# Actual developments of land consolidation in Finland

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**Key words**: Land consolidation, Land rearrangement, Reallotment of parcels, Quality management

**SUMMARY**

This paper describes the development of land consolidation activities in Finland.

Demand for land consolidation services in Finland has increased recently. The main reasons for this are:

- the fragmentation of farms in connection with their rapid growth in size has become a problem, and
- experience gained in implementing nature-conservation or road-safety programs with new kinds of land rearrangements has been promising.

From the customers' point of view, the main problems in land consolidation projects have been:

- the long duration of the projects, and
- the fact that little information about the land consolidation plan is available at the beginning of a project when the decision to carry the project out is made.
- the solution to these problems is development of the land consolidation process, and is connected with the implementation of JAKO/VLC, a new application within JAKOcadastre, the Finnish Cadastral Information System. This new application consists of tools for the valuation of land and land consolidation.

The new tools make it possible to develop the land consolidation process to improve the service offered to customers.

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## 1. DEFINITION OF TERMS

In different countries and languages the term “land consolidation” can have different contents. There is a complex mixture of language, history, culture and etymology. For example the German expression Flurbereinigung and English land consolidation bring to mind different contents. Land consolidation means bringing together or combining parcels when Flurbereinigung originally more or less means clearing of forest into field. During the years these terms naturally have got new contents. In Finnish land consolidation is generally translated “uusjako” that originally means to make a new allotment of cadastral parcels.

In the interests of clarity, it is necessary to provide a definition of essential terms used in this paper.

**Land rearrangement**
This is a general term that describes all types of rearrangements of cadastral parcels. Land rearrangement includes both land consolidation and the reallotment of parcels.

**Land consolidation**
A comprehensive reallotment process affecting a rural area consisting of fragmented holdings or their parts, usually for the purposes of agriculture or forestry. In this process, it is normal for each holding to be more or less consolidated by exchanging land to form larger plots that are better adapted to their proper use. The area concerned may subsequently be improved in many other ways.

**Reallotment of parcels**
This term is used to describe exchanges of land in an area that is affected by a public land-use project such as the building of a new road or the implementation of a nature conservation area. Exchanges of land take place between the authority that is responsible for the land-use project and private landowners. The aim is to assist in the execution of such public projects and to reduce the scale of any negative effects that may result.

## 2. HISTORY OF LAND CONSOLIDATION IN FINLAND SHORTLY

The geographical structure of cadastral parcels in Finland is the product of hundreds of years of development. First land rearrangements (in Finnish: sarkajako) began in the 14th century - to ensure taxation for the king. At that time Finland was still a part of Sweden. The first mapping and land rearrangement activities that aimed at improving the economy of agriculture took place in the 17th century (isojako). Land consolidation in the way that we recognize it today began in the middle of the 19th century (uusjako). Prior to this, land

rearrangements were regarded as final and the execution of a new land consolidation project on a rearranged area was forbidden.

During the 20th century land consolidation has developed toward a more comprehensive procedure that has close connections with rural development. The latest step in the development of land consolidation took place in 1997 when Finnish cadastral legislation was completely renewed. The new act on cadastral surveys includes provisions relating to land rearrangements. It is now possible to carry out the land consolidation process in order to promote the use of land for all kinds of purposes – not only for agriculture and forestry.

During the last years the National Land Survey of Finland has developed the process, tools and legislation of land rearrangements based on needs of the customers and interest groups.

## 3. STATE OF THE ART CURRENTLY

### 3.1 Introduction

Demand for land rearrangement services in Finland has increased recently. There are two main reasons for this; the structure of agricultural holdings is changing very rapidly and it is possible to implement nature conservation or road safety programs with the help of reallotment of parcels.

First about the change in the structure of agricultural holdings. In the fifties we had approx. 330 000 farms, for the time being the number is 70 000 active farms. It is estimated that the amount of active farms will decrease to approx. 35 000 in ten years. The amount of arable land in hectares is however not decreasing because the size of the farms is growing fast and their inner fragmentation is increasing. The remaining farms are intensifying their activities in every way. One factor is to thrive towards bigger arable lots and in a more favorable location. Road and drainage works are also combined with land consolidation.

Secondly the experience gained in implementing nature-conservation or road-safety programs with new kinds of land rearrangements has been promising. The National Land Survey of Finland has carried out pilot projects together with the environment authorities and road and railway administrations.

The National Land Survey of Finland is a government agency responsible for carrying out land rearrangement activities in Finland which is answerable to the Ministry of Agriculture and Forestry. The National Land Survey of Finland is also responsible for Finland’s cadastral system and the execution of general mapping assignments.

### 3.2 Parties in the activities

The land rearrangement projects are carried out by a surveyor and two trustees elected by the municipal council. Even though these three executors have the power to make legally-binding decisions in connection with a project, the aim is to achieve voluntary agreements rather than to impose compulsory decisions.

Land owners are the most important customers in these projects. They are able to elect their trustees to help the executors. In bigger projects the land owners can also elect representatives for the most important phases of the project. In reallotment projects paying customers are naturally those who are in charge of the land use projects (the local authoroties of environment, roads and railways).

The projects are carried out in close co-operation with other interest groups such as the municipality, Regional Council and producers' organizations.

There are also many subcontractors in the projects: contractors for road and drainage works, planners, environmental experts and so on.
There is a special court where those who are not satisfied with the decisions made in the project can appeal.

### 3.3 Performance

The National Land Survey of Finland is using annually 80 man years in land rearrangement activities. This is around 4 % of the total amount of the work force in National Land Survey of Finland. It is estimated that the number will increase to approx. 6 %.

The labour costs and the costs of the road and drainage works add up to approx. 6,5 Mio € annually. Around 1,9 Mio € is financed by the customers. The rest remains as a subsidy from the state. Funding is also possible from the EU.

In fragmented areas the state is financing ca 75 % of the costs of land consolidation. Reallotments of parcels for nature conservation are financed by the Ministry of Environment.

The number of on-going projects at the moment is approx. 40 land consolidations with the total area of 75 000 ha:s and 60 reallotments of parcels (15 000 ha:s). Approximately 7 000 ha and 35 pieces are completed per year

New land consolidation projects are completed in ca 5 years and reallotments of parcels for nature conservation in 2 years.

## 4. DEVELOPMENTS THAT ARE INFLUENCING THE LAND CONSOLIDATION INSTRUMENT AND ITS APPLICATION

### 4.1 General trends

Land owners and other customers demand more efficient activities from public bodies: faster and more transparent processes. The authoroties responsible for carrying out nature conservation and improving traffic safety are becoming more interested in their image in the eyes of the land owners. They are interested to introduce alternatives to expropriation in carrying out the projects.

### 4.2 Financial resources

Public funding is not increasing and at the same time there is an increasing demand for land rearrangement services. There is a privatisation trend in the public services – the state and the municipalities are considering of forming companies or ordering the services from private companies.

### 4.3 Digital geographic information and technical development

During the years many organizations have collected huge amount of location based data that is in digital form or can be digitized. Developing GIS-applications and the capacity of the computers make it possible to utilize existing location based data efficiently.

## 5. INSTITUTIONAL AND OPERATIONAL CHANGES THAT ARE PREPARED AND IMPLEMENTED

### 5.1 Improving the processes

The National Land Survey of Finland is systematically improving the quality of its services and products to meet the expectations of the customers. Quality management is based on ISO9000:2000 standard and the EFQM quality model. The main effort is directed to development of the core processes. Self-assessment using the EFQM model is used for finding the improvement areas. Process personnel are working in teams. Strategic goals are defined with Balanced Scorecard (BSC) and critical success factors are transformed to measures and goals. These objectives are then used to guide the processes and teams.

New process implemented
Finland has introduced a new land consolidation process. Its characteristics are: examining the need and preconditions in advance, more power to the land owners, utilizing existing cadastral and topographic data, faster and cheaper than the old one

### 5.2 Improving the output

All the activities of public bodies are analysed in terms of their environmental and general effects. The proposed projects go through a cost/benefit investigation before they are financed. Public-private partnership (PPP) is increasing to gain more efficiency.

There is more existing data that can be utilized in the land rearrangement process: boundary data, topographic data, ortophotos etc. During the last years the National Land Survey of Finland has developed good technical eligibility for utilizing existing data. The National Land Survey of Finland has taken into use new tools. It is a new application within JAKO that consists of tools for the needs of the new process.

Development of the legislation and other directives according to the experiences gained from the practice is a continual task of a dynamic society.

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## BIOGRAPHICAL NOTES

Mr. Mikko Uimonen, MSc (Engineering), 1977, Department of Surveying at Helsinki University of Technology. Since 1993 has worked in the National Land Survey of Finland being now head of Land Consolidation Team. Main task is the developing of new processes for land consolidation and supporting the District Survey Offices in land consolidation. Previous experience includes: Surveying Engineer at the National Board of Agriculture, District of Helsinki 1984-93. Developing the structure of agriculture and land consolidation in forest areas. Surveying Engineer at the National Land Survey of Finland, District Survey office of Oulu 1977-83. Legal land surveys, community planning. He is also Finnish Delegate to FIG commission 7 and a member of WG 7.1 of FIG ”Reforming the Cadastre”.

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