





Cadastre and Land Registry Knowledge Exchange Network

Compilation of responses to the questionnaire carried out in preparation for the Swedish PCC Conference and plenary meeting jointly organized with EuroGeographics CLRKEN on 7th - 9th of June 2023 in Gävle, Sweden

The overall topic of the next joint PCC and CLRKEN Conference is about "The Cadastral Authorities Role and Contribution in the Fields of Security and Prosperity".

Sweden's six-month programme of the Presidency of the Council of the European Union is based on four priorities:

- Security unity
- Resilience competitiveness
- Prosperity green and energy transition
- Democratic values and the rule of law our foundation

The contribution of Cadastral Authorities is crucial as to all four prioritized areas for the Presidency. The Cadastre, or in the Swedish case the Real Property Register where the cadastre is a part of, is fundamental for society.

The challenges faced by both EU member states as well as other European countries are also challenges for the cadastral authorities. Cadastral information is core data and required for many important processes in society as well as in so called larger ecosystem areas.

To meet requirements of the society, co-operation and interconnectivity is key. Information must be readily available, interoperable, and adapted towards digital processes.

Cadastral information is a key information area which together with other information areas can assist in achieving the Sustainable Development Goals as defined by the United Nations.

The questionnaire consisted of three main parts:

Part 1 – Security of ownership and tenure; rights, restrictions and responsibilities

Part 2 – Security in the field of military and civil defence

Part 3 – Information security and need of openness

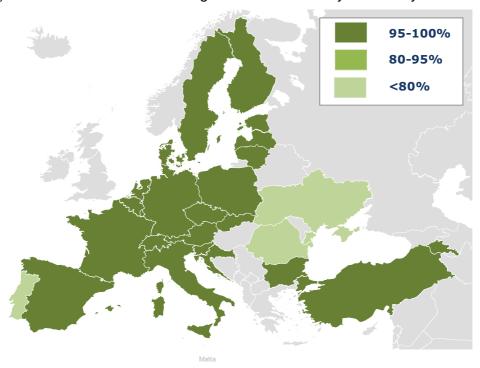
Participating Countries: 26

Country		Name
Code	Organization	Email-address
AM	Armenia	Trdat Chalemyan
	Cadastre Committee of the Republic of Armenia	<international@cadastre.am></international@cadastre.am>
AT	Austria	Julius.Ernst@bev.gv.at
	BEV - Federal Office for Metrology and Surveying	
BE	Belgium	Jolien.Neckebroeck@minfin.fed.be;
	SPF Finances Documentation patrimoniale	Cedric.Jacmain@minfin.fed.be
BG	Bulgaria	Ludmila Ivanova <ivanova.l@cadastre.bg></ivanova.l@cadastre.bg>
	Geodesy, Cartography and Cadastre Agency (GCCA)	
СН	Switzerland	Daniel.Steudler@swisstopo.ch
	Federal Office of Topography swisstopo	
CZ	Czech Republic	Svatava.Dokoupilova@cuzk.cz
02	Czech Office for Surveying, Mapping and Cadastre	Ovatava.Bonoapiiova@ouZn.oz
DE	Germany	Björn Degel <b.degel@lvgl.saarland.de>;</b.degel@lvgl.saarland.de>
DL	AdV-Geschäftsstelle (LDBV)	AdV.GS@ldbv.bayern.de
DK	Denmark	'Pia Åbo Østergaard' <piaoe@gst.dk></piaoe@gst.dk>
DIX	Danish Geodata Agency	Tia Abo Sicigaald Splace@gst.dks
EE	Estonia	Irja-Gea Kukk < Irja-
	Estonian Land Board	Gea.Kukk@maaamet.ee>
ES	·	Amalia Velasco <amalia.velasco@cata-< td=""></amalia.velasco@cata-<>
ES	Spain Spain Directorate Conoral for Codoctro Dirección	
	Spanish Directorate General for Cadastre, Dirección General	stro.hacienda.gob.es>
		Dalda Halaa Oala f
FI	Finland	Pekka.Halme@nls.fi
	National Land Survey	
FR	France	<pre><franck.guillaume@dgfip.finances.gouv.fr>;</franck.guillaume@dgfip.finances.gouv.fr></pre>
	DGFiP: Direction générale des Finances publiques	<pre><martine.caussanel@dgfip.finances.gouv.fr></martine.caussanel@dgfip.finances.gouv.fr></pre>
HR	Croatia	Branka Vorel Jurčević <branka.vorel.ju-< td=""></branka.vorel.ju-<>
	State geodetic administration	rcevic@dgu.hr>
IT	Italy	Claudio Fabrizi <dc.sccpi@agenziaen-< td=""></dc.sccpi@agenziaen-<>
	Agenzia delle Entrate – Direzione Centrale Servizi Ca-	trate.it>
	tastali, Cartografici e di Pubblicità Immobiliare	
LT	Lithuania	Bronislovas Mikuta <bronislo-< td=""></bronislo-<>
	State Enterprise Centre of Registers	vas.Mikuta@registrucentras.lt>
LU	Luxembourg	Alex Haag
	Administration du cadastre et de la topographie	Bernard Reisch ber-
		nard.reisch@act.etat.lu>
LV	Latvia	Vents Priedoliņš <vents.prie-< td=""></vents.prie-<>
	Valsts Zemes Dienests	dolins@vzd.gov.lv>
NL	The Netherlands	Martin.Salzmann@kadaster.nl
	Cadastre, Land Registry and Mapping Agency (Kadas-	
	ter)	
PL	Poland	Marcin Grudzień <marcin.grudzien@gu-< td=""></marcin.grudzien@gu-<>
	Head Office of Geodesy and Cartography (GUGiK)	gik.gov.pl>
PT	Portugal	Paulo Agostinho Torrinha <ptorrinha@dgter-< td=""></ptorrinha@dgter-<>
	Cadastral Information Services, Direção-Geral do Te-	ritorio.pt>
	rritório	
RO	Romania	Adriana Poggi <adriana.poggi@ancpi.ro></adriana.poggi@ancpi.ro>
	National Agency for Cadastre and Land Registration	Tranana r oggi aanana.poggi@anopino
SE	Sweden	magdalena.andersson@lm.se;
OL	Lantmäteriet	gunnar.ersbo@lm.se
SI	Slovenia	Franc Ravnihar <franc.ravnihar@gov.si></franc.ravnihar@gov.si>
Ji	Surveying and Mapping Authority	Trano Naviiliai Sirano.raviiliai wyov.si?
CI/		Dužon Hanus, Dugon banus@akgoodasu.sk
SK	Slovakia	Dušan Hanus, Dusan.hanus@skgeodesy.sk
TD	Úrad geodézie, kartografie a katastra	Limit Vildia duvildia Othera acusta
TR	Turkey	Ümit Yildiz <uyildiz@tkgm.gov.tr></uyildiz@tkgm.gov.tr>
1.7.4	General Directorate of Land Registry and Cadastre	AE O L L L E
UA	Ukraine	Alina Sushchyk <alinasuscyk@gmail.com></alinasuscyk@gmail.com>
	State Service of Ukraine for Geodesy, Cartography	
	and Cadastre	

Part 1 – Security of ownership and tenure; rights, restrictions and responsibilities

Securing landownership is the foundation of a market economy and a functioning credit market. Uncertain or no boundaries are a major source of concern and dispute in any part of the world.

Q2) What is the territorial coverage of the cadastre in your country?



Q3) Beside private-law ownership rights, are also restrictions and responsibilities being documented in your cadastre?



Q4) If documented in the cadastre, what are the most common topics of restrictions and responsibilities? Please provide three examples:

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	Q4) Most common topics of restrictions and responsibilities
	(Note: Real Property Cadastre in Lithuania is integrated with the Real Property Register.)
LU	
LV	Land easement (servitudes) / Motorway protection zones / Protected territories of environmental objects
NL	Heritage Act: designation as registered (national) monument or archaeological site / Municipalities Act: decree on municipal monument / Soil Protection Act: Notice, requisition, order or decree
PL	
PT	
RO	 In the integrated cadastre and land register system, the following is noted: the prohibitions of alienation, encumbrance, rental, detachment, joining, construction, demolition, restructuring and development; the fact that the building is affected by underground works or investments of local or national interest; the fact that the building belongs to the national, European or international heritage; the obligation regarding the use of the historical monument (easement established for the benefit of the building); the alienation by sale of agricultural lands located outside the city at a distance of 30 km from the state border and the Black Sea shore, inland, as well as of those located outside the city at a distance of up to 2,400 m from the special objectives is carried following the specific approval of the Ministry of National Defense, issued following consultation with the state bodies wich have attributions in the field of national security, through specialized internal structures.
SE	Servitudes / joint facilities / utility easement
SI	Servitude areas / Areas of betting rights / Restrictions on changing plot boundaries (e.g. required consent of the municipality)
SK	Loans / Real burdens / Encumbrances
TR	Military Security Zones (Foreigners are not allowed to acquire real property within these areas) / Easements for electricity and energy transmissions / Great Plain Protection Areas
UA	Protection zone around (along) the communication object / Sanitary protection zone / Territories and objects of the natural reserve fund

Q5) Can you give a short summary on the quality of the cadastral map as to accuracy of property boundaries or geometrical description of the property?

	Q5) Quality of cadastral map as to accuracy of boundaries or geometrical description
AM	The data on the map is sufficiently accurate and basically corresponds to the boundaries and geometric shape of existing immoveable property units.
AT	The quality of the (Digital) Cadastral Map (DKM) in Austria is in general very high, but it depends on when the respecting parcel was last surveyed. The quality of the property boundaries corresponds to the quality of the surveying documents, i.e. from a few cm (if a survey has been carried out) up to a few meters in the high mountains. The update of the DKM is based on the surveying documents of the licensed surveyors or by the cadastral authority itself. Parcels in the so-called Border Cadastre have a special legal

	Q5) Quality of cadastral map as to accuracy of boundaries or geometrical description
	(and technical) quality: Coordinates in cm- accuracy and a signature of the owner. The data is subsequently up-to-date and available online.
BE	One of our Royal decrees (part of our legislation) visions the 'quality improvement operations carried out by the administration on its own initiative'. This involves improving the quality of the cadastral parcels, so that the cadastral map complies with Europe's IN-SPIRE recommendations (Mean value of positional uncertainties should be 1 metre or better in urban areas and 2,5 metres or better in rural/agricultural areas. Cadastral data may be less accurate in unexploited areas). Today, 70% of Belgium's territory meets the Inspire standards (main difficulties with forest areas).
BG	The accuracy of the cadastral map is improved through amendment projects submitted by the property owner and through the removal of an obvious and factual error, officially established by the agency.
СН	The cadastral map depicts all landownership parcels and therefore also covers the territory in a holistic way, i.e. without gaps or overlaps. The geometric accuracy is defined in five tolerance zones, with the highest accuracy in urban areas and the lowest in alpine mountain areas.
CZ	All cadastral maps are in digital form, but the source raster maps were of different quality. The accuracy of property boundaries is given by the accuracy class of the boundary points (scale of quality codes is for disposal in the level of the depiction of cadastral map). Approximately 30 % is of sufficient accuracy- 14 cm in location, 70 % must be improved (it is a long-lasting plan) because the accuracy is worse than 1 m in location).
DE	Some Laender have defined a coordinate cadastre with highly precise coordinates (up to 2 cm) of the border line. These coordinates are legally binding. Coordinates are not legally binding in the coordinated cadastre or "classical" cadastre. The border has to be determined according to the neighbourhood principle using the documentation of the measurements. Cadastre is legally binding in case of so called <i>Einwandfreie Vermessung</i> . This means survey and border points have been clearly determined and thoroughly checked, the parcel boundaries have been legally established and the surveys have been transferred to the real estate cadastre. In case of ambiguity and border confusion without agreement of the parties involved, a decision of the civil court on the border line is necessary.
DK	New boundaries, established after 1950, have been fixed by measurement. Older boundaries may also have been fixed by measurement, but in other cases, the Cadastre only contains information on the location of the boundary as it appears on the cadastral map. The oldest part of the maps origins back to late 1700-century.
EE	Only 51% of the cadastral parcels have been surveyed using modern accurate surveying techniques in the national coordinate system (18% of the cadastral parcels are surveyed in other (historical) coordinate systems, 7% of parcels have been surveyed by using the adjustment of a 50m land measuring tape measurement result to the background map situation, 24% of the cadastral parcels are formed as desk survey = general boundaries). There is no law obliging landowners to order cadastral surveys to improve the quality of boundary data.
ES	The cadastral cartography is a map shown as a territorial continuum in a homogeneous way but the accuracy is based on the scale of the origin of this cartography, for urban cartography the scale is 1:2000, 1:1000 or 1:500 and the basis was an accurate topography map; and for rural cartography the scale is 1:2000 or 1:5000 with Ortophotographs as basis. With this graphic information field work municipality by municipality was done in a renovation process that took us 20 years. After the creation of this continuous digital cartography, from 2000, in the day by day updating, better cartography and better technologies has been used.

	Q5) Quality of cadastral map as to accuracy of boundaries or geometrical description
FI	Overall, the accuracy is lower in the eastern and northern parts of the country outside urban areas.
FR	The quality and precision of our cadastral maps are heterogeneous because they are intrinsically linked to history, to the methods and tools used for their making but also to the geography and topography of the territory. Their production has been normalized in the 19th century (around 1890) in specific French territories, and has been generalized starting1930 and onward, resulting in 2 kinds of maps: - 60% of new so-called "regular map" (plan régulier) of good quality. These maps must respect the precision standards and since 2003, their conception must conform to the decree of 16 September 2003 relating to "classes de précision" (accuracy classes), which are applicable to large-scale topographic work carried out by the State, local authorities and their public establishments or carried out on their behalf; - 40% of maps renovated by updating Napoleonic maps and of poor quality. They are
	called <i>"irregular map"</i> (plan non régulier).
HR	 We distinguish the following cases: Cadastral plan created by numerical survey after 2000 Cadastral plan created by vectorization of cadastral plans of numerical survey before 2000 Cadastral plan created by vectorization of graphic survey
ΙΤ	Cadastral maps generally result from topographic or aerial photogrammetric surveys. Subdivision of land parcels or construction, demolition and expansion of buildings are recorded in real time as a result of the submission of required data by licensed professionals (delegated by the citizens), according to national technical regulations, which also include the expected accuracy, varying up to a few tens of cm (automatically checked). In light of the different methodologies used for cadastral map creation, vecto isation and updating, currently different levels of accuracy may anyway occur on the map: a general value of about 2 m can be assumed, referring to maps in the original scale of 1:2000 (about 85% of the total).
LT	The real property cadastre map is prepared and revised in the national coordinate system (LKS-94) using data from the Real Property Register and plans of land parcels. Curently, plans of land parcels are prepared after cadastral surveys of the boundaries of land parcels when the coordinates of vertexes of land parcel boundaries are measured in the national coordinate system. The boundaries of land parcels are marked on the real property cadastre map on the basis of the coordinates of vertexes specified in the plans, which are rounded in the plan up to 0.01 m. Previously, land parcel boundaries were also marked on the cadastre map by vectorising land parcel plans, which were prepared after determining the coordinates of vertexes of the land parcel boundaries graphically according to the most recently updated cartographic material.
LU	From 1-2cm for recently measured parcels up to 1-2m for parcels measured more than 75 years ago.
LV	In the cadastre map, the land parcels shall be marked according to the type of the data acquisition - the most accurate data shall be obtained for surveyed land parcels, less a curately – allocated land parcels and for designed land parcels. Data for surveyed land parcels are derived from property boundary maps – this represents 52% of the number of land parcels. The allocated (34%) and the design plots (14%) are marked on the cadastre map from photoplans, orthophoto data and topographical maps, as well as from the graphic annex of the act prepared by the local municipality.
NL	The cadastral map is an index map and boundaries have an accuracy at the decimetre level (on average 20cm in built-up areas; 40cm in rural areas). Precise boundary information has to be derived from the field (measurement) sheets.

	Q5) Quality of cadastral map as to accuracy of boundaries or geometrical de-
	Scription At the moment we have started a major improvement of the map, whereby the map will be reconstructed from the original measurements (partly dating back 2 centuries) and each separate boundary will obtain a geometric quality measure. So the individual boundary will have an accuracy indication "to the best we know".
PL	Still, for around 5% of the country's territory, there is no full coverage of the vector cadastral parcels. According to the legislation, the required accuracy of the cadastral data cannot exceed 10 cm measured in reference to local geodetic control points. The quality of cadastral data is heterogeneous. It varies region by region, district by district and even parcel to parcel. In some areas, above mentioned positional accuracy requirements are met and in others not.
PT	About half of the cadastral information currently in force has an original mean squared error of about one meter; the remaining cadastral information has an original mean squared error of forty centimetres.
RO	The registration of immovables in the integrated cadastre and land register system is carried out on the basis of on-site surveys carried out by licensed natural and legal persons. The allowed errors are: a) Contour point identification error: in the case of fenced immovables ± 10 cm; in the case of unfenced immovables buildings ± 30 cm. b) The error of the mutual position of the contour points of the immovables ± 10 cm. The absolute position error of the points, including the errors mentioned in para. (2) and the errors of the support geodetic network points, will not exceed: in the case of fenced immovables ± 20 cm; in the case of unfenced immovables ± 40 cm. The errors mentioned in the previous paragraphs will not generate overlaps or gaps between the immovables in the integrated cadastre and land register system. The graphic representation of the common boundary is unique.
SE SI	Varied, from accuracy of cm in populated areas to 50-100 meters in the mountain areas About 30% of all parcels have measured boundaries and coordinate accuracy is better
OI.	than 1 m. The boundaries of other parcels may be less accurate.
SK	Boundary accuracy refers to points from 0.08m to 5m.
TR	The almost full coverage of the cadastre could be ensured as a result of works lasting almost a century in Türkiye which means that the technological evolution of surveying techniques in the last century can also be observed in the cadastral archive of Türkiye. The parcels with low positional accuracy levels have started to be renovated since 2009. In the latest situation 47 million out of 58.7 million parcels have a cm level (below 9 cm), 9.1 million parcels have a cm level (21 cm to 1 meter), 2.5 million parcels have a meter level (below 1.5 meters), 100.000 parcels have a meter level (up to 5 meters) positional accuracy in cadastral data management system of Türkiye.
UA	In accordance with paragraph 14 of the Procedure for maintaining the State Land Cadastre, approved by the Resolution of the Cabinet of Ministers of Ukraine dated October 17, 2012 № 1051 (hereinafter referred to as the Procedure), information about the objects of the State Land Cadastre is entered into it in accordance with paragraphs 66-137 of this Procedure. Information about the indication of the area of the object of the State Land Cadastre is entered into it with an accuracy of up to four significant figures after the decimal point. It should also be noted that the cartographic basis of the State Land Cadastre has not been updated since 2012.

Q6) Are there any specific challenges in terms of disputes or quality of data you would like to highlight?

	Q6) Specific challenges in terms of disputes or quality of data
AM	One of the main problems is the inaccuracy of maps caused by incorrect delineation of property boundaries.
AT	Challenges to the accuracy of property boundaries exist in regions of ground movement (Landslides) where boundaries "move" a few centimetres per year. There are special legal regulations for the measurement of the property and the presentation in the DKM.
BE	The main challenge is the management of boundaries between the public and private domain mainly in the delimitation of watercourses following their "natural" evolution. This data has not been updated for years and therefore there is sometimes a large discrepancy between the situation then (e.g. 1950) and now. This obviously affects the ownership status of the plots concerned.
BG	Yes, specific challenge is automating the connection with a registration agency.
СН	There are two main challenges: (i) renewal in older cadastral surveying areas, where in some cases, it is difficult to meet the required accuracies; (ii) in landslide areas where the ground moves >5cm per year.
CZ	Renewal of the cadastral documentation (new mapping) and revision of the cadastral data has been started to increase quality of data.
DE	The analogue cadastral maps have been digitized. The accuracy of the digitized map in general lies between 30 cm and 1 m. It's the aim of the cadastral agencies to improve the geometric accuracy through homogenization. The map is moved to the coordinates from point register maintaining the geometric relations.
DK	It is a challenge to insert new measurements with a high absolute accuracy in areas of the map of poor quality without destroying the relative accuracy of the map. This means that the visual accuracy, where a straight line on the map is also a straight line in the field, is gradually destroyed. It is also a challenge if landowners or other authorities choose to compare the cadastral map with other datasets, e.g. an orthophoto. Finally, the DGA receives a number of inquiries about properties where information about a property (address and cadastral numbers) is different in the land registry, the cadastre and the municipality's buildings- and owners registry.
EE	The boundaries of cadastral parcels created by inaccurate surveying methods may not coincide in nature / on the cadastral map in some cases. The use of non-compliant boundary markings, which have caused boundary disputes.
ES	In Spain the agreement to divide and the boundaries are decided by seller and buyer, there are not licensed surveyors and it is not obligatory to mark the division in the land. Nevertheless, the incorporation in the Cadastre of a new real estate or the alterations of its characteristics is mandatory by law. The incorporation of data to the cadastre can be done by several ways, and by several experts depending on the type of real estate, and also depending of act or business that cause the change of data. They must provide information with the technical conditions defined by the cadastre that verifies that the graphical and literal information is correct. The final decision to inserting of cadastral survey is on cadastre.
FI	Low accuracy naturally creates more situations where location of boundary is unclear and thus causes disputes among the landowners. On the other hand, interests in the area are scarcer.
FR	1- the discontinuity between sheets of our cadastral map and the need to resume geographic entity georeferencing as part as our RPCU Project launched in 2016 and which is currently ongoing.

	Q6) Specific challenges in terms of disputes or quality of data
	Although the cadastral map of the DGFiP is a baseline data in terms of the representation of the division of plots and built environment (article L127-10 of the Environmental Code), our goal is to have a single cadastral map throughout the national territory with: - a better continuum accordance with the land reality and regulatory acts, - a level of precision reaching at least that of the Large Scale Repository (RGE) or the best cadastral maps, - an availability of data in vector mode and a consistency with the others layers of the RGE and the cadastral map.
	2- The end of the vectorization of the latest cadastral maps in tiff format of the Eurometropolis of Strasbourg. This project was launched in October 2021 and is expected to be completed in December 2023.
HR	In one cadastral municipality, only one of the above situations is possible, but also a combination of these cases. Through maintenance, individual cadastral parcels can have a higher level of quality and this is evident from the attributes of the points that define the cadastral parcel.
IT	Although the Italian Cadastre has no probative value, the information of cadastral cartography and updating deeds (containing the topographic survey data) can constitute useful elements for the definition of boundaries, further than representing the fundamental and mandatory tool for the identification of real estates in the deeds of transfer of rights in rem. In order to improve cadastral spatial data usability and interoperability, the Agency has been carrying out projects aimed at better positional accuracy and enhanced information content (e.g. recovery of map distortions through establishment maps, identification of inconsistent representation of buildings, complete reconstruction of dated maps).
LT	The boundaries of land parcels marked on the real property cadastre map correspond to the boundaries in the plans of land parcels. Data recorded in the real property cadastre are considered correct and complete from the moment of their recording in the cadastre until they are changed or disputed in accordance with the law. Thus, we have no problems with the quality of recorded data. The arising disputes are mostly related with the determination of the boundaries of land parcels.
LU	Misinterpretations by non-professionals in combination with recent orthophotos.
LV	Looking forward, the optimization of data acquisition and the improvement of data accuracy and actuality has been considered. It is envisaged that encumbrances will be obtained from the Information system of the Encumbered territories. The use of remote sensing data will enable up-to-date information on buildings and their location, but the acquisition of the data of specific buildings is further planned from the Building information system, thus reducing the bureaucratic and financial burden on the population.
NL	What we experience is that the public at large expects the map to be of centimetre precision. At the same time the public is more sensitive to the accuracy of the size of the property than of the individual boundaries (except in the case of boundary disputes).
PL	 In general, we are facing challenges related to the improvement of cadastre data. The following areas of improvement are most vital: The vectorisation of cadastral data for the areas where there are still no cadastral vector data. Upgrading the quality of cadastral data to fulfil the legal requirements. Finishing the data conversion process from the previous to the current data model. The data model change is related to the changes in legal regulations. The digitalisation of analogue documents, which are the source for changes in cadastral data.
PT	There are specific challenges regarding the integration of different quality datasets. However, our biggest challenge is not quality, but finalizing the coverage of the entire country.

	Q6) Specific challenges in terms of disputes or quality of data
RO	In the case of the immovables wich are registered in the integrated cadastre and land book system, the entries and deletions made in the land books can be rectified based on the final and irrevocable court decision or amicably, based on a statement given in authentic form, by the tabular holder, respectively by the owner, based on cadastral documentation (art. 33, paragraph (1) of Law 7/1996). Also, disagreements regarding the identification and measurement of land parcels, as well as regarding their owners, are resolved by the courts.
SE	Higher demands as to accuracy as the digitalization of the community building process is on-going. Another issue is knowledge and information about the accuracy of the cadastre map and its variations.
SI	If the boundaries of the plot are not regulated and the coordinates are not determined by geodetic measurement, there is a possibility of a dispute between the owners regarding the course of the boundary of the plot. In such cases, the owners can adjust the data in the process of border adjustment, which is carried out by an authorized surveyor.
SK	Disputes are solved by cadastral inspectors.
TR	Cadastral renovation and digitalization works have been carried out in Türkiye since 2009 to improve the quality of data. During these works, some information registered in land registers, such as parcel area or easement area, has been altered due to calculations made using new coordinates. The biggest dispute resulting from the renovation works is related to alterations of area information for parcels where the new calculated areas are less than the registered areas. A decision by the European Court of Human Rights (ECHR - Gürtas Yapı Ticaret Decision, 07/07/2015-40896/05) has triggered local lawsuits against the State.
UA	Sometimes errors can be found in the State Land Cadastre. The mechanisms for correcting these errors are specified in the Law of Ukraine "On the State Land Cadastre" (hereinafter referred to as the Law), namely in Article 37 and in the final and transitional provisions of this Law.

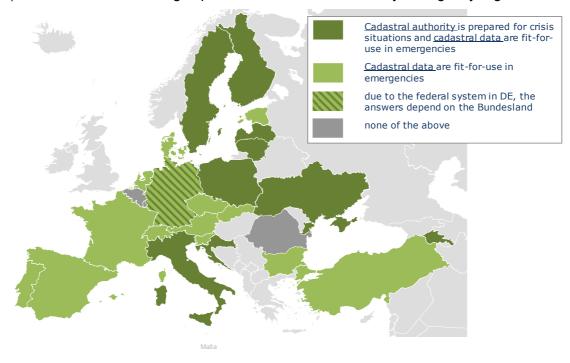
Part 2 - Security in the field of military and civil defence

There is a clear need for robustness and resilience of basic infrastructures in times of uncertainty and turmoil. Cadastral organizations are responsible for basic land administration data and functions; they need to be prepared and ready for actions in order to prevent and manage catastrophic consequences e.g., from landslides, flooding and wildfires.

Q7) Does your cadastral authority have a role in the Military and Civil Defence?



- Q8a) Does your cadastral authority have a role as to preparedness for crisis situations and to carry out certain tasks at high alert?
- Q8b) Cadastral data are being kept accessible and fit-for-use by emergency organizations?



Q9) In general terms, how is co-operation and co-ordination between different authorities dealing with geospatial data set up in your country?

	Q9) Co-operation and co-ordination between different authorities
AM	The Cadastre Committee is currently working on the implementation of the National spatial data infrastructure (NSDI). The Cadastre Committee is the link between stakeholders working with geospatial data. Particularly, for the purpose of implementation, maintenance of NSDIs activities, access to data, standardization of spatial data and efficient organization of policy related issues, already in 2021 a consultative body was established under the Head of the Committee, which includes different Ministries and state bodies.
AT	The data of the cadastre are digitally available online for all users and interested parties at any time and are therefore an important basis for many applications. Both governmental authorities as well as private users and businesses use the data of the Cadastre as geospatial information to manage the Data infrastructure.
BE	The federal and regional cadastral maps are interoperable and layers are interchangeable. However, there is a clear division in responsibilities between the federal cadastre and the regions; e.g. the federal cadastre is responsible for the cadastral map (parcels and boundaries) whereas the regions are responsible for the representation of the buildings on the map. The regions and the federal cadastre also exchange reports on errors or incompleteness regarding plots and/or buildings and monitor the geometric alignment between plot and building geometry. There is a collaboration between the municipalities, the regions, the federal public services and other partners (e.g. the postal services) on the conformity of the address system where the municipalities are the data owners (authentic source), the regions provide the data management system (data bases) and the federal state adopts all into their systems and ensures the interoperability of the three regional systems.
BG	GCCA provides information through WMS services to other authorities.
СН	Cadastral data are part and core of geodata infrastructures on cantonal and federal levels. That entails a close cooperation between the different authorities.
CZ	Land Survey Office of the Czech Republic (subordinated to the CUZK) is responsible for cooperation with different military and civil security organizations in the Czech Republic. Nevertheless, Military Geographic Services of the Czech Defence Forces is responsible for direct geospatial support of the defence and crises management units.
DE	The data formats for submission are uniform, based on open standards. Some Laender set up steering committees to manage the communication. Others have specific software applications and web services.
DK	The national operational staff (NOST) convenes when major crises and incidents arise in Denmark. In such situations, the staff must ensure the transversal cooperation and coordination between the authorities. The staff is led by the National Police and consists, in addition to the National Police, of the Police Intelligence Service, the Defence Intelligence Service, the Defence Command, the National Emergency Management Agency, the Ministry of Foreign Affairs, the Agency for Security of Supply, the Danish Health Agency and the Danish Transport Agency. Other authorities e.g. DGA may be called as necessary in relation to the nature of the incident. The NOST members meet physically several times a day both before, during and after an incident and prepare and coordinate the operational effort at national level until the emergency can be reduced and return to normal conditions.
EE	Automatic data exchange via X-Tee (X-Tee = X-Road: data exchange platform that allows secure and standardized data exchange between the state and with the private sector). Data are available on the Open Data Portal. Special map applications.

	Q9) Co-operation and co-ordination between different authorities
ES	The Spanish cadastre is the official register for real estate data, is complete and updated and the non-protected cadastral data it is available free of charge to everybody by multiple channels. Therefore is used for risk maps, civil protection, emergencies etc. Also the Spanish Cadastre collaborate with the different authorities dealing with geospatial data providing the data that it is protected (data of owners and cadastral values) when it is necessary for the performance of their works. These authorities are registered in the cadastral system and they can obtain these protected data.
FI	There are certain tasks that are set up a certain agency to carry out. All in all, responsibilities regarding important data sets are clear. However, there are also overlaps and grey areas where the data sets don't meet.
FR	 Cooperation and coordination between the different authorities dealing with geospatial data are ensured by particular dedicated entities of the State or public authorities: BRGM is the benchmark public establishment in the applications of Earth sciences to manage the resources and risks of the soil and subsoil with a view to sustainable development. (https://www.brgm.fr/fr) The public institution CEREMA, under the supervision of the Ministry of Ecological Transition and Territorial Cohesion, assists the State and local authorities in the development, deployment, risk management and evaluation of public policies on planning, transport. (https://www.cerema.fr/fr) IGN which, through its geomatics data and tools, as well as its specific skills and capacities, provides numerous elements of analysis and decision support in the field of risk prevention and management. (https://geoservices.ign.fr/prevention-des-risques)
HR	Law on State Information Infrastructure set frames for management system of public registers and the conditions that the state information infrastructure must provide in relation to public registers, as well as the use of a common basis for secure exchange of data within the system of state information infrastructure, a common system of identification and authentication, a single point of interaction with citizens and other users. Cooperation is conducted in accordance with the law and is very good.
ΙΤ	The different authorities dealing with geospatial data dialogue within the National Council for Territorial and Environmental Information, established by the Inspire Directive implementing decree. Moreover, there are in place specific bilateral agreements signed between Administrations.
LT	The Ministry of Environment shapes the national policy in the area of geodesy, cartography, management of spatial data sets, development of Lithuanian spatial infrastructure, coordinates and controls the implementation of policies in these areas. A geoportal created in Lithuania contains orthophotographic maps, georeferenced spatial data sets, the Lithuanian national atlas and other spatial data. The real property cadastre and cadastre map data are easily accessible, interactive and adapted to digital processes (regia.lt, open data of the Centre of Registers (https://www.registrucentras.lt/at-viri_duomenys/))
LU	Good cooperation through NSDI as determined in the INSPIRE Directive.
LV	Reciprocal exchange of data according to the Geospatial Information Law (https://lik-umi.lv/ta/en/en/id/202999-geospatial-information-law). Inter-agency agreements are signed between the State and the local government institutions, as well as geospatial data of the State institutions are available in the National Geoportal.
NL	
PL	In general, co-operation and co-ordination are maintained via: The Spatial Information Council The State Geodetic and Cartographic Council Bilateral co-operation

	Q9) Co-operation and co-ordination between different authorities
PT	Cooperation and coordination occur in a timely manner and always to respond to specific projects where this is necessary.
RO	In order to create and update the National Infrastructure for Spatial Information in Romania, it has been established the Council of the National Infrastructure for Spatial Information in Romania (INIS). The INIS Council is a structure with a coordinating role, without legal personality, reuniting of representatives of ministries and associative structures. ANCPI provides the CINIS Presidency and Secretariat. Annually, the INIS Council establishes and submits to the Government's approval, the Activity Plan for the realization and updating of the INIS and reports to the Government the status of the fulfilment of the tasks provided for in the Activities plan. At the same time, it establishes the responsibilities of public authorities and third parties, as the case may be, for the creation and updating the spatial data sets, their related services and INIS metadata.
SE	Formalized co-operation between municipalities, county councils and authorities (geodata co-operation).
SI	Data from the Surveying and Mapping Authority of the Republic of Slovenia have the status of public information and are available under the terms of the international Creative Commons license 4.0 and data sets are freely available thru the application https://egp.gu.gov.si/egp/?lang=en
SK	Data exchange.
TR	The General Directorate of Geographic Information Systems (GDGIS) under the Ministry of Environment, Urbanization, and Climate Change is responsible for the development of the National Spatial Data Infrastructure (NSDI) in Türkiye. In order to increase cooperation and coordination among the different authorities dealing with spatial data, the Turkish Geographic Information System Board was established in 2019. The Board consists of the Vice President, Deputy Ministers of related Ministries, the Head of the Turkish Statistical Institute, and the Digital Transformation Office. Additionally, the Turkish Geographic Information System Administrative Board was also established in 2019, consisting of General Directors of organizations under related Ministries. In 2020, a responsibility matrix for spatial data was published in the Official Gazette.
UA	According to paragraph 4 of the Procedure for information interaction between the State Land Cadastre, other cadastres and information systems, approved by the Resolution of the Cabinet of Ministers of Ukraine dated June 3, 2012 № 483 (hereinafter referred to as the Procedure), interaction between the State Land Cadastre, other cadastres and information systems is accomplished by providing of the cartographic basis and other information of the State Land Cadastre to other cadastres and information systems, as well as by providing geospatial data and other materials of cadastres and information systems to the State Land Cadastre. The list of information that is exchanged in the process of information interaction between the State Land Cadastre, other cadastres and information systems is given in the Annex to the Procedure.

Q10) Do you have some examples on how your organization is contributing / working to prevent and manage catastrophic consequences from landslides, flooding, wildfires or other environmental hazards?

	Q10) Contributions to prevent and manage catastrophic consequences
AM	Employees of the Geomatics Center are the members of the working group on community infrastructures and disaster needs assessment within the framework of the "Building Resilient Infrastructures through Knowledge Enhancement" project implemented by the Ministry of Territorial Administration and Infrastructure of the Republic of Armenia.

	Q10) Contributions to prevent and manage catastrophic consequences
	The Cadastre Committee is also a member of the UN-GGIM Working Group on Geospatial Information and Disaster Services. The spatial dataset created on the national SDI geo-portal managed by the Cadastre Committee is the basis for hazard risk management.
АТ	see also answer to Q6: The cadastre plays an important role in post-disaster management. In particular, the Information about the boundaries of the parcels or the coordinate-based Cadastre can ensure the reconstruction of property borders after a flood or earth movements and thus create legal certainty.
BE	Our federal cadastre is not responsible for catastrophe prevention or remediation; however, we do collaborate with the regions to assess the fiscal impact on the cadastral data and income of properties following environmental hazards.
BG	Through WMS services to the Ministry of Internal Affairs and the Fire Department.
СН	Cadastral surveying in itself is not involved directly in the prevention or management of catastrophic events. However, cadastral surveying data – which are highly interoperable – are being used via geoportals as a base layer when dealing with catastrophes.
CZ	Czech Office for Surveying, Mapping and Cadastre operates GIS Portal and supports military and civil defence organizations by geospatial information, maps and charts. Digital data and products are provided via web services according to needs of the civil defence and emergency services.
DE	Geodata and maps are available to the authorities responsible for disaster control and emergency response. Portals and web services are maintained for the linked presentation of geospatial reference data and technical geospatial data. Analogue maps are regularly made available as an emergency reserve. Surveying teams are available for documentation tasks in disaster situations, e.g. high-resolution aerial photographs were taken and made available as a result of the flood in the Ahrtal in July 2021 with more than 100 deaths. Furthermore, a coordinating office "Task Force Real Estate and Valuation" was established, which had the task of providing advice, coordination and mediation of all enquiries from affected persons and agencies regarding desired surveying and valuation services in a quick, uncomplicated and legally secure manner.
DK	The cadastre's registration of properties serves as an administrative basis, which, together with a register of owners, can quickly and easily provide contact information for owners of a property.
EE	The Geoportal has corresponding map applications: flood risk areas, hospitals and emergency shelters, noise map, hazardous installations, water safety, public war time shelters etc. They are also available on paper maps, just in case.
ES	For example, fundamental data provided by the General Directorate for Cadastre played a vital role in managing natural disasters caused by the volcanic eruption on La Palma and by rivers overflowing. Detailed 1:5 000 scale data of cadastral parcels, buildings and crops and information about owners, area, crops and agricultural exploitations, buildings classified by uses and destinations, photo of the streetside facade, and values of real estate was provided, before, during and after the disasters. Also combined with Copernicus data.
FI	Mapping part of our organisation has done laser scanning along the waterways to cover the most affected areas.
FR	
HR	In order to determine the ground displacement in the earthquake-affected area, SGA carried out control measurement fields of permanent points of geodetic basis in the area of Petrinja and Sisak.

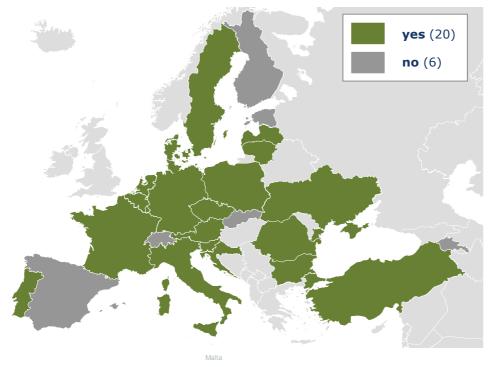
	Q10) Contributions to prevent and manage catastrophic consequences
	Total number of points on which field measurements were carried out is 84. GNSS measurements were performed by three field teams using high-precision positioning service CROPOS.
	Based on the results of the GNSS measurement, SGA made analysis of the shift of permanent points of geodetic basis.
ΙΤ	Within the framework of agreements with the Presidency of the Council of Ministers-Civil Protection Dept and the National Fire and Rescue Service, the Agency provides cadastral cartography data, as well as specific attribute of buildings (e.g. time of construction, number of floors, size, intended use), both as vector data and as consultation services (WMS). Such data are used in the event of emergency management, as well as for prevention activities (e.g. identification of historical centres). Specific online services have also been developed to support the submission of requests, through a national IT platform, aimed at obtaining economic bonuses for the adoption of seismic measures on buildings.
LT	It provides necessary digital real property cadastral data.
LU	Highly accurate and actual topographic datasets and an actual set of topographic maps on paper in stock.
LV	The State Land Service of Latvia is a data registration authority with ability to change the data according to the situation in any particular area of the country. In these cases, cadastre data that might be modified are Land use and encumbrances for instance.
NL	General note: As we are an integrated Agency (Cadastre, Land Registry and Mapping), we have close contacts with the military and civil defence, but not so much specifically on the cadastral issue. An example is that for migration (refugee) issue we are contacted when it relates to the housing issue.
PL	My organisation is generally responsible for capturing and disseminating spatial data (e.g. digital elevation model, LIDAR, topographic databases, cadastral data, etc.) that specialised state organisations use to create relevant risk analysis. In addition, we publish the risk analysis results developed by other organisations (e.g. flood hazard maps) on our geoportal.
PT	DGT produces and makes available several types of geospatial data, information and cartography on the subject of risk prevention and management, namely: National map of risk fire, modelling to support planning, and management of forest and territory, risk mapping and fuel management network, hydro morphological risks, planning model for rural FIRE prevention, linked Open Data for environment protection, corridors for Wildlife, areas of high risk of soil water erosion, and cadastral parcels.
RO	
SE	Sweden has established a civilian so called geo-cell which can deployed quickly and with the correct resources e.g. in a situation with wildfire. This has been set-up together with the responsible authority – Swedish Civil Contingencies Agency (MSB.se).
SI	Our topographical data and data from building registers and address registers are regular used by Civil protection authority and Slovenian Administration for Civil Protection and Disaster Relief. Digital orthophoto data are provide also to EU Disaster and risk management centre.
SK	
TR	Türkiye experienced a major earthquake on February 6th, 2023. The disaster was composed of two earthquakes, one measuring Mw: 7.7 and the other Mw: 7.6, which together caused more than 50,000 fatalities, tens of thousands of injuries, and left millions of people homeless, according to official figures. Land registry and cadastral data were utilized from the moment the earthquake struck for disaster management purposes. Immediately following the disaster, the General Directorate of Land Registry and Cadastre

	Q10) Contributions to prevent and manage catastrophic consequences
	(GDLRC) played an active role in search and rescue efforts, damage detection and reporting, and monitoring of building and ground deformation. The GDLRC also supported activities such as debris removal, post-disaster site selection analysis, and re-planning work.
UA	No, this does not fall under the competence of the StateGeoCadastre.

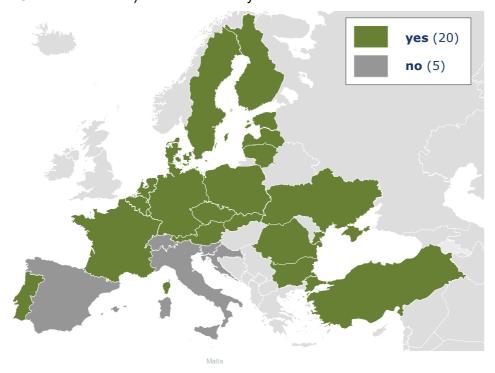
Part 3 – Information security and need of openness

Cadastral data and information is a most valuable resource for the functioning of a society. An important aspect for securing data and information is information technology (IT) security. This also includes handling information in respect of confidentiality, accuracy and availability.

Q11) For cadastral data and information, did the requirements for confidentiality, accuracy and availability increase over the last few years?



Q12) Over the last few years, did you experience conflicts between data openness (Open Government Data) and data security?



Q13) In relation to Q11) and Q12), are there any specific challenges you would like to highlight?

	Q13) Specific challenges in relation to increasing requirements or conflicts between OGD and data security
AM	Availability of information is regulated by the laws "On State Registration of Rights to Property" and "On Spatial Data".
AT	In Austria the cadastre is a publicly available database and you just had to pay a fee to use the digital data. There were ongoing discussions on access to cadastral data free of charge. In the meantime, the implementation of the PSI guideline is in force and all topographic data and the cadastral data of the BEV are made publicly available, in most cases free of charge. Only special services are charged by a small fee. The BEV has set up its own portal for this purpose, where the data can be downloaded free of charge.
BE	The increase in restrictions (regarding GDPR) on the openness of our cadastral data has contributed to difficulties in the collaboration with professional organisations such as the surveyors' organisations, as well as between the federal state and the regions. For instance, exchange of data such as building permits and environmental permits, has to be regulated through protocols and the development of cooperation agreements with partners has become a heavier and more regimented process. Exchange of building values and ownership rights with the notaries is operational but also subject to restrictions (protocols). The Belgian authorities still struggle with the open data concept; for now only the cadastral map is available as open data (not the building characteristics or fiscal data).
BG	Data openness and regulatory compliance with GDPR.
СН	None.
CZ	None.
DE	Personal data is sensitive and must be considered when passing geodata sets. It must be checked if the receiver of the data is authorized to receive personal data . In relation

	Q13) Specific challenges in relation to increasing requirements or conflicts between OGD and data security
	to the embargo in connection with the Ukraine war, there was an interest from the press in getting answers to questions about owner data. This contradicts the protection of personal data.
	The topic of critical infrastructures is also being addressed in this context. Sensitive data is therefore not made available for open data. Even in the context of normal geodata use, this data is only made accessible to authorised persons.
DK	The cadastral archive may contain information that is now protected according to the GDPR. In other cases, it will be more complicated to obtain documentation for authorized signatories if an owner has had his name and address protected.
EE	Since the beginning of the war in Ukraine, there have been indications that the data should not be so open.
ES	Even, having been an increase in society and in the Spanish government in the requirements for confidentiality, accuracy and availability, we met the requirements more than enough from the beginning of our open data (2004) and we have not need to change anything.
	From the beginning of electronic office, in 2003, the confidentiality parameters where already good defined and secure.
	Citizens have open, free-of-charge access to all data except those subject to Data Protection law (personal data of the owner and value data); administrations and other public entities, after registering, have access to all levels.
	 administrations and other public entities, after registering, have access to all levels of data, including protected data, but exclusively for the performance of their own competencies. All of them let the digital footprint in the system that can be audited; and cadastral owners, identified via digital signature, can also access their own protected data;
	4. all users who enter to view private data leave a footprint in the System that can be consulted and audited.
FI	There is continuous talk of how to handle personal information in relation to restrictions.
FR	see answer of Q4 for our current cadastre
HR	
ΙΤ	
LT	It is sometimes difficult to coordinate the issues related to open public sector data as well as open high-value public sector data with the requirements of GDPR.
LU	Contradiction between Opendata policy, GDPR regulation and critical infrastructure.
LV	Cadastre contains data on buildings, including data on indoor premises (both spatial and textual data). This gives concern to statements regarding the opening of data because, in fact, some cadastre data can also be perceived as restricted access information. In addition, the cadastre also includes underground buildings and engineering structures (electrical lines, optical cables, etc.) whose data cannot be open for national security aspects.
NL	Related to Q12: the debates we have are mainly related to protecting personal data and preventing doxing and less on IT-specific issues. At the policy level we foresee that our key registers will be classified as '(digital) vital infrastructure (NIS2 directive). This will lead to stricter requirements not only for these registrations, but also for the total value chain related to these data. We also foresee a debate on the accessibility of data on cables and pipelines (which
PL	can be cadastral objects). In recent years my organisation has moved towards greater openness of spatial data. However, the current geopolitical situation suggests that uncompromised data openness is not always good. Therefore, considering geopolitical security risks, my organisation is

	Q13) Specific challenges in relation to increasing requirements or conflicts between OGD and data security
	looking for a new balance between the accessibility of open data and the safety of citizens.
PT	The biggest challenge is the balance between personal data protection and sharing necessary information in public entities competences scope. Providing information online is a risk for compliance with legal obligations regarding the protection of personal data.
RO	The Civil society's appetite to consuming more and more free and real-time data by accessing ANCPI's informatic systems is increasing. The challenge is to keeping the right balance between servicing the requests and collecting revenue. The technical challenge is to ensure the IT security of the data held.
SE	Accessibility and openness in relation to personnel integrity and security on all levels is always a difficult and important question.
SI	
SK	
TR	Publicity is one of the main principles of the Turkish Civil Code and according to article 1020, the land registry records are open and accessible by any person who holds a persuasive interest. However, there is not a clear explanation about "persuasive interest" in the related legislation in Türkiye which cause some specific challenges on data accession by different parties. The GDLRC is still trying to find the right way of sharing land registry and cadastre data with lawyers, private valuers, real estate agents etc.
UA	In connection with the war of the Russian federation against Ukraine, by Decree of the President of Ukraine dated February 24, 2022 № 64/2022, martial law was introduced in Ukraine. At present, the entering of information (changes to it) about the objects of the State Land Cadastre into and the State Land Cadastre and the use of such information is provided by the StateGeoCadastre, taking into account the requirements of the provisions of the Resolution of the Cabinet of Ministers of Ukraine dated May 07, 2022 № 564 "Some issues of maintaining and functioning of the State Land Cadastre under martial law" (hereinafter referred to as the Resolution). According to subparagraph 4 of paragraph 1 of this Resolution, the requirement of legislation to publish on the official website of the StateGeoCadastre, in particular, through the Public Cadastral Map, which is part of the software of the State Land Cadastre, the cartographic basis, index cadastral maps (plans), basic, analytical, cadastral layers and all information from the State Land Cadastre, in particular in vector form, does not apply.

Q16) Do you have any other remarks or suggestions (to this questionnaire, to the topic in general, or for the planned conference):

	Q16) Any other remarks
DE	Remark in general: Due to the federal structure of Germany cadastre and mapping up to a scale 1:100.000 lies within the responsibility of the 16 Laender, whereas topographic maps in scales smaller than 1:100.000 (i.e. 1:250.000, 1:500.000,) are published by the BKG (Federal Agency for Cartography and Geodesy). There is a common core dataset which needs to be maintained by all Laender. In addition, the Laender are allowed to keep their specific data. Remark to Q4) These 3 topics are cadastral core data. E.g. in Hamburg bomb suspicion and monument protection are documented in the cadastre. Flood areas are documented in the cadastre of Saxony. Remark to Q7)-Q10) The Federal Republic is responsible for military defence. The Laender are responsible for civil protection. German military (Bundeswehr) uses topographic maps from the Laender. The involvement of the CMAS in civil protection is regulated differently in the Laender, right down to the municipal level.
FR	The topic of this questionnaire, relating to security and data protection, is a real challenge in regard to the need to promote the openness of cadastral data in future years.

PCC Organizing team, Chair Magdalena Andersson

EuroGeographics CLRKENChair Daniel Steudler