An Overview of Land Consolidation in Europe

Arvo VITIKAINEN, Finland

Keywords: fragmentation, land consolidation, land management, reallocation

Summary
Rural development by land consolidation is used in several countries in the Continent of Europe. At the moment, land consolidation projects are executed broadly in Austria, Belgium, France, Germany, Luxembourg, the Netherlands, and Switzerland, as well as in Finland, Norway and Sweden. The demand for land consolidation arises from a similar source in all countries: the need for readjusting unfavourable land division and promoting the appropriate use of the real property without changing the status of ownership.

Traditionally land consolidation is used for the improvement of the land division of farms through the consolidation of fragmented parcels. In the late 20th century land consolidation has formed into a rural development instrument with multi-purpose objectives, which can additionally be used for improving the infrastructure, enhancing landscape and nature protection, and implementing various recreation area projects.

There are differences in the objectives and procedures of land consolidation depending on the country in question, as the development of the procedure has been influenced by the historical trends, culture, tradition and legislation in each of the countries. The common initiative for land consolidation in different countries has, however, offered the possibility of adopting well-proven solutions, and the features of the land consolidation process have developed similar in all of Europe. The objective of this paper is to discuss the similarities and differences in the land consolidation procedure in various European countries. The article considers the organisation, objectives, legal procedure, costs and financing, and the development prospects of land consolidation.

1 INTRODUCTION

In this context, land consolidation (in Dutch: ruilverkaveling; in French: remembrement; in German: Flurbereinigung) means a comprehensive reallocation procedure of a rural area consisting of fragmented agricultural or forest holdings or their parts. The objectives of land consolidation vary from country to country. The general objective is, however, to improve land division and promote the appropriate use of the real estates. The objective is pursued by consolidating land plots through land exchanges to form plots that are better adapted to their proper use (e.g. plots are larger and/or better shaped). In addition to actual land exchanges, the improvement of transport infrastructure and water management, landscaping, environmental management and conservation projects, and other functions necessary for the objectives may be implemented in land consolidation. A strictly limited area and the organisation in the form of projects, with stakeholders participation are also the characteristics of land consolidation.

The present type of land consolidation process was adopted in Europe in the late 19th century and early 20th century[1]. According to a report made in 1963 (Lambert 1963) land consolidation had already been concluded in Western Europe in an area of ca. 38 million agricultural hectares, i.e. one fourth of all cultivated land at that time. The European Expert Meeting on Land Consolidation in 1988 in Germany estimated that the need for the traditional land consolidation still existed for ca. 0,7 million agricultural hectares in the Netherlands, ca. 1,7 million hectares in Spain, 4,0 to 5,0 million hectares in Portugal, ca. 1,5 million hectares in Poland, ca. 7,4 million hectares in France, and ca. 0,3 million forested hectares in Sweden.

2 LAND CONSOLIDATION LEGISLATION

Land consolidation is based on legislation in all countries. Generally the legislation regulating land consolidation dates back to the 1970's (e.g. in Austria, Belgium, Germany, Norway and Sweden) or to the 1980's (e.g. in the Netherlands, Poland, France and Hungary). The reason for amending the land consolidation legislation in the late 20th century was the new agricultural and socio-political demands on the land consolidation activity. Land consolidation was seen as a tool for cutting down agricultural production in a controlled manner and increasing productivity by lowering the costs of production. Together with this the objectives of land consolidation were incorporated with social, ecological and cultural aspects.

Along with the amendments of legislation the traditional land consolidation has, especially in Western Europe, formed into multidimensional rural development instrument, which can additionally be used for improving the infrastructure, enhancing landscape and nature protection, and implementing various recreation area projects. For example, the Dutch rural development act (Wet Inrichting Landelijk Gebied), the German land consolidation act (Flurbereinigungsgesetz) or the Real Property Formation Act (kiinteistönmuodostamislaki) in Finland do not restrict land consolidation just for improving agricultural productivity but enables its use for readjusting the rural land division widely from the viewpoint of other industries and land use needs as well.

3 EXECUTIVE ORGANISATION

The land consolidation procedure is regarded as administrative decision-making, and in most of the countries it is entrusted to the administrative authorities. On the central government level land consolidation generally falls to the ministry in charge of agriculture. The administrative organisation is typically tripartite. In addition to the Central Administrative Board it consists of the land consolidation authorities of the regional and local administration level.

There are two primary alternatives for the execution responsibility for the land consolidation procedure: the "cadastral surveyor model" and the "committee model". In the "cadastral surveyor model" (e.g. in Austria, Finland, Germany and Sweden) the land consolidation

[1] Proceedings regarded as predecessors for land consolidation were already common in Europe in the Middle Ages, for example in England and in Southern Germany (Gamperl 1955).

authority appoints a cadastral surveyor to carry out the land consolidation project. In the "committee model" (e.g. in Belgium, France, the Netherlands, Portugal, and Switzerland) the responsibility is with a panel committee. The committee may be nominated by the ministry, the regional administrative authority or the land consolidation authority. In some of the countries the landowners have a representative in the committee, and in some countries the committee merely consists of the representatives of various organisations and authorities. When necessary, experts may be used for assistance in both of the models.

The landowners in the consolidation area generally form a competent association, which, depending on the country has a weaker or stronger role in implementing the projects. Such an association has a strong statutory position, for example in France, Germany and the Netherlands where it can participate in the valuation, project planning and the implementation.

4 OBJECTIVES OF LAND CONSOLIDATION

The objectives of land consolidation vary in different countries, as the development of the procedure has been effected by the historical trends, culture, traditions and legislation in each country. The objectives of land consolidation can, however, be operationally grouped into objectives concerning agriculture and forestry, the development of other industries, the housing and living environment, and other land use needs. Regarding the goal setters the objectives of land consolidation can be considered from the viewpoint of the landowners, other interested parties (tenants, easement holders, encumbrancers, etc.), society and other interest groups (village residents, nature and environmental protection organisations, contractors, etc).

Regarding the objectives of land consolidation we must keep in mind that different goal setters may have different emphases considering the same operational objective. The farmers, for instance, may set the reduction of the production costs as the primary goal for land consolidation. The residents in a rural village may emphasise the need for adjusting agricultural production to the other land use needs of the village community. Considering the national economy (the state) the objective may be, in addition to reducing the production costs, a controlled adaptation (increase or decrease) of the amount of production to market demand.

4.1 Objectives of agriculture and forestry

The objectives of agriculture and forestry are related to improving the working and production conditions, the decrease of the production costs, and the controlled adaptation of the amount of production to market demand. Land consolidation may also have other important objectives regarding agriculture and forestry and associate industries in each country. Such objectives are, for example, the division of joint property units and the readjustment of water areas (fishing rights) in Norway, the renewal of congested villages in Germany, and actions for preventing erosion in the South European countries.

Improvement of the fragmented property division in the forest areas is the natural objective of land consolidation in the forested countries (e.g. in Sweden and Finland). In Sweden, for example, land consolidation is implemented at the moment only for improving the weak forest property division.

A general agricultural objective for land consolidation is also the enlargement of active farms by giving them additional land obtained by land consolidation (land fund). In the countries where land leases are common (e.g. in Belgium, France, Germany, Luxembourg, and the Netherlands) the objectives for land consolidation generally consider both personal and leased areas, and the property units can also be readjusted for improving the status of the tenant farmers.

4.2 Other industries

The inclusion of the goals for developing other industries by the land consolidation projects is based on the facts that rural area also serves other industries than agricultural production, and that agriculture alone cannot offer jobs for all people living in rural villages. In this situation the land use decisions implemented by land consolidation will create opportunities for job supply outside agriculture. And by improving means of communication by land consolidation, for instance, working in the neighbouring urban centres is facilitated, too.

4.3 Objectives of housing and living environment

An objective for land consolidation is also to ensure a good housing and living environment to all residents in the consolidated area. This requires the preservation of the flora and fauna diversity in the living environment and the protection of natural conditions by enhancing, for example, water, air and soil conservation, and the prevention of erosion and acidification.

4.4 Other land use needs

Land consolidation can also prevents the emergence of conflicts between different forms of land use. The provincial and state land-use reservations, e.g. for town development, industrial complexes, physical infrastructure for transport and water, as reserve areas of natural resources and the increasing use of the rural areas for recreation and leisure, shall be unavoidably considered in the objective setting for individual land consolidation projects.

In Western Europe, for example in Germany and in the Netherlands, land consolidation often is a part of a wider regional development programme for rural areas. In those regional development programmes land consolidation is used for enhancing systematic land use in the rural areas and for readjusting the areas according to the assignment of the programme.

In Southern and Eastern Europe and in the Nordic countries (Denmark, Finland, Norway, and Sweden) land consolidation has been understood as being outside rural development programmes or indirectly supporting their implementation at the most. The objective setting in these countries is generally on a smaller scale. The primary objective for land consolidation is

the improvement of fragmented property division and the enhancement of the use, although land consolidation may also include tendencies towards enhancing various regional development projects.

5 LAND CONSOLIDATION PROCEDURE

The contents of the land consolidation process include similar main stages in all of Europe. The process consists of the preparation stage, inventory and planning stage, and the implementation stage, each varying in extent and duration.

5.1 Preparation stage

A precondition for land consolidation in all countries is the fact that the benefits gained are considered larger than the costs of the implementation. In addition to this another precondition may be the fact that a certain group of landowners in an area subscribes to the implementation, either by the number and/or the acreage owned by them, or by the (taxable) value. Therefore, e.g. in Switzerland, a majority of landowners shall subscribe to land consolidation, and the supporters shall also own at least one half of the acreage of the land consolidation area. On the other hand, e.g. in Finland, Germany and Sweden, the preconditions for land consolidation are solved by the decision of the land consolidation authorities on the basis of the reports made in the preparation stage.

It is natural that the definition of a land consolidation area is made in the same connection and by the same decision-maker than the implementation decision. In practice, a land consolidation area may be defined on the basis of the existing administrative division (e.g. in France), from the functional grounds (e.g. in Finland and Germany), primarily based on the definition presented by the petitioners (e.g. in Sweden), or only the real property of the landowners in favour of land consolidation is included (e.g. in Denmark). Although the main purpose of land consolidation is the improvement of rural land division, the readjustment area may also include the central area of a rural village. A village development project (Dorferneuerung) related to land consolidation might be implemented, for example, under certain conditions in German village centres.

5.2 Inventory stage

The inventory tasks in land consolidation include the surveys of the extent of the real properties and surveys of the titles of the proprietary and other real estate rights, the layout of land compartments, valuation (assessment) of the real properties and the compilation of the inventory material into a numeric database.

The owners of the real properties and the various rights, such as tenancies, easements, usufructs, rights of way, and mortgages, shall be surveyed in the inventory stage. The surveys are based on checking and possible updating of the data either in the cadastre, on the cadastre map and in the

land register (e.g. in Germany and the Netherlands). The acquisition and completion of this data may also be a part of the land consolidation process (e.g. in Finland and Sweden)[2].

Land consolidation follows the so-called surrogate principle, according to which the financial situation of any of the landowners must not change due to the reallocation. Compliance of the surrogate principle provides that the relative value of the real properties readjusted will be valuated against each other, i.e. assessed. The assessment of real properties in agriculture or forestry use is generally based on their natural productive capacity, yet so that the location of the property related to a farmstead or a village centre is not always considered (e.g. in France, Germany, the Netherlands, and Sweden). The layout of the land compartments and the assessment can be made by the committee that is implementing the land consolidation (e.g. in the Netherlands), agricultural experts (e.g. in Germany), or a surveying engineer and two trustees (e.g. in Finland and Sweden). Previous assessed valuations can also be used for the assessment, if they are included e.g. in the cadastre (e.g. in Austria, Denmark, France, Germany, and Hungary).

The inventory material is compiled into a numeric database. Versatility of application is a characteristic of a modern procedure database. This geographical information material may be supplemented along with the land consolidation procedure and exploited e.g. in the inventory, preparation of the land consolidation plan, planning and implementation of various development projects and other associated projects, and when officially registering the situation after the land consolidation procedure. An obvious trend is that as the use of numeric material is becoming general, a larger part of the tasks in the terrain is replaced by less demanding, more simple and quicker updating of the existing material.

The introduction of an integral database also means that the inventory and planning stages of the land consolidation procedure are forming into an entity where different tasks are performed in parallel. The use of modern information technology in the land consolidation procedures is covering the whole process (e.g. in Sweden where the ArcCadastre and GISOM programs are used in forest property readjustments, and in Finland where the JAKO geographical information system is used).

5.3 Land consolidation plan

The most important task in the planning stage is the preparation of the land consolidation plan showing the new reallocation. The land consolidation plan usually includes, e.g.:

- The new reallocation of the real property units (the new parcel division);
- Joint property units and possible public areas;

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[2] Confusions in proprietary and other rights and in the real property boundaries are generally settled in the court of justice in the inventory stage. In some countries (e.g. in Finland and Sweden) the land survey authorities are entitled to settle these confusions in the first stage. This procedure has turned out to expedite the implementation (Sky 2001).

- Areas reserved for possible nature conservation, landscape preservation and recreation use;
- Easements and other usufructs;
- The time of taking into possession of the new property units and instructions on the regulations of ownership and tenancy.

The land consolidation plan regularly includes a plan of agricultural engineering works (roads and water managements), and also a landscape preservation plan, for example in the Netherlands and Germany. In the Swedish forest consolidation "green" management plans for all forest owners will be prepared according to the new property division.

The responsibility for preparing the land consolidation plan may be with the implementing committee (e.g. in Austria, France and the Netherlands), or with the association of the landowners (e.g. in Bavaria and Switzerland). In Spain a private consultant under the supervision of the authorities prepares the land consolidation plan. In Germany, Sweden and Finland the cadastral surveyor prepares the land consolidation plan in co-operation with the landowners and experts in various fields.

The practice of approving the final land consolidation plan varies in different countries. In Denmark a half of the landowners possessing the minimum of 2/3 of the acreage of the real properties involved and 2/3 of the value of the areas shall approve the land consolidation plan. In Portugal it is required that a majority of the landowners measured by the taxable value of the property units is in favour. The most common practice is, however, that the land consolidation authorities confirm the plan after hearing the interested parties without any kind of voting. Those discontented with the land consolidation plan generally have the right to separately appeal to the court.

5.4 Implementation stage

Tasks in the implementation stage are the demarcation of the boundaries, when necessary, and taking into possession of the new property units, calculation of compensation between the landowners and the land consolidation costs, and the apportionment between the parties liable for payment. The primary improvements of the road and drainage networks and other construction projects, if not realised in the planning stage, are implemented in this stage. The changes are entered in the cadastre, land register, and depending on the country, also in other necessary registers.

6 APPEAL PROCEEDINGS

In most countries the parties discontented with the decision of the cadastral surveyor or the implementation committee have the right to demand for rectification to the local or regional land consolidation authority, and after that possibly to the central government authority (e.g. in France, Germany, the Netherlands and Spain). The final decisions of the authorities can be appealed either to a specific real estate court (e.g. in Finland, Germany and Sweden), to the

administrative court (e.g. in France and Spain) or to a local court (e.g. in the Netherlands). Mostly the disputes on the land consolidation procedure are treated in three different administrative levels before the legal proceedings, and after that in two different instances (Zhou 1999). Appealing in a multi-phased process is economically unfavourable and will prolong the implementation. According to Sky (2001) the three-level appeal procedure is in practice sufficient to guarantee the landowners' legal protection.

7 COSTS AND FINANCING

The costs of the land consolidation can be divided into two groups:

1. Costs of the procedures, including the costs to the land consolidation authorities, e.g. wages, rent of the premises, etc.

2. Implementation costs, e.g. including the costs for the improvements of the agricultural engineering works and costs for other associated projects implemented in connection with the land consolidation project, demarcation costs, etc.

The costs of the land consolidation procedures are paid in total or in part by the state (50–100 %) in different countries. The landowners primarily pay the implementation costs, but they regularly get government subsidies and/or loan for the financing.

8 PROCESS DURATION

The duration of a land consolidation process from the start-up to becoming legal varies considerably in different countries. In Norway the duration is about 2 to 4 years. In Sweden the forest readjustments are implemented in 5 to 7 years. In Finland the duration of a traditional land consolidation is 8 to 12 years. In Germany and in the Netherlands the total duration of a land consolidation project from the execution decision to the conclusion may last 10 to 15 years. And in the Netherlands the preparation stage may last longer than 10 years at the maximum.

According to the experts (see e.g. Sky 2001; Sonnenberg 2002) the duration is prolonged by the extent of the processes (acreage and/or a large number of landowners), and the great number of associated projects (e.g. road and drainage projects). In addition to these there are other factors prolonging the procedure, such as waiting times in the starting stage and between the various partial tasks, lack of the numeric inventory material (digital data), the increased planning need due to the rapid structural change in agriculture, and the increasing tendency towards consensus in the decision-making.

9 DEVELOPMENT SCENARIOS FOR LAND CONSOLIDATION

The operational environment of the agricultural land consolidation is undergoing thorough changes at the moment in all of Europe. The governments are pursuing to decrease the productivity of agriculture through farming subsidies and structural policy, and to reduce the

production costs. At the same time the farmers wishing to continue agricultural production want to increase their income level by rationalising the use of their production resources and adapting the production to the new market situation. The chance of increasing the farm size by purchasing or leasing property units from farmers relinquishing production has become a tool for this adaptation. However, the problem with this is that the growth of farm size by acquiring additional land regularly fragments the property division of the farms. This in turn will cause extra costs to the farmers and threatens to eliminate the benefit obtained from the size rationalisation.

A similar problem arising from the fragmentation of the property units is developing in the farms of Central and Eastern Europe, where the privatisation of the real property and the opening of the land market are offering a new kind of chance for growing the farm size.

The traditional land consolidation for agricultural purposes aiming to the improvement of property division is seen as means to rectifying fragmented property conditions and obtaining the full benefits arising from production intensification (increase of income) to the farmers continuing the production. For this reason the modern agriculture is still in need for land consolidation of fragmented land parcels. However, the prerequisite for this is that land consolidation can be implemented so rapidly and economically that the landowners feel the benefits obtained are larger than the present costs.

The targeting of land consolidation has continuously diversified, and land consolidation is confirming its position outside the traditional sphere of agricultural functions. A clear development trend in Western Europe is the integration of land consolidation into the means of implementing the rural development programmes and e.g. various conservation programmes, village development projects or the improvement projects on transport infrastructure and water management.

Regarding the development of the land consolidation process there is a common problem in all parts of Europe. That is the expansion of the land consolidation projects into oversized in the workload and costs and overlong in duration. The rapid change of the rural development in the 1990’s has, however, brought out the need of expediting the duration of land consolidation. At the same time the limited potentials of both the landowners and the national economy for project financing have caused pressure to lowering the costs of the procedures and the implementation costs.

The critical success factor for land consolidation in the future is to develop the land consolidation procedure so that the proceedings will be simplified, cost-effective and shorter in duration. This is achieved by cutting the project sizes, availing the existing data banks and modern information technology, combining and performing in parallel the different stages of the process, minimising the waiting times between the different stages and tasks of the process, and omitting the associated projects delaying the process, such as improvements of the road and drainage networks. The emphasis of the targeting and the proceedings will thus be on the solving of certain core problems in an area. Examples of such simplified land consolidation are smaller

and flexible special land consolidation procedures regarding one land use type or one form of agricultural production. Such reallotment processes are, e.g. land consolidation in the vine culture areas, property readjustments of water areas, the German special land consolidation proceedings, and the Swedish forest consolidation.

Land consolidation on a voluntary basis meant that each participant had to agree fully with the proposed result of the reallocation process. Gaining unanimity among a larger number of landowners (e.g. in a village) is, however, difficult, as the members of the community may have different reasons for not joining[3]. Therefore voluntary land consolidation seems to be only useful to solve small local fragmentation problems[4].

On the other hand, it is obvious that all the features of the present land consolidation procedure promoting the delivery and improving the quality will be preserved and emphasised. This means that the targeting of the land consolidation projects shall be in concord with the objectives of the regional development programmes based on political decision-making, and that land consolidation will more frequently act as the means of implementation for these programmes. From the viewpoint of improving the quality of land consolidation the preliminary environmental impact assessment (EIA) and social impact assessment (SIA) of various projects will be emphasised. The endeavours for promoting the delivery and quality will also increase the transparency of the land consolidation projects and participation in the project planning and implementation.

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[3] According to Sonnenberg (2002) only small voluntary land consolidation projects with less than 10 participants or rather less than 5 participants can be carried out successfully.

[4] There has been a similar change in Western European countries in the compulsion of the landowners to take part in a land consolidation process already decided upon. The landowners participated voluntarily in the first reallotment projects. As the existing land division prevented or hindered practical production renovations, individual landowners tried to make changes in their real property conditions by agreements. Gaining unanimity among a larger number of landowners (e.g. in a village) was, however, difficult, as the members of the community may have had different reasons for not joining. Voluntary land consolidation thus became economically inefficient and long in duration. In addition, the risk of being unfinished was always great. As the new financial benefits were wanted quickly and as large as possible, an efficient way to settle the situation was the use of state compulsion, by which the resistance could be broken and the necessary changes implemented. The landowners in a land consolidation area were imposed by compulsion to participating in the reallotment after the decision on implementing the project was made.

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BIOGRAPHICAL NOTES

Arvo Vitikainen

Date of birth:	10 May 1951
Academic graduation:	Master of Science (Technology), Helsinki University of Technology (1976) Doctor of Science (Technology), Helsinki University of Technology (2003)
Professional career:	1976: Secretary of the Cadastral Map Project, National Land Survey 1979: Cadastral surveyor, Kaarlela Land Consolidation Office 1985: Head of Land Consolidation Office, Ylivieska Land Consolidation Office 1989: Surveying Manager, Rovaniemi Land Surveying Office 1974: Senior Engineer, Lapland Land Surveying Office, Rovaniemi
Present position:	1999: Professor of Land Management and Cadastral Science, Helsinki University of Technology, Institute of Real Estate Studies

CONTACTS

Professor Arvo Vitikainen
Helsinki University of Technology
Institute of Real Estate Studies
P.O. Box 1200, FIN-02015 HUT
FINLAND
Tel. +358-(0)9-451 3872
Fax +358-(0)9-465 077
E-mail: arvo.vitikainen@hut.fi