Combining the 5 occasions of public inspection in one document (which must not and may not lead to a reduction of the security for participants; Van der Helm, 1997) means that the total time the project is stalled is seriously reduced. However, the objections that are raised will be of a more complex nature and will therefore need more time to resettle.

- **Abolishment of data-collection when good sources are available** For each project again, data-collection is done in order to establish a list of participants and the (first) valuation. Holtslag (1997) argues that we can now assume that the Dutch land registry has a level of accuracy that no longer requires land ownership data (names of owners and tenants, mortgage data and exact location of boundaries) to be checked and measured again, and soil maps are sufficiently detailed and accurate to allow the design of the reallocation plan.

- **Dividing one big project into several parallel projects** Dutch projects typically have a high level of complexity in terms of intersecting governmental programs and policies as well as conflicting interests by stakeholders in the project area. The division into parallel projects will speed up the process because they have less internal conflict. In order to still allow a comprehensive project design, the parallel projects must be inaugurated and co-ordinated by a special framework-plan (Prins, 1996). The parallel project approach requires the Act underlying land consolidation to provide in a minimum procedure that can be supplemented with additional components to the extent needed by the specific project or zone (Van der Helm, 1997).

- **Transparency and mutual understanding** Both Van den Brink (1996) and Holtslag and Van Vugt (1997) point out that information management needs careful consideration. When certain data are not transferred to a certain (group of) stakeholders, misunderstandings and mistrust can rise very easily. New participatory ways of project management are gaining
importance. For land consolidation in particular, it is considered essential to provide in moderators that are especially trained for this type of negotiation and are have an absolutely neutral attitude toward the outcomes. The eventual success depends on a common sense of the area’s problems and a common interest in achieving solutions (Holtslag and Van Vugt, 1997).

**Changes in Bavarian legislation**
The Bavarian land consolidation procedure experienced similar adjustments as did the Dutch procedure (for an overview see Table 40). The 1886 Law tried to meet the adjustments that were obviously needed to make the Law work. The majority-rule, that obviously frustrated the first law (1861) was changed into single majority with respect to number, area and taxes. Moreover, it provided in:

- a special authority supervising the land consolidation projects,
- a simplified procedure
- the reduction of related costs
- changing rural road infrastructure in order to make more optimal use of land possible.

From then on, every landowner or municipality could file a request for land consolidation. The Land Consolidation Commission investigated the request on its merits. Complaints on the execution were judged by a commission of five members. The decisions of the commission were definite, there was no possibility for appeal.

In the period that the 1886 Law was in place, 896 projects were completed (measuring 126,366 hectares) and 129 projects (measuring 60,450 hectares) were still in execution in 1923. The area subject to land consolidation increased constantly. Despite the fact that farmers were obviously interested in land consolidation, the 1886 Law was changed again in 1922. The pace had to be speeded up and efforts from the land consolidation authority had to be relieved.

The major adjustments were:

- increasingly less restrictive requirements for execution; now only one-third of the landowners, owning more than half the area had to be in favour
- decentralising the land consolidation authority structure
- Body of Participants being responsible for the execution. This provision filled an important lack of civilians’ participation. From then on, the participants are directly involved in the determining the content of the plan. Planning and execution are the responsibility of one body.
- an expert chairs the Board
- a special court for land consolidation disputes

With these adaptations, the Land Consolidation Law has in essence stayed the same until today and the popularity of land consolidation steadily rose (Figure 32), although the Bavarian Law is now framed in the national German Law. Slight adaptations were made in 1954, when

<table>
<thead>
<tr>
<th>Name of the area</th>
<th>Number of participants</th>
<th>Size (ha)</th>
<th>Total number of parcels before</th>
<th>Total number of parcels after</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunnthal (Oberbayern)</td>
<td>56</td>
<td>380</td>
<td>837</td>
<td>121</td>
<td>1908</td>
</tr>
<tr>
<td>Sondheim (Unterfranken)</td>
<td>142</td>
<td>883</td>
<td>8,000</td>
<td>500</td>
<td>1909</td>
</tr>
</tbody>
</table>

DEALING WITH CENTRAL EUROPEAN LAND FRAGMENTATION

<table>
<thead>
<tr>
<th>Requirements for execution</th>
<th>Party responsible for the execution of the project</th>
<th>Projects completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1861 Law <strong>Four-fifth</strong> of the number of farmers, the acreage they cultivate and the tax they pay have to be in favour.</td>
<td>Farmers themselves, without support</td>
<td>Hardly any</td>
</tr>
<tr>
<td>1886 Law <strong>Half</strong> the number of farmers, the acreage they cultivate and the tax they pay have to be in favour.</td>
<td>Land consolidation authority</td>
<td>896 projects; 126,366 ha</td>
</tr>
<tr>
<td>1922 Law <strong>One-third</strong> of the number of farmers owning half the acreage they cultivate have to be in favour.</td>
<td>Body of Participants, with support</td>
<td>167 projects; 65,933 ha</td>
</tr>
<tr>
<td>1954 Law Decision is made by higher land consolidation authority</td>
<td>Body of Participants, with support</td>
<td>no data</td>
</tr>
<tr>
<td>1976 Law Decision is made by higher land consolidation authority</td>
<td>Body of Participants, with support</td>
<td>ongoing</td>
</tr>
</tbody>
</table>

Table 40: Evolution of land consolidation legislation in terms of (1) requirements for the execution, (2) responsible party for execution and (3) projects executed within the time the Law was active. Source: Strössner (1986)

the Federation voted on a national Law. Bavaria opposed to national legislation and used its veto, but the Law was adopted nevertheless. The Bavarians succeeded in introducing a lot of typically Bavarian provisions into the national Law. For example the Body of Participants was introduced.

The most recent legislative adaptation took place in 1994, making land consolidation explicitly a tool for solving conflicts between several types of land use (new §86; Thöne, 1997). Like in the Netherlands, the German (and therefore the Bavarian) land consolidation practice was modernised in the 1990s. The reason was of a different nature than in the Netherlands. Schlosser (1999) even relates this movement to the reunification of Eastern and Western Germany. The aim of the 'Novellierung' was to create an instrument that has a much broader scope than only parcelling. The new-style land consolidation represented simplified procedures that allowed the consideration of village expansion, village renewal, environmental

Figure 30: From the first Land Consolidation Law (1886) onwards, the yearly initiated acreage has been constantly increasing (trendline). Source: Schlögl (1951)
protection, nature conservation and landscape improvement. The most recent developments in Bavaria and Germany as a whole strongly parallel the latest proposals in the Netherlands. The emphasis is on an increase in the speed and on cost-efficiency. The reasons for this are the decaying governmental financial resources and the increasing dynamics in agriculture. In both cases, unnecessary actions are avoided, which is sensible for the targets but it can mean reduction of participants' securities.

Thurmaier (2002) gives an overview and relates changes to a broad reconsideration of the role of the government within society. The German federation pursues limitation of governmental responsibilities, improved cost-efficiency and simplicity and transparency. As a consequence, the workforce on the land consolidation agencies has to shrink substantially (29% before 2005), but the organisation structure remains untouched.

Like in the Netherlands concrete proposals for how to change the land consolidation practice are prepared by several working groups, composed from employees of related agencies as well as from organisations that represent employee-interests. Proposals that may be implemented in due course are:

- the establishment of a simplified village renewal that can be applied separately from a land consolidation project,
- emphasis on simple and fast instruments and on infrastructure-related projects. A proposal for completely stalling all new applications for regular land consolidation has been rejected,
- minimising investments in physical changes in the landscape, like road improvement and adaptations to water courses,
- simplification of land valuation and not taking sections into account where actual exchange of parcels is not likely,
- data-collection by surveyors is to be limited to the absolute minimum.
G. Comparison of Dutch and German Land Consolidation Laws

Comparing the Dutch and German 1954 Land Consolidation Law texts shows a striking parallelism. Many paragraphs with the same subject show up in the same sequence in both Acts. Using this parallelism, the table below shows what paragraphs address similar topics. For example, the Dutch §§55-§78 (Defining rights and valuation of land) address the same subjects as do the German §§27-§36 (Valuation of land). The paragraphs that do have a counterpart in the other Law, are cross-referenced by Roman figures.

The following subsection elaborates on the differences in content between similar paragraphs. The next subsection concentrates on provisions that only exist in one of the countries, like Germany's provisions on the Body of Participants (§16-§26).

Discrepancy between similar paragraphs

In the table, paragraphs addressing the same subject are placed next to each other or referred to each other by symbols. Having the same subject does not mean that those paragraphs are identical. There are differences in the way the paragraphs cope with the subject involved.

Rights of participants

The fundamental right of a participant is 'receiving a right of the same nature as he contributed' (§10, line 1, Dutch Land Consolidation Act). If not in contrast with the goals of land consolidation it should be in real estate (§14). The German passage on the rights of participants only deals with determining the ownership rights at the beginning of the project. Being registered in the 'Grundbuch' (the German land registry) is a prerequisite for participation. Not until §44 we learn about the obligation to 'assign an equal value of land'. So, both laws ensure that participants do not suffer decline in the amount of capital they had before the project. The Dutch law provides in more opportunities to compensate in money instead of in land. For example, §10 line 4 provides in seizing a maximum of 5% of the land against the will of the owner if necessary for the common cause. The resulting difference must be compensated in money (§11 line 2). The German Law leaves similar possibilities for compensation in money, with one important difference. German compensation in money depends on full co-operation of the farmer. The land consolidation authorities have to ask the permission of the farmer whom it concerns.

In both countries, all rights that are not registered and are not brought forward by the participants before the reallocation plan is effected, are lost forever.

Provisions regarding tenancy: Provisions regarding other rights

Every Dutch tenant has a right to receive an equal value of tenancy land as he originally contributed, meeting the same requirements as owned land. So, the Law aims at facilitating a good parcelling structure for both owners and tenants. The local commission can replace an existing tenancy contract by a new one if needed, thus maintaining existing tenancy-owner relations are as much as possible. Other personal rights will be erased as much as possible and compensated in money. Mortgages reallocate together with the ownership. German tenants are not entitled to an effective reallocation. German reallocation is exclusively based on ownership. The only two paragraphs addressing tenancy (§70; §71) merely allow a tenant to dissolve his tenancy contract the following tenancy-year.
<table>
<thead>
<tr>
<th>Dutch</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Ruilverkavelingswet'</td>
<td>'Flurbereinigungsgesetz'</td>
</tr>
<tr>
<td>§1 Definitions</td>
<td>§1 Definitions</td>
</tr>
<tr>
<td>§2 Purpose</td>
<td>§2 Purpose</td>
</tr>
<tr>
<td>§3 Authority</td>
<td>§3 Authority</td>
</tr>
<tr>
<td>§4 Legislative status of Land consolidation</td>
<td>§4 Decision to proceed¹</td>
</tr>
<tr>
<td>§5 Title purification</td>
<td>§5 Decision to proceed¹</td>
</tr>
<tr>
<td>§6 Assignment of money</td>
<td>§6 Content of the decision</td>
</tr>
<tr>
<td>§7 (Miscellaneous)</td>
<td>§7 Determining boundaries of project</td>
</tr>
<tr>
<td>§8 (Miscellaneous)</td>
<td>§8 (Miscellaneous)</td>
</tr>
<tr>
<td>no match</td>
<td>§9 (Miscellaneous)</td>
</tr>
<tr>
<td>§9-§17 Owners' rightsⅢ</td>
<td>§10-§15 Rights of individual participants</td>
</tr>
<tr>
<td>no match</td>
<td>§16-§26 The Body of Participants</td>
</tr>
<tr>
<td>§18-§27 Provisions regarding tenancyⅢ</td>
<td>see elsewhere</td>
</tr>
<tr>
<td>§28 Provisions regarding other rightsⅢ</td>
<td>see elsewhere</td>
</tr>
<tr>
<td>§29-§56 Procedure of request</td>
<td>no match see elsewhere</td>
</tr>
<tr>
<td>§37-§54 Decision to proceed¹</td>
<td></td>
</tr>
<tr>
<td>§55-§78 Defining rights and valuation of land</td>
<td>§27-§36 Valuation of land</td>
</tr>
<tr>
<td>no match</td>
<td></td>
</tr>
<tr>
<td>§79 Road and watercourse plan and landscape plan</td>
<td>§37-§38 Restructuring the area</td>
</tr>
<tr>
<td>§80 Ownership and maintenance of public accommodations</td>
<td>§39-§43 Public accommodations</td>
</tr>
<tr>
<td>§81-§94 Reallocation plan 'Plan van Toedeling'Ⅲ</td>
<td>§44-§55 Reallocation other than in landⅢ</td>
</tr>
<tr>
<td>(includes possibilities of appeal §85-§93)Ⅳ</td>
<td>§56-§60 Reallocation plan</td>
</tr>
<tr>
<td>§95-§97 Legal establishment of reallocation 'Akte van Toedeling'Ⅴ</td>
<td>see elsewhere</td>
</tr>
<tr>
<td>§98-§114 Second valuation; list of financial arrangements</td>
<td>no match</td>
</tr>
<tr>
<td>no match</td>
<td>§61-§64 Execution of the land consolidation plan</td>
</tr>
<tr>
<td>no match</td>
<td>§65-§67 Preliminary reallocation</td>
</tr>
<tr>
<td>see elsewhere</td>
<td>§68-§78 Rights of third personsⅢ</td>
</tr>
<tr>
<td>see elsewhere</td>
<td>§79-§83 Establishment in Public RegistersⅤ</td>
</tr>
<tr>
<td>no match</td>
<td>§84-§103 Special provisions</td>
</tr>
<tr>
<td>§115-§130 Costs</td>
<td>§104-§108 Costs</td>
</tr>
<tr>
<td>no match</td>
<td>§109-§137 General procedure regulations</td>
</tr>
<tr>
<td>see elsewhere</td>
<td>§138-§148 AppealⅤ</td>
</tr>
<tr>
<td>no match</td>
<td>§149-§150 Conclusion of land consolidation project</td>
</tr>
<tr>
<td>§131-§134 Concluding and transfer provisions</td>
<td>§151-§153 Body of Participants after the project</td>
</tr>
<tr>
<td>no match</td>
<td>§154-§159 Concluding and transfer provisions</td>
</tr>
</tbody>
</table>

Table 41: Comparison of Dutch and German legislation. Paragraphs with similar subjects oppose each other in the table.
Decision to proceed

On this point, Dutch and German legislation differ a lot. The German Act is short about the start of the land consolidation procedure. It determines that the higher land consolidation authority can decide to start a land consolidation project and define its boundaries. This is called the ‘Amtsprinzip’ and was first defined in the Reichs Umlegungs Ordnung of 1937. Although the authorities have to be convinced of the willingness in the project area - the landowners have to be informed and relevant authorities have to be heard – the German Law does not define when exactly willingness is sufficient.

In the Netherlands, those who are registered as owner or tenant of land located within the project boundaries have to make an official request on provincial level. When the request has been sustained a voting will take place. When more than half of the owners/tenants vote in favour of the project or when those in favour own/rent more than half the project area, the land consolidation is started.

In both countries, after the decision is made to proceed into the preparatory phase, actions that might change the value of the land or otherwise obstruct the consolidation process are restricted (§34).

Defining rights and valuation of land

An essential part in every land consolidation procedure is the valuation of the contributed land. Without this valuation it would not be possible to meet §10 and §44 respectively. Because of the importance of the valuation, this stage is codified in detail. In both the Netherlands and Germany, value is determined based on production potential of the land, irrespective of location related to the farm buildings or the village. It is merely an exchange value, not a market value. More discerning is the question who constitutes the valuation-team.

The German Land Consolidation Law, which in fact is a framework Law - is quite short on the valuation, and enables the ‘Länder’ to give this stage their own content. As a rule, the whole team consists of experts (Gamperl, 1955). But in Bavaria the Board of the Body of Participants values, advised by two to four chosen experts. The Bavarian participants have to agree on the valuation before the project can proceed. In the Netherlands, the Law does not determine the composition of the valuation-team, but in practice the valuation-team consists of local farmers and agricultural experts. In both cases, the team uses a list of soil type-value combinations that are unique for the area.

Road and watercourse plan and landscape plan

In both countries the plans for roads and watercourses are necessary to make changes in infrastructure possible. In Germany, the higher land consolidation authorities have to give their approval. In the Netherlands, the provincial parliament gives its consent.

Ownership and maintenance of public accommodations

In the Netherlands, up to the final assignment of ownership and maintenance of newly constructed infrastructure, the province is responsible. The province parliament decides which organisations will be charged with the responsibility. In Germany, the Body of Participants is charged with the responsibility.

Reallocation plan

Both Acts determine that each participant first of all should receive land with an equal value and the same possibilities of use as the land contributed. Small differences in value are
inevitable and will be compensated in money. In addition, when a participant requests so, he can receive money instead of land for all or a part of his originally contributed value. In the Netherlands, a maximum of 5 percent of the project area can be appointed for public accommodations through expropriations. German legislation also provides in appointing land for public purposes, without giving a fixed percentage.

With respect to the parcelling structure, both Acts determine that land should be consolidated in possibly large plots. In addition, all plots must be alongside a road. Dutch legislation also demands good drainage. The German reallocation plan erases communal land use and personal rights as much as possible.

The German Law specifically stipulates that the farmers should be enabled to express their wishes with regard to the allocation of their land at hearings. The Dutch Law does not have this provision, but in practice, the same principle is applied.

**Possibilities of appeal**

§85-§93 | §138-§148
In Germany, two levels for filing complaints are provided. The first authority to complain is the higher land consolidation authority. Overruling that, each Land establishes a special Land Consolidation Court. Dutch legislation provides in three levels of appeal. Complaints can be filed at the Local Land Consolidation Commission. The Commission tries to solve the problem. When the Commission does not succeed, the judge-commissioner will organise a hearing. When parties come to an agreement, the judge-commissioner establishes the reallocation plan. In case the problem still remains unsolved, the judge-commissioner refers to the court. The decision of the court is definite.

**Legal establishment of reallocation**

§95-§97 | §79-§83
In both countries, the new rights are established in the Cadastre and Public Registers. In the Netherlands all rights are signed up in one document, that is made legal by one notary. In Germany, owners can ask for an early cadastral transfer of rights, before all complaints have been dealt with. This seems to be more a rule than an exception.

**Costs**

§115-§130 | §104-§108
In both Laws, all ‘overhead’ like costs made by the authorities, is paid by the government. All other costs (in German Act referred to as ‘execution costs’) have to be paid by the participants. In Germany, legally payment was also required from owners of land who were not included in the project area, but did gain from the land consolidation. In practice, this provision was hard to apply. The German Law does not say how the payment of an individual participant is calculated. Dutch participants pay according to the benefit they have from the project. The benefit is determined using a second valuation. The German Act does not say in what way the participants have to pay their fee. In practice, farmers have to pay immediately. Dutch legislation provides in the government paying in advance, while the participants must pay 6% of the amount they owe (called ‘land consolidation interest’) during 26 years. Dutch land consolidation interest is related to the land and therefore recorded in the Public Registers.

**Mechanisms that are unique for one of the countries**

Besides the paragraphs that are addressed in the former subsection, having a counterpart in the other country, a number of provisions are unique for one of the countries. They refer to a subject that is not codified or doesn’t even exist in the other country.
Dutch: **Title purification**
Paragraph five determines that the rights in de reallocation plan are definite from the moment they are established in the Public Registers. They have completely replaced the former rights. Old rights that have not been taken into account in the reallocation are lost forever. This way, the Public Registers in time become increasingly reliable as a source of information about rights on land. In an area that has been subject to land consolidation, nobody can claim rights that are not in the registers.

Dutch: **Procedure of request**
A Dutch procedure element that completely fails in Germany is that of the request. There is a time consuming and complicated range of actions before even the intention for consolidation is official. The procedure starts with the request from the parties involved. This can be done by: (1) one-fifth of the cadastral owners in the area, (2) agricultural interest bodies and (3) all levels of government. The request is filed at the province parliament, that decides whether the request will be accepted or not. The parliament asks advice for its decision from the Central Land Consolidation Commission. In case the Province Parliament approves the request, the owners are notified.

Dutch: **Second valuation; list of financial arrangements**
Whereas the German Act does not address the distribution of costs among the individual participants, Dutch legislation contains a special arrangement. After the reallocation the newly received land is valued. Most farmers will have a higher value of land after the consolidation than before. The amount an individual has to pay is determined by the change in land value. The more benefit one has, the more he has to pay.

German: **Execution of the land consolidation plan**
After the reallocation plan has been legally sustained, the execution is started by the land consolidation authority. The Law provides in the exception that execution of the plan can be started before legal sustaining. In practice, this exception actually is the commonly used way to proceed.

German: **The Body of Participants; Body of Participants after the project**
A very basic element that discerns the German (and also the Swiss) procedure from the Dutch is the Body of Participants (BoP). All participants together form a body of public right. At their first meeting, the participants elect a board from their midst. The board manages the land consolidation project, chaired by a land consolidation official. At regular meetings the BoP can exert power on the Board. They can influence decisions and even force board-members to resign and elect new board-members. In Bavaria each 6 years a new Board is elected. So, the BoP-system is a fine example of highly democratic project planning.

German: **Preliminary reallocation**
Reaching the end of a land consolidation project, it may happen that the new reallocation is designed (and is not likely to change), but the official establishment will take some time. Then the land consolidation authorities can reallocate on a preliminary basis.

German: **Special provisions**
The German Act of 1953 provides in 4 procedures that serve special aims:
• Forestry land (§84-§85),
• Simplified land consolidation (§86); when parcelling is negatively influenced by newly constructed infrastructure. The authority that is responsible for the construction of the object involved pays the costs of the reallocation.
• Reservation of land for space-consuming infrastructure construction works (§87-§90); with the possibility to compensate in money alone.
• Fast land consolidation procedure (§91-§103); in case changes in roads and watercourses are not necessary. Can be requested by ‘Several landowners’ (§93). In this case there will be no board installed. The land consolidation authorities are in charge of the project. Participants participate entirely voluntarily.

German: Conclusion of land consolidation project

The land consolidation authority concludes the project by stating that the project is executed according to the plan and that all rights have been established. The municipality stores maps and official documents that validate the new situation.
Curriculum vitae

The author of this thesis (1975) graduated at the Wageningen Agricultural University in 1997. Being a Master of Science in rural engineering, he lectured at the department of Spatial Planning of in Wageningen. He was involved in developing, writing and organising several courses and did some commercial research as well.

Early 1999, Van Dijk shifted his professional activities to Delft University of Technology as he became a PhD-student at the department of Geodesy. This marked the start of the research underlying this book, which would result in a considerable number of articles and conference papers in addition to the actual thesis. Teaching and commercial research were practised by him in Delft as well. Van Dijk is currently involved in the courses of Wageningen University again.

Despite changing locations for study and work, he has always had the city of Kampen as his homestead. In this historical city in the north of the Netherlands, where he was born and raised, he lives happily with his wife and two daughters. The distance between Delft and Kampen, as well as the circumstances characterising the birth of both daughters were hardly favourable for the completion of this thesis, but he did succeed.

Besides his work and family, Van Dijk engages in garden design, an oratory choir, a local church, motorcycling (both on and off-road), mountain biking and youth nature education activities.
After 1990, the year that marked the collapse of socialism in the former Eastern Block, the land of the kolchozes and sovchozes was given back to the people for reasons of historical justice. As a consequence, however, land was subdivided into many small units. This land fragmentation impedes the emergence of a competitive new farming structure. In the light of joining the European Union, this problem has become a topical issue. The question is what policy instruments are suitable.

Many believe that land consolidation, an instrument that has achieved considerable improvements in the agricultural structure of Western European countries, is the key solution. This assumption is put through the lens of the paper by analysing the exact nature of land fragmentation in Central Europe. The exact nature is then confronted with the targets and prerequisites of three fragmentation-reducing instruments: land banking, land consolidation and parcel exchange. In addition, considerations of implementation are put forward. The main conclusion is that Western European instruments can be effective for reducing Central European land fragmentation, but in another way than is generally assumed.