

'Cadastre 2014' – Report of Commission 7 Working Group 7.1, Modern Cadastres

'Cadastre 2014' – Rapport du Groupe de travail 7.1 de la Commission 7, Cadastres modernes

'Kataster 2014' – Bericht der Kommission 7, Arbeitsgruppe 7.1, Moderne Kataster

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ABSTRACT

The report describes the work being done in stages and progress that has been made by Working Group 7.1. It gives an overview of the results of the surveys on the state of the cadastral systems, the cadastral reform processes, and the issues of privatisation and cost recovery in cadastral matters. The result of the work – a vision of the cadastral systems in some twenty years, which the Working Group speaks of a 'Vision Cadastre 2014' – is shown.

RESUME

Le rapport décrit les étapes et le progrès des travaux du groupe de travail 7.1. Il donne une vue d'ensemble des résultats des enquêtes sur l'état actuel des systèmes cadastrales, les réformes cadastrales et les aspects de la privatisation et des revenus financiers du cadastre. Le résultat du travail – une vision comme les systèmes cadastrales pourraient se présenter dans quelques vingt ans, le groupe du travail parle d'une 'Vision Cadastre 2014' – est montré.

ZUSAMMENFASSUNG

Der Bericht beschreibt die Arbeitsschritte der Arbeitsgruppe 7.1. Er gibt einen Überblick über die Untersuchungen zum Zustand und den Reformen der Katastersysteme und über die Aspekte der Kostendeckung und der Privatisierung im Katasterwesen. Das Resultat der Arbeit – eine Vision, wie Katastersysteme in circa zwanzig Jahren aussehen könnten, die Kommission spricht von der 'Vision Kataster 2014' – wird aufgezeigt.

1 INTRODUCTION

During the 1994 Congress in Melbourne, Australia, the FIG-Commission 7 decided to have three working groups studying different aspects of cadastre and land management.

2 TASK OF THE WORKING GROUP 7.1

The task given by the Commission to the Working Group 7.1 was:

- to study cadastral reform procedures as applied in developed countries;
- to take into consideration automation in the cadastral systems and the role of the cadastres as part of a larger Land Information System;
- to evaluate trends in the cadastral system field and to produce a vision of where cadastral systems will be in 20 years time;
- to show the means by which these changes can be achieved;
- to describe the technology to be used in implementing these changes.

3 INVESTIGATION OF CADASTRAL SYSTEMS

To get an idea of the existing cadastral systems a first questionnaire was sent out in February 1995 to some seventy Commission 7 delegates and corresponding members. The questions referred to the following issues:

- | | |
|--|--|
| 1. Characterization of existing cadastre | 5. Strengths and weaknesses of existing system |
| 2. Aspect of multipurpose cadastre | 6. Reforms |
| 3. Aspects of privatization | 7. Trends |
| 4. Fees | |

Delegates from 31 countries or states responded to the questionnaire. The answers have been compiled in a summary report. The most important issues showed the following trends:

Aspect of Privatization:	Cadastre not 100% run by public sector: NETHERLAND, DENMARK, NORWAY, GERMANY, AUSTRIA, NEW ZEALAND	
Fees:	Close to or over 100% cost recovery: NETHERLAND, DENMARK, NORWAY, GERMANY, AUSTRIA, NEW ZEALAND	
Strengths/Weaknesses:	<u>Strengths</u>	<u>Weaknesses</u>
(depend very much on local context)	<ul style="list-style-type: none"> - reliability - completeness 	<ul style="list-style-type: none"> - initial cost - too many organizations involved - little flexibility - no political support - not yet automated

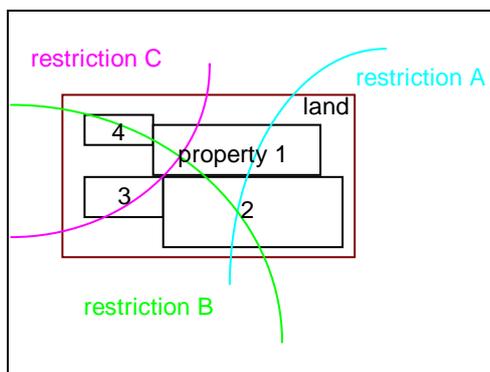
Reforms:	<ul style="list-style-type: none">- reform of defects of political nature- computerization
Trends:	<ul style="list-style-type: none">- land registration and cadastral mapping are coming closer together- low level of financing is a concern in many systems- lean management, privatization, marketing, and cost recovery are matters of discussion- with the introduction of computerization, the idea of Land Information Systems (with cadastral data as the basis) is becoming more and more important- data structures have to be adapted to new requirements- new applications, such as land use planning and environmental aspects, are becoming more important.

4 DEVELOPMENT OF THE 'STATEMENTS ON CADASTRE 2014'

Based on this trend analysis, on OICRF documents, and on a discussion with Prof. J. Hensen at OICRF in Apeldoorn, a first discussion basis for the Working Group has been established in the form of six statements. They were presented at the one-day seminar on 'Modern Cadastres and Cadastral Innovation' in Delft, Netherland, during the annual meeting of Commission 7 in 1995.

The following six statements were the basis for the Working Group's further activities:

Statement 1: Cadastre 2014 will show the complete legal situation of land! Private and public rights and restrictions on land will be systematically documented!



Comments: The population of the world is growing. In the developed countries the consumption of land is increasing. Therefore the absolute control of the individual or of legal entities of land is more frequently being restricted by public interests. To provide security of the land tenure all facts about land must be made obvious by the cadastral system in the future.

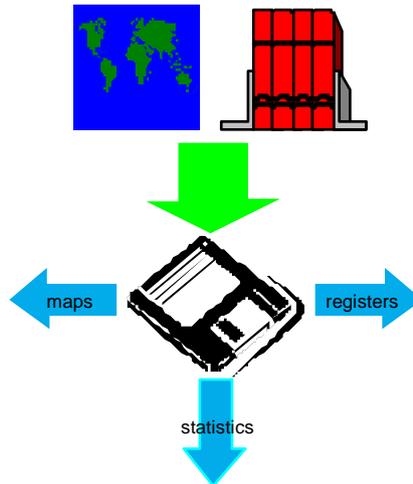
Consequences: All the public rights and restrictions cannot be documented in relation to individual parcels. They are defined in relation to land and will have impacts on the parcels and the private rights referring to the parcels.

A new thematic model is therefore necessary:



Surveyors must consider more juridical aspects than they do currently.
The licenses of the surveyors will have a greater importance than today.

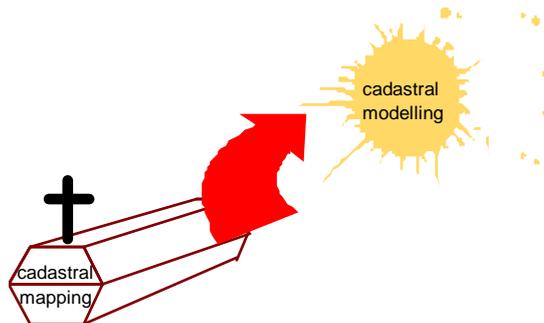
Statement 2: The separation between 'maps' and 'registers' will be abolished!



Comments: The separation was necessary because the available technology – paper and pencil – did not allow for other solutions.

Consequences: The division of responsibilities between surveyor and solicitor in the domain of Cadastre will be seriously changed.

Statement 3: 'Cadastral mapping' will be dead! Long live modelling!

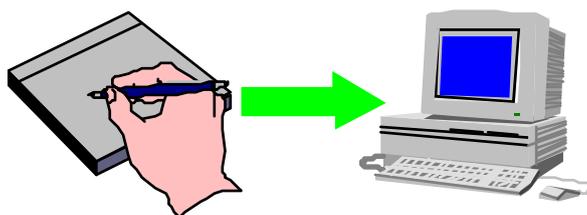


Comment: Maps have always been models, but the available technology did not allow the use of these models in a flexible way. Thus mapping flexibility had to be brought in by different scales. Different scales had to be represented by different data models.

Modern technology allows the creation of maps of different scales and registers in different forms out of the same data model.

Consequences: In 2014 there will be no draftsmen and cartographers in the domain of Cadastre.

Statement 4: 'Paper and pencil - cadastre' will be gone!



Comments: Computer technology will become the normal tool for cadastral work. Real low-cost approaches are only possible with this technology.

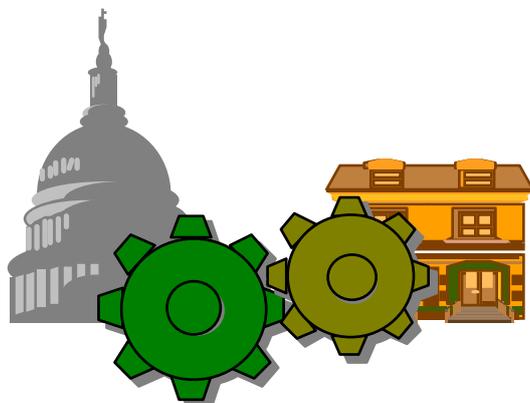
In developed countries only high-tech solutions are able to render the services expected by the societies.

In developing and transition countries, reform and implementation of feasible cadastral systems must make use of the advantages of modern technology. Traditional methods will not provide the urgently necessary cadastral information in time.

The whole world has to deal with similar problems of population, environment and reasonable land utilisation. The solutions can only be found on the basis of models of the existing situation.

Consequences: The Cadastre has to provide the basic model. Surveyors all over the world must be able to think in models and to apply modern technology to establish these models.

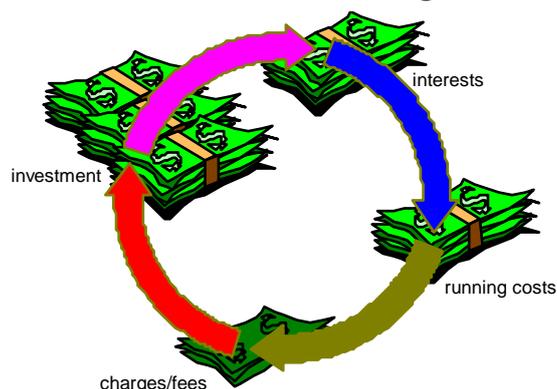
Statement 5: Cadastre 2014 will be highly privatised! Public and private sector are working closely together!



Comment: Public systems tend to be less flexible and customer oriented than private organisations. Free economies demand flexibility in land markets, land planning and land utilisation. Flexibility may be better provided by private institutions. For the necessary security a public engagement is indispensable.

Consequences: The private sector will gain importance. The public sector will concentrate on supervision and control.

Statement 6: Cadastral 2014 will be cost recovering!



Comments: Cadastral systems need big investments. But the land documented and secured by the Cadastre represents a multiple value of the investment in Cadastre. The costs of the investment and the operation have to be paid back by those who profit from Cadastre.

Consequences: Cost/benefit analysis will be a very important aspect of Cadastre reform and implementation. Surveyors will have to deal more with economic questions in future.

The statements were further discussed during the annual meetings of Commission 7 in Delft, Netherland, 1995; Budapest, Hungary, 1996; and Penang, Malaysia, 1997. The reactions and comments that were sent to the Working Group from all over the world showed, that

- the trends stated in the statements are confirmed and considered to be useful for the resolution of the problems of the different national societies;
- the time to achieve changes will depend on the starting conditions and the political, economic and social situation of the different national cadastral systems;
- in some developed countries, there are projects going on, which go in the direction outlined by the statements;
- the land administration procedures must be re-engineered to relieve them of the often complicated processes and multiplied components, which were necessary to make secure cadastral systems operated in the traditional manner;
- there is a need for mental changes within the profession in order to take advantage of the new cadastral approach;
- political efforts are necessary, besides professional development and training, to achieve new and better solutions, matching the needs of the society.

5 INVESTIGATION ON SERVICES REQUESTED BY USERS OF THE CADASTRE

Interviews with bankers, organizations of land and house owners, and officials of land registration authorities, brought the following results:

- The aspect of public law is missing in the traditional land registry systems; there is an urgent need for a systematic documentation also of public restrictions.

- The information security and transparency of public law rights and restrictions has to be on the same level as the civil law rights and restrictions. A main obstacle for the creation of an integrated cadastral system is seen in the slow political decision-making procedures.
- Such modern, integrated cadastral systems may be operated by private organizations, under the condition that a strong and competent governmental supervision exists and that the state law guarantees the rights and ensures that restrictions are not misused.
- Cost recovery is seen as a means to achieve fair financial charges for private and public users of the cadastral system. The interest of public authorities in cadastral information will be much higher in a system documenting the total legal conditions of land. Therefore the costs for implementing and running such a cadastral system can be distributed to a larger number of users.
- The fusion of the geographic and descriptive parts of a cadastre is seen as a possibility to improve effectiveness and efficiency of the cadastral system. The separation creates additional costs.

6 INVESTIGATION ON COST RECOVERY AND PRIVATIZATION

The Working Group established in 1996 a second questionnaire which focussed on more precise and internationally comparable information about cost recovery and privatization aspects in the cadastral domain worldwide.

Questions about the following aspects of cadastral systems were asked:

- A) general statistics and content of the cadastral systems
- B) performance, reliability
- C) completeness
- D) personnel and salary structure
- E) cost recovery.

The questions were answered by representatives of 54 countries or states. The results of this survey have been the basis of the delegate's national reports at the 1997 annual Commission 7 Meeting in Penang, Malaysia. The answers were compiled by the secretary of the Working Group, Daniel Steudler. It can be obtained from the secretariat of the Working Group.

On behalf of Commission 7, the material was processed further to serve as a basis for benchmarking cadastral systems. A paper has been published by Daniel Steudler, Ian Williamson, Jürg Kaufmann, and Don Grant under the title 'Benchmarking Cadastral Systems' in the periodical *The Australian Surveyor* in September 1997.

7 FINAL REPORT OF THE WORKING GROUP

At the 1997 annual meeting in Penang, the Working Group agreed to the content of the final report to be presented at the 1998 FIG Congress in Brighton.

The report describes the actual situation of the cadastres and the trends of further development. It presents the 'Vision Cadastre 2014', defining the new tasks and a possible design for future cadastral systems. The necessary activities for the implementation of a new Cadastre system is outlined, and the contribution of FIG, the national member organizations, and the individual surveyors to support the creation of modern cadastral systems is defined.

Based on the six statements, the 'Vision Cadastre 2014' states, that:

'Cadastre 2014' is a methodically arranged public inventory of data concerning all legal land objects in a certain country or district, based on a survey of their boundaries.

'Cadastre 2014' is a totally computerised land register, containing all relevant legal information about land.

'Cadastre 2014' will be an organisation, where the public sector ensures legal security of land matters and is responsible for the supervision. The private sector will be doing the operational work.

'Cadastre 2014' will no longer be financed by public funds only. The money invested into this registration system must be paid back, at least partially, by the users of the relevant information.

'Cadastre 2014' will be managed by a new type of land manager, the 'Surveyor 2014'.

The 'Surveyor 2014' must have excellent capabilities in the domain of sustainable utilization of land by the individuals and the communities. These surveyors must have particular skills in the appreciation of the legal aspects of land use defined by private and public legislation.

The 'Surveyor 2014' must have the ability to use the most modern technology for the localization, the documentation, and the exploitation of real and legal land objects.

'Cadastre 2014' will not automatically develop from the traditional land registry systems. Its implementation must be promoted by FIG and its national member organizations.

The full report of the Working Group is available in booklet form which can be obtained from the secretariat of the Working Group.

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