

# Country Report

(Based on the PCGIAP-Cadastral Template 2003)

## The Netherlands

Country/state for which the indications are valid:	The Netherlands
Name of contact person	Paul van der Molen
Affiliation, Organization:	Kadaster International
Function, Position:	Director
Address:	PO Box 9046, NL-7300 GH APELDOORN
Email address:	paul.vandermolen@kadaster.nl

### I. Country Report

#### A. Country Context

##### *Geographical Context*

The Netherlands is a country located in Western Europe, bordering the North Sea, between Belgium and Germany. It is located at the delta of three major European rivers (Rhine, Maas, Schelde). The area of land is 33,883 km<sup>2</sup> and of water 7,643 km<sup>2</sup>. The geographical coordinates are 52 30 N, and 5 45 E. The terrain consists of mostly coastal lowland and reclaimed land (polders), with some hills in the southeast. The lowest point is -7 m (Zuidplaspolder) and the highest point +322 m (Vaalserberg). It is estimated that 8 % is urban land, 58% is agricultural land, 7 % is forest, 3% is natural reserve, and the rest is various. There are 6.6 million buildings.

The population of the Netherlands is 16,067,754 people (1 July 2002). The GDP is 434 bill \$, the growth rate 0.3 % (2002). The GDP by composition is agriculture 3%, industry 26% and services 71%.

##### *Historical Context*

The Republic of the Netherlands was formed after defeat of the Spanish occupancy in 1648, with the Peace Treaty of Münster. In 1795 the Republic was occupied by the French Napoleon, and during 1810-1813 it was annexed and became part of France. In 1815, after the defeat of Napoleon in the Waterloo battle, the Kingdom of the Netherlands was formed. The territory included southern parts, now Belgium. In 1830 Belgium seceded and formed a separate kingdom. The Netherlands remained neutral during World War I, but suffered invasion and occupation by Germany in World War II. After World War II it lost its major colony Indonesia. The Netherlands was a founding member of NATO and EC, and participates in the EMU.

##### *Current Political and Administrative Structures*

The Netherlands is a constitutional monarchy and a parliamentary democracy with free elections every 4 years. The Government is formed by the Queen and Council of Ministers. The Queen is privileged (can do 'no wrong'), the ministers are responsible. The Queen is head of State (Kingdom of the Netherlands, including overseas territories). Overseas territories have a kind of separate status with a governor and local parliament and reporting to the 'minister of

home and overseas affairs'; as such the Kingdom occurs to be a kind of federation. The Prime Minister is chair of the cabinet and has a *primus inter pares* status. The Government is verifiable by the Parliament at any time and at any matter. The Parliament consists of a Second (Lower) Chamber and a First Chamber (Senate). The second chamber has most political power. The First Chamber has limited powers; its main task is to perform a second opinion on bills before becoming law. The members of the Second Chamber are directly elected by popular vote to serve four-year term. The members of the First Chamber are indirectly elected by the country's 12 provincial councils for four-years term.

At national level there are about 15 ministries, headed by a minister and (occasionally) a vice minister, responsible for a specific mandate (e.g. 'environment', 'European affairs'). The second level of administration are the 12 provinces, which have certain mandates on regional policies (e.g. planning, economy, environment), and regional implementation of national policy. Third and lowest level are about 400 municipalities, with extensive powers regarding local matters (zoning, social welfare, development control) and implementation of all kinds of national and regional regulations and relevant subsidy schemes.

The system of provinces and municipalities are considered as territorial decentralisation. A special case are the about 30 waterboards, which have extensive powers pertaining to water management, both quantity and quality. The waterboards are considered as functional decentralisation, with specific general elections for board members, and an own tax regime.

### *Historical Outline of Cadastre*

In 1810 the introduction of a fiscal cadastre became actual after the earlier mentioned annexation of the Kingdom of the Netherlands by France. The French legislation came into power. Some years before, in 1808, Napoleon Bonaparte, who needed money to finance his activities, decided to establish a system of land taxation, based on a accurate inventory of land use and land ownership, with precise land survey of land parcels: a fiscal cadastre. In 1811 it was decided that also in the occupied Netherlands such a system of land taxation should be introduced. As a consequence, in 1812 the work started to survey the land, and to list users and owners of the land parcels.

The administrative structure in the cadastre was as follows. The country was divided in municipalities, and these were divided into cadastral sections, and these on their turn into cadastral land parcels. First the land surveyors, together with the municipal executives, determined the precise boundary of a municipality. Then he surveyed the parcels.

In the archives are still present:

- the official minutes of the boundaries of the municipalities;
- an overview map of the triangulation points;
- the original cadastral maps;
- the original land register.

After the fall of Napoleon, when the Netherlands became independent again, King William I adopted the system of land and building taxation based on a fiscal cadastre, and the work was continued. In 1838 the work was finally done and a country covering fiscal cadastre was ready.

Tax was levied on the value of land and buildings in terms of the revenue one could gain with it (the rental value). This rental value was assessed during the process of land surveying. The rental value was registered in the land registers and was fixed. The regulations didn't have any provisions for updating rental values. Only if land parcels were divided or joined together, the rental values were divided and joined together according to the extent of the new surface area. With this respect the cadastre always showed a more or less actual situation. New erected buildings were appraised by comparing them with similar existing buildings, so they were put on the original scale.

The amount of the tax itself was based on a so-called repartition-system. First it was decided by the national government which part of the national budget should be provided by the land and building tax (at that time this tax was a state level tax). The resulting amount was split up to the provinces, then to the municipalities and finally to the individual land parcels. It could hap-

pen that the amount of tax was different from one province to another. Anyway, at that time the rate was about 10% to 12% of the rental value.

The updating of the cadastre was based on changes in the legal situation of land and buildings. It was a major effort to have knowledge of these changes. Legal documents could be recorded at the local courts. The clerk of the court acted as a kind of land registrar. However, as another Napoleonic rule, in 1811 it was decided that these legal documents, mainly deeds of transfer and of mortgage, should be recorded at the local office of the national tax department, in order to levy transfer taxes. Such a recording became compulsory in 1824.

Thus there were some sources for investigating the changes in the legal status of land. It became much easier however, when in 1825 it was decided to join together the legal land registers and the cadastre as a special department within the national tax department, the Ministry of Finance. It was a decision by the King himself, aiming at efficiency reasons only. Actually there was quite an oppositional movement by lawyers at that time, however without result.

Here lie the roots of the Netherlands Cadastre and Land Registry Agency, in which - unlike many other countries - the land registration and the cadastre are combined in one organisation. The cadastre became a key to the public registers, even more when in 1838 a new Civil Code came into power that ordered the inclusion of the cadastral land parcel number in notarial deeds of transfer and deeds of mortgage. The fiscal cadastre also became a juridical or legal cadastre, a situation, which is still a benefit at date.

A major revision of the Civil Code came in power in 1992 (symbolically called the 'new' Civil Code), together with the Cadastre Act as a specific elaboration of the parts pertaining to the system of property rights (to a thing), and its aspects of registration and cadastre. This constituted the land registers and cadastral maps as a multi purpose system aimed at providing legal security of tenure, facilitating the land market, and supporting many government activities like physical planning, development control, public acquisition of land, land taxation, management of natural resources.

Per 1 January 2004 the Cadastre Act was adapted in support of the merger with the Topographical Service of the Ministry of Defence, establishing the Cadastre, Land Registry and Mapping Agency.

## **B. Institutional Framework**

### *Government Organizations*

Land registration and cadastral mapping are tasks at national level, assigned by mandate (Civil Code and Cadastre Act) to the Cadastre, Land Registry and Mapping Agency. As said earlier, this organisation formed since its establishment in 1838 a department of the Ministry of Finance. However, under the political expectation that land information played more and more a role in many other government activities (especially in planning and environment) the Council of Ministers decided to shift the department to the Ministry of Housing, Physical Planning and Environment in 1974. In the same period it was decided to move the land taxation from the national to municipal level, which is still is. In 1994 the Council of Ministers decided to transfer the department into a so-called independent public body, recognising land registration and cadastre as a public task but to be executed in a business like way. The Agency was constituted by special law, the 'Cadastre Organisation Act', precisely prescribing the mandate, and the division of tasks and competencies of the Agency, the Minister, a Supervisory Council, and a User Board.

Today, the Agency comprises a head office and 15 regional offices. In these offices the registers are kept, the boundaries surveyed, maps maintained and information disseminated. Since the merger with the Topographical Service of the Ministry of Defence, now called 'Topographical Service Kadaster', also their offices in Emmen are part of the organisation.

### *Private Sector Involvement*

In the Netherlands a system of licensed private surveyors mandated to do the cadastral survey, does not exist. All boundary surveys are performed by land surveyors employed by the Agency. As such there is no involvement of the private sector. However the private sector plays a role in

the sense of being contracted to do specific jobs under the supervision and responsibility of the Agency. This counts for some tens of millions \$ a year. There exists a lively private sector, comprising many firms working on a commercial basis.

### ***Professional Organization or Association***

At date various levels of surveyors have their own association. Senior staff members of the Agency (surveyors, land registrars, managers etc.) are normally member of the Association for Cadastre, which is mainly a labour union type of association.

Since the merger of various professional geodesy associations with other existing associations (for photogrammetry, remote sensing, cartography, GIS etc.) into a new Association called 'Geoinformation the Netherlands' the Netherlands knows only one professional organisation, since February 2003, a learned society of about 4000 members.

### ***Licensing***

There is no licensing system in place. All cadastral surveying is performed by employees of the Agency (civil servants).

### ***Education***

At university level the Delft University of Technology offers education in geodesy in a full programme. In 2002 it was decided to cancel the BSc level course. Now 1 MSc course remained, in higher geodesy. Main reason for this decision was the still lower application of new students (some 5 last year, while this has been about 20-30 average).

The International Institute for Geoinformation Science and Earth Observation ITC offers MSc degree courses a.o. for geo-information management, urban planning and land administration. As the ITC since 2005 is an associated institute of the United Nations University, short and long courses are offered dedicated to land management and land administration.

At college level the Hogeschool Utrecht (Utrecht College) offers a 4 years BSc programme (about 40 students each year).

At middle level land surveying is offered by quite a few Middle level schools as a post programme after civil engineering (few students).

At technician level private institutes offer special vocational courses, which are officially recognised by the Government (few students).

A general opinion amongst land management and land surveying organisations is that there soon will be a shortage of well trained and educated land surveyors and geodesists. In 2005 representatives organised a meeting in Amsterdam, to share and express their concern. Since then, awareness seems growing that 'something should be done'.

## **C. Cadastral System**

### ***Purpose of Cadastral System***

The land registers and cadastre serve a multi purpose aim. First of all the Civil Code prescribes 4 requirements for a legal transfer of rights 'in rem', namely right of disposal of the seller, agreement between buyer and seller, obligatory title, and recording in the public registers hold by the Agency. The system of delivery is 'causal', which means that right holders have to secure their ownership right ('title') from a theoretical legal point of view in the chain of transfers. Because of the latin notariat, in practice information from the most recent notarial deed suffices and gives substantial evidence of ownership. The registers and cadastral maps therefore guarantee in practice legal land tenure security, and security in the land market. The same is valid for securing loans by mortgages.

Secondly information on taxable persons, taxable objects, and taxable values, are derived from the files of the Agency, and are on a regular basis supplied to the municipalities as main source data for their land taxation.

Furthermore land information from the files of the Agency is used by many government bodies, basically providing source data in order to support the government (all levels) in the interference in private property rights justified by the general interest.

### ***Types of Cadastral System***

In the Netherlands there exists one single land registry and cadastre. It comprises all lands, and all territorial waters, whoever is the owner. The State owns land, of course, however from a point of view of the civil code the State is an owner like anybody else. Also the rules for transfer etc. apply to the State, except for paying land taxes. There does not exist something as 'state lands'.

There are no problems with informal and illegal settlements.

### ***Cadastral Concept***

The main concept of the system of land registry and cadastre is the recording of the relationship between men and land, through a formal right. The concept includes the principles of specialty and publicity. The specialty principle results in a proper identification of the right holders through personal identification at the notary office and the recording of ID numbers, or in case of a legal body (e.g. a company) identification of ID number Chamber of Commerce and the legal representatives of the company. Furthermore it impacts on the object of exercise of rights: the land parcel, that should be uniquely identified by parcel number and boundary survey. The right as such should be legally recognised, namely belonging to the closed system of real rights as mentioned in the Civil Code. The right should therefore precisely be identified in the deed.

The recording of the relationship men-right-land is based on the recording of notarial deeds. Acceptance of a submitted deed, by the land registrar, does not imply investigation and review of the legal validity of the transfer. The check is done on some precisely described formal requirements only. Unlike a title registration system, the system in the Netherlands does not provide state guaranteed proof of title. The publicity principle however, results in the compulsory recording of all deeds pertaining to land, which are open for inspection without any restriction, and provide the base for knowledge about the status of tenure. The combination of Latin Notariat and land registers and cadastre provide de facto title security.

According to the legal rules of accession, buildings belong to the land, as are subsurface features and above surface air column. Buildings and minerals can be separated from the land-ownership through e.g. rights of superficies.

As multi use of space is official national policy, such constructions are getting common both at sub-surface, surface and above surface level, which brings along a debate currently about a 3D registry and cadastre.

### ***Content of Cadastral System***

Public registers are registers in which notarial deeds are recorded as they come in. Public registers are comparable with the land registers kept by the courts in other countries. The reason for filing in this order is the importance of the ranking of real rights. The Civil Code (Roman-French law family) assigns two important characteristics to real rights, namely a real right follows the thing, and older real rights have priority over younger real rights. With respect to the latter, the moment of recording can therefore be of crucial importance, e.g. by legal foreclosure and execution. The public registers by consequence are not easy accessible. The employees of the Agency extract the essential elements from the deed; these form on their turn the input for the cadastral registers and maps, providing registers on name, parcel (both administration and cartography), and street address. In essence the cadastral registers and maps are auxiliary registers to provide access to the public registers. The public registers are kept in analogue format: books with paper deeds, copied to microfiche. Both cadastral registers and cadastral maps are 100 % in digital format.

In addition to the basic relationship men-right-parcel there are many attributes: land use, purchase prices, various legal essentialia, parcel surface area etc.

## D. Cadastral Mapping

### *Cadastral Map*

The cadastral maps reveal the national grid, cadastral boundaries, parcel-identifiers, street addresses, buildings, house numbers, and geodetic control points. Parcel related attributes can be visualised on the cadastral map. Altogether about 300 million co-ordinate pairs are represented in the spatial cadastral database. Cadastral parcel data are stored in one layer as described below, buildings are included in a separate layer.

The spatial data are represented in the database using geometric data types such as 'point', 'line' and 'box'. In addition to the use of these data types, some important capabilities in the data model are storage of explicit topology and historic information. Furthermore, nation-wide unique identifiers have been introduced for *all* geographic objects, e.g. boundaries, topographic lines (buildings) and unified surveying and mapping attributes.

The most important tables are `boundary` (cadastral boundaries), `parcel` (parcel identifiers), `symbol` (cartographic symbols), `GCP` (Geodetic Control Point), `line` (topographic lines) and `text`. The spatial extension of the objects in the tables `boundary`, `parcel` and `line` is indicated with a minimal bounding rectangle of type 'box'. The `box` covers a boundary or a topographic line or a complete parcel. The `box` can be spatially indexed and is useful for efficient retrieval purposes based on rectangle selections. There is no need for the geometric data type 'polygon', because the area features are stored topologically in the `parcel` table and `boundary` table using the so-called 'CHAIN-method'. The edges in `boundary` table contain references to other edges according to the winged edge structure, which are used to form the complete boundary chains. From this data structure polygons can be generated on demand. Currently, topology is only maintained for the cadastral data and is being introduced for the topographic data, based on demand.

This approach allows calculations on correctness of topology after adjustment of the surveyed new boundaries to the cadastral data. Furthermore it opens the possibility to relate attributes to the boundaries between parcels, e.g. relation to the source documents of surveying, date of survey, names of persons locating the boundary, etc. If each parcel would be represented in the database by a closed polygon, it would be complicated to represent the basic object of cadastral surveying: one boundary between two neighbour parcels. Closed polygon representation would lead to double (or triple or even more) storage of all co-ordinates (except the territorial boundary), which complicates the data management in a substantial way. Closed polygon representation can result in the introduction of gaps and overlaps between parcels, which has no relation to reality. One more reason for the boundary based approach is in the classification of boundaries: the administrative cadastral and political subdivision in sections (cadastral zones), municipalities and provinces is possible by classifying boundaries as 'section-boundary', 'municipal-boundary', 'province-boundary' or 'national boundary'. A 'national boundary' is by definition a 'province boundary' and a 'municipal-boundary' and a 'section-boundary' and a 'parcel-boundary'; etc.

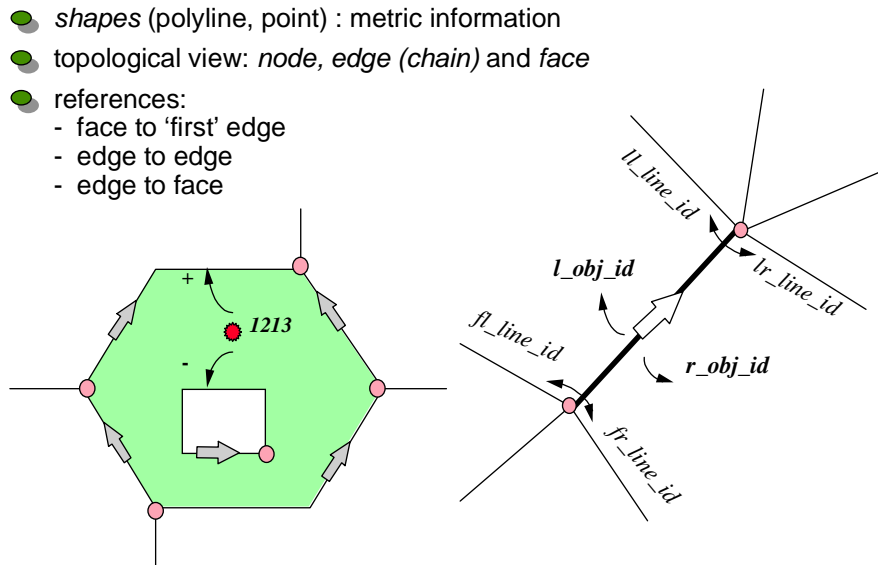


Fig. 1: Topology model in the spatial database of the Kadaster.

The following attributes are included in the data model for all spatial features:

- `object_id` a nation-wide unique feature identifier for all objects represented in the database,
- `classif` classification code of the object, e.g. parcel boundary, parcel identifier, road (type), water, etc.,
- `location` (of data type `point`) or `shape` is of data type `line(50)`, a polyline up to 50 points, representing the cadastral boundaries, stored in a variable length way in the (object)/relational database,
- `sel_code` a selection code which indicates to which type(s) a geographic object belongs, e.g. cadastral data and/or large scale topographic data,
- `source` of data, which is a reference to the field documents and files from total stations, or to the id of the photogrammetric project for large scale topographic mapping, etc,
- `quality` which is the mode of data collection, e.g. terrestrial, photogrammetric and includes an accuracy code which denotes the deviation from the 'true' position,
- `vis_code` visibility code to classify less visible objects during photogrammetric data collection, e.g. because of trees,
- `l_area` official legal area, which is included in the official legal documents or deeds describing the transaction, in general this area is not equal to calculated area from the spatial cadastral boundary data; this attribute is introduced only for the `parcel` table.

### ***Example of a Cadastral Map***

(→ see next page)

### ***Role of Cadastral Layer in SDI***

The cadastral map and the Large Scale Topo Base Map of the Netherlands (both country covering and digital) are fully co-ordinated. After a map-renovation process the cadastral map is fully reconciliated with the topo map at boundary level. The map series share building-data. Both maps (databases) are extensively used by governments, utility companies, and private companies for their own activities.



Deze kaart is noordgericht

Klantreferentie: onbekend

**Legenda**  
 12345 Perceelnummer  
 25 Huisnummer  
 — Kadastrale grens  
 — Bebouwing/topografie

Uittreksel uit de kadastrale kaart  
 Kadastrale gemeente: Veldhoven  
 Sektie: I  
 Perceelnummer: 1715  
 Schaal: 1:1000



Voor eenaluidend uittreksel, EINDHOVEN, 19 januari 1999.  
 De bewaarder van het kadaster en de openbare registers.

Aan dit uittreksel mogen geen maten worden ontleend.  
 De auteursrechten zijn voorbehouden aan de Dienst voor het kadaster en de openbare registers.



The Large Scale Topo Map is produced and maintained by a consortium of the Agency and many utility companies, later added by municipalities and waterboards. As such both map series are a de facto standard for large scale map-use.

Another development is the co-ordination between the cadastral map, the Large Scale Topo Map and the map series 1:10.000 of the Topographic Service Kadaster. Investigations are carried out to identify to which extent the three map series can share the updating activities.

## **E. Reform Issues**

### *Cadastral Issues*

The main problem of the Agency is the ICT renewal of legacy systems that currently is going on in order to meet the current and future customer requirements on one hand, and to adopt modern ICT opportunities on the other hand. This is a complicated and expensive process, because the renewal should take place within a growing concern environment. Currently this process is well controlled. As a result all databases are centralised now, with decentralised information management, and excellent facilities for e-access. Especially for the easy internet-access, the Agency was awarded the European e-Award 2006.

### *Current Initiatives*

1. Recording of all public encumbrances on land. There are about 80 of this kind of public rights to land, of which 20 are indeed recorded yet. Law is endorsed by the Parliament to impose recording of public encumbrances, issued by whatever body of government, either in the registers of the Agency or at the municipalities, per 1 January 2007.
2. Law is endorsed in the Parliament pertaining to electronic submission of deeds. This opened the opportunity for the notary public to submit notarial deeds as a digital file per 1 September 2005. The concept is that notary public keeps a paper deed in his/her office as the authentic one, sends a certified true copy electronically to the Agency, which records the document in a digital work process. This allows for the creation of a single national digital public registers replacing the registers per regional office.
3. ICT renewal programme is currently running (-> 2010). This concerns reduction of complexity (of different platforms, databases and protocols), centralisation of databases and database management, integration of spatial databases (cadastral map and large scale topo map) and legal/administrative data) into one database for (on line) information supply purposes, full renewal of cadastral systems, digital public registers, electronic conveyancing and includes data cleaning (quality improvement, e.g. of subject names) etc.
4. As a result of the ICT renewal programme, the rationale for the existence of regional offices is getting less and less. Since September 2005 it is possible to lodge deeds electronically. Already the first months over 30,000 deeds were submitted through Internet. At the output side, in 2005 over 18 million information products were sold via Internet, almost 100% of all output. Unlike former times, clients and citizens do not need to visit the regional offices to do their business. This leads to a restructuring ('organisational development'). In the period 2006-2009 the number of regional offices will be brought back from 16 to 8, and on the long run may be only 1. Also the organisational overhead will be reduced, as is the operational staff. Electronic deeds make electronic updating of register possible, the use of GPS allows 1 man-field parties, as we have 2-man parties now, etc. Staff will go back from 2200 to about 1500 in the next years.

## **References**

Many relevant articles on <[www.oicrf.org](http://www.oicrf.org)>

## II. Questionnaire

### 1. Cadastral Principles

#### *Deed or title registration*

- 1.1 Is your cadastral system based on deeds registration or on title registration ?
- deeds registration
  - title registration
  - other: .....

#### *Registration of land ownership*

- 1.2 By law, is registration of land ownership compulsory or optional ?
- compulsory
  - optional
  - other: .....

- 1.3 If felt necessary, please, comment on the actual practice and the legal consequences.

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#### *Approach for the establishment of the cadastral records*

- 1.4 Are landowners required to register their properties systematically during the initial establishment of the cadastre or is registration sporadic, i.e. triggered only by specific actions (such as for example sale) ?
- systematic
  - sporadic
  - both
  - all properties are already registered
  - other: .....

## 2. Cadastral Statistics

### Population

2.1 What is the **population** of your country ?

16.067.754 (July 2002)

2.2 Please, estimate the **population distribution** between urban and rural areas.

urban:	...60... %
rural:	...40... %
<hr/>	
total:	...100... %

### Number and distribution of land parcels

2.3 Please, estimate the approximate **total number of the smallest uniquely identified land units**, often called "land parcels" in your country, including urban and rural areas ?

7.500.000

*The total number would include all freehold and state owned land, regardless of registered, non-registered or informal holding.*

2.4 What is the approximate **total number of registered strata or condominium units** ? This number would be in addition to the number of land parcels indicated in 2.3 ?

900.000 in addition to

2.5 For **URBAN areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	...100... %
legally occupied, but not registered or surveyed:	...0... %
informally occupied without legal title:	...0... %
<hr/>	
total:	...100... %

*If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.*

2.6 For **RURAL areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	...100... %
legally occupied, but not registered or surveyed:	...0... %
informally occupied without legal title:	...0... %
<hr/>	
total:	...100... %

*If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.*

***Number of professionals***

Please estimate the total number of *academic professionals* that are active within the cadastral system and the proportion of the time that they actually commit for cadastral matters (as opposed to work outside of the cadastral system) ?

2.7	Total number of <b>professional land surveyors</b> , such as licensed surveyors active within the cadastral system:	40
2.8	Proportion of the time that these land surveyors commit for cadastral matters:	100% all at senior level
2.9	Total number of <b>lawyers/solicitors</b> or equivalent active within the cadastral system or land market:	6 registrars / 1800 notaries
2.10	Proportion of time that these lawyers/solicitors commit for cadastral matters or land market:	100% / 60%

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***Remarks and Comments***

Please, identify the best aspect of this questionnaire ?

Please, suggest the area in the questionnaire that could be improved ?