The goal of fully integrated cross border property information services may be more of an aspiration than an achievable objective. However, measures can be taken in a phased approach towards introducing a common framework to certain information. Similarly, measures could be introduced, which would lead towards harmonisation of registration services. Some of the issues that may need to be addressed in this regard are:

• Establishment of an EU network on Land Registration (including associated agencies) with representation from all countries within the union

• Benchmarking Land Registry / Cadastral systems through an agreed set of Key Performance Indicators

• Agreement of common approaches towards access to information for commercial use

• Agreement on principles governing copyright over information

• Agreement on principles governing cost recovery, State subvention and the involvement of Public Private Partnerships

• Establishment of universal data sets to form the basis of EU wide registration of title information systems

• Co-ordination of approaches to electronic information systems and electronic registration

• Establishment of common protocols for file transfers and language

• Development of a heightened awareness at government and EU level of the importance of land registration / Cadastres and its role in spatial planning. ∎

# The UK «Cadastre»

**MARK PROBERT**
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The word *cadastre* is generally used to describe «a methodically arranged public inventory of data concerning properties, within a certain country or district, based upon a survey of their boundaries (1)». There are numerous models however for it's use and implementation throughout Europe. Using the land parcel as it's foundation, the cadastre is used to record information about land rights, valuation, land use, etc.

*There is no UK Cadastre* - the word cadastre is not one commonly used in the UK, where for historical reasons the development of land administration institutions has taken place in a different way from the rest of Europe. While mapping remains the basis for those activities considered as «cadastral», in the UK there is no single organisation responsible for the cadastre.

Ordnance Survey, as a national mapping agency, maintains large scale mapping for England, Scotland, and Wales. In Northern Ireland this is the responsibility of Ordnance Survey Northern Ireland. The detailed digital

mapping maintained by these two Government Agencies provides the definitive framework upon which other organisations can «hook» and manage their data. Another difference with most mainland European countries is that the base mapping in UK is topographic – it shows features that exist on the ground but not the fixed boundary points and monuments usually associated with a cadastre.

The responsibility for the recording of land rights in the UK is divided between Her Majesty's Land Registry (HMLR – England and Wales), by Registers of Scotland (RoS) in Scotland, and Land Registers of Northern Ireland. Land and Property valuation is the responsibility of the Valuation Office Agency (for England and Wales), Assessors in Scotland, and the Valuation and Lands Agency in Northern Ireland. Land Use information is managed by a number of Government Departments e.g. Environment, Agriculture, devolved Government departments, and by Local Authorities. This paper will concentrate on the products and services of Ordnance Survey GB, but all of the other organisations mentioned above are also developing services to the citizen – the main topic of this session of the Cadastral Congress.

Ordnance Survey provides a wealth of free mapping on its web site (2) including map extracts at scales up to 1:50,000. This service, called Get-a-Map allows users to select areas by town, post-code or co-ordinate, and to pan, zoom and centre a map before printing it out. A recent research project has also looked at the possibility of extending this service to kiosks – placed in public places such as airports or railway stations. The result of the trial has not yet been announced but it is likely that any future development of the service will depend more on the business case than the technical feasibility.

Ordnance Survey has made Great Britain one of the few countries in the world to have a complete digital national topographic database, including complete large scale data for all urban areas. In the last year Ordnance Survey Northern Ireland has completed the UK picture with large scale digital data covering the entire province. Within Great Britain there is now widespread use of digital mapping across many user sectors, in one of the most developed GI markets in Europe, based on a robust data infrastructure which enables major contributions to national economic development.

Over the last twelve months Ordnance Survey has embarked on a number of projects under the umbrella of a new «e-Business strategy», the vision of which is:

*«Ordnance Survey and its partners will be the content provider of choice for location based information in the new knowledge economy».*

As part of its new e-Business strategy, Ordnance Survey is developing its digital mapping products and services within a coherent infrastructure known as the Digital National Framework. The DNF combines the British National Grid and GPS referencing system to create a new spatial reference standard that provides both location **and the link to topographic objects**. A unique 16 digit Topographic Identifier (TOID) is used for all points, lines, and areas, and provides a common link that will allow different data to reference the same feature, allowing users to cross-reference data in a way that should help to release the potential and value of their data.

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(1) Jürg Kaufmann, Chairperson FIG Working Group 7.1, Reforming the Cadastre.

(2) http://www.ordnancesurvey.co.uk/.

In November 2001 Ordnance Survey released the first layer of its OS MasterMap, the first data product based on the DNF. The re-engineering of over 430 million point, line, and area features, each referenced by a unique TOID, has created a seamless, object-based, large scales topographic layer that initially includes nine themes. Additional layers will be added later in 2002 and into the future, driven by customer requirements. Some of the planned layers, in addition to the existing topographic layer, are shown in the following diagram:

The data is intended to provide a definitive reference that acts as a common template onto which users can link their own data, by using the TOID. TOIDs support explicit linkages and therefore enable data sharing. The object based approach provides a more intelligent database including, where necessary, inferred links to close polygons. Service features such as on-line ordering and theme selection, user defined area selection, change only update, and on-line delivery make OSMasterMap data extremely accessible. Delivery is in industry standard GML which is supported by all major systems providers.

Having a national framework of data allows users to integrate and cross-reference data using the common ids (TOIDs). In Great Britain, the 400+ local government administrations have entered into a joint agreement with Ordnance Survey allowing access a portfolio of Ordnance Survey data products. Very recently a new pilot Pan-Government Agreement project has been initiated that enables Central Government departments also to have access to a similar portfolio of Ordnance Survey products. Both of these agreements allow government departments to provide free internet mapping services to the citizen, within certain licensed conditions. For example a new planning portal is being developed that will allow citizens to view planning development plans of their local areas free of charge. The service will eventually be expanded to allow citizens to make on-line planning applications. This is an example of what is being called in the UK «joined-up Government» i.e. it is helping government departments to work in a co-ordinated way to help the citizen.

Two other significant developments are NLUD and NLIS. NLUD is the acronym for the National Land Information Database and is a joint Central / Local Government initiative which has two main objectives. Firstly, a database of vacant and derelict land is being created, including previously developed land and buildings that may be available for redevelopment. Secondly a «NLUD-Baseline» database is being created that will be a comprehensive and up to date land use map of England based on Ordnance Survey MasterMap™.

The National Land Information Service (NLIS) is part of the UK Government «modernising government» initiative and is a project being jointly developed by HMLR, Local Government, and the Coal Authority. It features private sector partners that provide access to a National Land and Property Gazetteer.

The various UK Land Registry services are all developing their own services to the citizen also. In England and Wales HMLR operate a «Land Registry Direct» on-line service to professionals, and internet users are able to access up to date statistics on property prices. Registers of Scotland also have a «Registers Direct» service and are developing an automated registration of title to land. Similar services are under development by the Land Registers of Northern Ireland.

Ordnance Survey is working closely with the Land Registries in Great Britain, and other users, to help to develop more effective ways of managing data that will result in better services to the citizen. As an example, studies are underway to see how the object based properties of OS MasterMap might be used to manage land and property ownership data.

In conclusion, while there is no cadastre in the United Kingdom the activities normally considered to be part of the cadastre on continental Europe are performed by a variety of agencies. Although the organisational framework is different, many of the issues facing UK institutions are similar to those faced by our colleagues involved in cadastre in other parts of Europe. There is a need to create co-ordination of effort in a way described in the UK as «joined-up government» in order to maximise the efficiency of effort and to provide the best value and service to the citizen. Issues such as serving customers, data interoperability, institutional and technological change, finances, and access to data, to name but few, will be high on our agendas in the coming years. ■

# Cadastres as Focuses on Environmental Protection

**JARMO RATIA**
*Director General*
*National Land Survey of Finland*

The topic assigned to me is very challenging. What do cadastres have to do with environmental protection? Do they contribute to environmental protection in some positive way? If we have a good cadastre, is the state of our waters better, can we further decrease emissions into the air than otherwise, are we better able to organize waste management, especially with regard to dangerous chemicals, can we decrease noise pollution, is it possible for us to improve the sustainable utilization of natural resources, protection of endangered species, protection of various biotypes, etc.?

In short, does a good cadastre promote sustainable development?

In this presentation I will not deal with the good and bad points of different cadastral systems from the point of view of environmental protection. Nor will I give any recommendations for proenvironmental cadastres. I will try to find features that are common to all cadastral systems and important from the standpoint of environmental protection.

Cadastres always relate to the land. They are a creation of man, while the earth was created by God. Basically, the question deals with man's relationship with the land.

«We know that the white man does not understand our ways. One portion of land is the same to him as the next, for he is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his brother, but his enemy, and when he has conquered it, he moves on. He leaves his father's graves behind, and does not care. He kidnaps the earth from his children, he does not care. His