

3rd Questionnaire 3D-Cadastral: status January 2019



Serbia

This questionnaire is an activity of the FIG working group 3D-Cadastral 2018-2022. The purpose of the survey is to make a world-wide inventory of the status of 3D-Cadastral at this moment and the plans/expectations for the near future (2022). By sharing this information, it should be possible to improve cooperation, learn from each other and support future developments. This is the third time that the questionnaire on 3D-Cadastral is conducted by the FIG working group on 3D-Cadastral. The first time was in 2010 in order to document the status in 2010 and expectations back then for 2014. This was followed by second questionnaire in 2014 (with status 2014 and expectations 2018). The earlier responses have been analysed and reported on (van Oosterom et al. 2011, Karki 2013, van Oosterom et al. 2014). For more information on the FIG working group on 3D-Cadastral see the website www.gdmc.nl/3DCadastral. Now a few notes and suggestions, which should be helpful when completing the questionnaire:

- The conceptual model used as background for the 3D Cadastres questionnaire is the ISO 19152 standard (ISO, 2012): the Land Administration Domain Model (LADM).
- In this questionnaire the concept of 3D-Cadastral with 3D parcels (or 3D spatial units in LADM terminology) is intended in the broadest possible sense. However, what exactly is (or could be) a 3D parcel is dependent on the legal and organizational context in the specific country (state, province). 3D parcels include land and water spaces, both above and below surface.
- A more formal definition: A 3D parcel is defined as the spatial unit against which (one or more) unique and homogeneous¹ rights (e.g. ownership right, lease or other land use right), responsibilities or restrictions are associated to the whole entity, as included in a Land Administration system.
- As the definition above is quite abstract, it is tried in the questions to be more specific and real world situations are used. Many examples with partial/preliminary answers from 2010 and 2014 are available on-line at <http://www.gdmc.nl/3DCadastral/participants/>. Inspecting some of the completed 2010 and 2014 questionnaires from different other countries might help when formulation the answers for your jurisdiction.
- A 3D parcel is a 'legal object' describing a part of the space. Often there is a relationship with a real world/physical object, which can also be described in 3D. Please be aware of the difference between these two types of objects and that the focus in the context of 3D-Cadastral is on spaces of the legal objects and not the registration of the physical objects as such.
- If a certain question is not relevant or if you have no clue what to respond, do not spend any time on this (and leave the field blank).
- The questionnaire has been prepared by Rod Thompson, Sudarshan Karki, Alias Abdul Rahman, Hendrik Ploeger, Christiaan Lemmen, Anna Shnaidman, Peter van Oosterom. The questionnaire is grouped in the number of blocks. This has no meaning in the sense of priority and it is often the case that a question could belong to multiple blocks. Please do not feel disturbed by this.
- Similar to the earlier Questionnaires on 3D-Cadastral, the completed forms will be made available on website of FIG working group on 3D Cadastres.
- Please complete this questionnaire before *15 December 2018* and send it to A.Shnaidman@tudelft.nl (or Anna Shnaidman, TU Delft, OTB, P.O. Box 5043, 2600 GA Delft, The Netherlands).

¹ Homogenous means that the same combination of rights equally apply within the whole 3D spatial unit. Unique means that this is the largest spatial unit for which this is true. Making the unit any larger would result in the combination of rights not being homogenous. Making the unit smaller would result in at least 2 neighbour 3D parcels with the same combinations of rights.

1. General/applicable 3D real-world situations

This part of the questionnaire refers to the applicable 3D real-world situations to be registered by 3D parcels. It also addressed the types of 3D geometries, which are considered to be valid 3D representations for these parcels.

	Status 2018	Expectations 2022
1.1. Are all 3D parcels (3D spatial units in LADM terminology) constrained to be within one surface 2D parcel?	Yes. Rights referring to the use of a limited space will be registered on the 2D parcel in the Cadastre.	Probably same as 2018.
1.2. Are 2D and/or 3D ambulatory ² boundaries permitted?	No	No
1.3.a. Is it allowed to have 3D parcels (spatial units) not related to physical constructs or objects? (e.g. airspace, subsurface volumes)	No	Probably no.
1.3.b. If 1.3.a positive: approximately what proportion of new 3D parcels (spatial units) would involve such cases (not related to physical object)?		
1.4. Are disconnected parts of a single 3D parcel allowed?	No, also it is not allowed for 2D parcels.	No
1.5. Spatial limitation – e.g. must the 3D parcel be related to a closed volume or is it allowed to have ‘open’ or unbounded 3D parcels (e.g. towards the sky).?	A land parcel is represented in 2D as polygon feature, but the legal status refers to 3D space. There is no strict definition of how deep below the surface of the terrain and how far above the surface of the terrain extend the rights of owners.	Probably same as 2018.
1.6. Are curved surfaces to bound the 3D parcels allowed?	Guidelines are not given.	Probably same as 2018.
1.7. Must the curved surfaces (if allowed) be cylindrical sections, or any other constraint?		
1.8. Any other constraints – e.g. all surfaces must be horizontal or vertical?	No	No
1.9. Is there legislation (law and/or regulations) for 3D descriptions of parcels? If so please, mention law and article(s).	No.	Probably same as 2018.
1.10. Is the legal text available in original language?		
1.11. Is the legal text (relevant part) available in English translation?		

² An ambulatory boundary is a boundary of a land parcel which follows the movements of a natural feature such as a river. Its position determined at points of time (when a survey is carried out), but between such “fixes”, the definition of the property is the position of the real world natural feature.

1.12. Do you have example descriptions of typical 3D parcels; either 'prototype' or 'operational'?		
1.13. Is there a formal model for the 3D parcels (UML style); e.g. based on ISO TC211 series (especially LADM, ISO 19152)?	There are scientific researches but still no official model.	Maybe we will have introduced the official model.
1.14. Are natural resources (groundwater, mining rights, geo-thermal extraction and storage) shown in your land administration? If yes, are they considered as 3D parcels (spatial units) with RRRs attached? What about mining concessions (could be limited in time)?	No. However, the Law on Mining and Geological Explorations defines that mineral resources, groundwater resources, geothermal resources, as well as other geological resources are owned by the Republic of Serbia.	Same as 2018.
1.15. Are legally restricted spaces, above or below, such as polluted areas considered as 3D parcels?	No	No
1.16. Are spatial plans considered as 3D parcels (as rights or restrictions are related to them)? Sometimes also called spatial development plans, zoning plans or physical plans (land use, urban, regional, environmental,...)	No	No
1.17. Is there a Marine Cadastre? And if so, are 3D parcels included in this registration. Is the IHO Maritime Limits and Boundaries standard (S121) in use or under implementation?	No	No
1.18. Is there any organised legal instrument for the management of common property?		
1.19. Which agency is responsible for the recording of titles information?		
1.20. Which agency is responsible for recording cadastral transactions?	Republic Geodetic Agency	Republic Geodetic Agency
1.21. Are transactions for standard 2D lots and 3D lots done by the same agency or titles office?	Yes	Same as 2018.
1.22. Are there any 3D storage permissions recorded (e.g. underground storage of CO2)?	No	Probably same as 2018.
1.23. Any other geometric issues related to 3D parcels?		

2. Infrastructure/utility networks

This refers to the situation where an infrastructure network is considered to be defined within the land administration. For example in some jurisdictions, an underground network might be privately constructed for the purpose of leasing space in it for other organisations to run cabling. In this case, a network, or part of that network may be considered to be a real estate object.

	Status 2018	Expectations 2022
2.1. Do you register networks as an entity in the land administration? (e.g. subterranean conduit networks)	Yes, in Utility cadastre.	Same as 2018.
2.2. If so, then (a) can the network structure be viewed graphically in the land administration? (b) can the network structure be traced in the database(s)? (c) are networks registered by means of a cadastral identifier (such as a 'parcel number')? (d) are RRRs and parties attached to these network objects?	Yes for all questions.	Same as 2018.
2.3. Does the jurisdiction have private networks? If so please, mention law and article(s).	Yes.	Yes.
2.4. If so, are they registered as 3D property parcels (spatial units)?	No.	Probably no.
2.5. Is the text of relevant laws or regulations (question 2.3) available in original language? If so, give references to relevant document(s).	"Закон о државном премеру и катастру"	
2.6. Is the text of laws and regulations (relevant part) available in English translation?		
2.7. Do you have example descriptions of typical 3D parcels (spatial units) for networks; either 'prototype' or 'operational'?		
2.8. If the network (legal) objects break at the surface parcel, how do you deal with intersecting networks or vertically parallel networks?	Different types of utility networks are registered separately.	Same as 2018.
2.9. Any other geometric issues related to the registration of networks?		

3. Construction/building units

This refers to 3D properties that are related to constructions and apartment (condominium) buildings. The individual units are often defined by the actual walls and structure of a building, rather than by metes and bounds. E.g. “unit 5 on level 6 of ... building”.

	Status 2018	Expectations 2022
3.1. Do you register legal spaces for 3D construction/building units (separate from the land)?	Yes	Yes
3.2. If so, what are the conditions for doing so, and what are the most important types? E.g. apartment units (at least 2 or more in building), or also other buildings or even more general constructions (infra related; such as bridge, tunnel or even other, such as windmills,..)	There are mostly apartments units (at least 2 or more in building) but there are also other constructions (garages, offices, etc.)	Same as 2018.
3.3. Does the jurisdiction have construction/building units? If so please, mention law and article(s).	Yes, "Закон о државном премеру и катастру"	
3.4. Is the legal text available in original language?		
3.5. Is the legal text (relevant part) available in English translation?		
3.6. Do you have example descriptions of typical 3D parcels; either ‘prototype’ or ‘operational’?		
3.7. What would be typical 3D boundaries in an apartment complex: middle of the wall and floor/ceiling, or walls, floors/ceiling as neutral/shared 3D space? Is it mentioned in any legislation or is it the convention?	Walls are common ownership, so middle of the wall would be typical 3D boundary.	Same as 2018.
3.8. Is common property inside the building registered? If so, how?	Common property is not defined as special part of the building. It is not registered in cadastre.	Probably same as 2018. Maybe some changes.
3.9. Who owns the common property inside the building?	Owners of the apartments within the building proportional to their ownership.	Same as 2018.
3.10. Who owns the land on which the apartment is built?	Owners of the apartments within the building proportional to their ownership.	Same as 2018.
3.11. Do you allow sub-division of apartments or apartment blocks?	Yes	Same as 2018.
3.12. Can the land on which the building is built be sub-divided or sold or mortgaged without the consent of	No	No

majority of the apartment owners?		
3.13. What is the numbering convention for apartments (please specify in terms of cadastral parcel as well as street addressing)		
3.14. Any other geometric issues?		

4. X/Y Coordinates

	Status 2018	Expectations 2022
4.1. Do the plans of survey guarantee X/Y coordinates? (and are they relative or in an absolute spatial reference system?)	Yes, in the accuracy limits of the state survey. Absolute spatial reference system.	Yes.
4.2. Are the cadastral database coordinates authoritative?	Yes	Yes
4.3. If not, what is the authoritative source of X/Y coordinates?		
4.4. Do you have parcels defined by the walls of a building (with no recorded geometry)?	Yes	Yes
4.5. What is the spatial reference system for X/Y Coordinates?	ETRS89/UTM	Same as 2018.
4.6. When owners receive or purchase a copy of the plan what can they see on the plan to help them identify their parcel/lot (e.g. bearings and distance, identifying corners or recovery marks, neighbouring lots, coordinates etc.)?	Parcel ID, neighbouring parcels, corners.	Same as 2018.
4.7. Have there been any changes made in the way cadastral information is recorded and represented from a historical point of view?		
4.8. Any other X/Y coordinate issues?		

5. Representation of 3rd dimension: height (or depth)

	Status 2018	Expectations 2022
5.1. Are the height values of 3D parcels relative to local ground?	The cadastre system does not register any Z coordinates, except in the utility cadastre.	Probably same as 2018.
5.2. Are height values reduced to a standard datum (absolute)? If so, what is the spatial reference system for this 3 rd ordinate?		
5.3. In principle possible to store both relative and absolute height values?		
5.4. Is the earth surface (elevation) explicitly stored (in the DCDB or other accessible register)?		
5.5. What is the source of height values for the 2D surface parcel?		
5.6. How is elevation information recorded in the cadastral plan or database?		
5.7. Do you expect the elevation recorded in cadastral plans to be used for any other purpose (e.g. city models or civil constructions etc.)?		
5.8. Any other 3rd dimension ordinate value issues?		

6. Temporal Issues

	Status 2018	Expectations 2022
6.1. Are temporal limits part of the definition of a parcel (2D or 3D)?	No	No
6.2. Are moving parcels allowed?	No	No
6.3. Are there any limitations on the range of temporal limits? (e.g. only on 3D apartments).		
6.4. Are there any attempt to integrate 3D space and temporal representations, into a single 4D space/time representation?		
6.5. In the case of tidal boundaries, what happens to the 3D ambulatory parcel if the 2D land parcel changes extent due to the movement of High Water Mark?		
6.6. In case 3D Marine Cadastre is present and moving boundaries are allowed, how is this represented? E.g. using 4D geometry and topology.		
6.7. Can time bound rights be created and extinguished in the title? (e.g. temporary titles created for a period and when the time is up it can be extinguished)?		
6.8. Is it possible to identify all the changes made by any operator to the cadastral plans or database and to rollback if there is an error made?		
6.9. For Cadastral transactions, how far in time do buyers need to make a search to ensure the title or deed is legal?	It is enough to check current state in real estate cadastre.	Same as 2018.
6.10. Any other temporal issues?		

7. Rights, Restrictions and Responsibilities

	Status 2018	Expectations 2022
7.1. Range of RRR on 3D parcels.	Rights and restrictions.	Same as 2018.
7.2. Are there any limitations on the range of rights related to 3D spatial units? (e.g. subterranean parcels must be owned by Govt).	No	No
7.3. Are there any limitations on the range of restrictions or responsibilities related to 3D spatial units? (i.e. currently in use and related to 2D spatial units, but that would not be applicable to 3D).	No	No
7.4. Are there RRRs that are only allowed in 3D (and not valid for 2D)	No	
7.5. Is there specific legislation (laws, regulations) defining 3D RRR types? If so, provide details, e.g. references to documents/ articles.	No	
7.6. Can 3D sub-surface/above-surface parcel be owned by someone other than the person owning the land parcel?	Yes	Yes
7.7. What applications do you foresee for 3D land administration?		
7.8. Are the administrative source documents (source of RRRs) title or deed based?		
7.9 Who is responsible for the correctness of the specified 3D boundaries in spatial source documents (which authority)?	Republic Geodetic Authority	Republic Geodetic Authority
7.10. Is registration of 3D parcels done inside the cadastral mapping agency, the land registry or elsewhere?	Republic Geodetic Authority	Republic Geodetic Authority
7.11. Are 3D registrations handled by the same organisation that handles traditional (2D) land administration?	Yes	
7.12. Do you supply paper-based titles or deeds or proof of ownership? If yes, does this contain depictions of the 2D or 3D parcel?	Yes, 2D parcel.	
7.13. Is the 3D registry separate or integrated with the 2D registry?		
7.14. Any other RRR issues?		

8. DCDB (The Cadastral Database)

	Status 2018	Expectations 2022
8.0. Is database schema LADM based?		
8.1. Does the DCDB contain representation of 3D parcels (in any form)?	No. Only building footprint and number of floors.	Maybe.
8.2. If so, how are they represented (in the DCDB)?	The constructions above the ground are always related to 2D parcel which is presented on a map.	
8.3. If so, how are they presented on cadastral “maps” (including screen presentations)?		
8.4. Are there possibilities to store geometry of 3D parcels in the DCDB?	No	Maybe
8.5. Is it possible to manage a 3D topological structure in the DCDB?	No	
8.6. Are constraints/rules defined for valid 3D objects (closed volume, no overlap, no gap in 3D)? What about rules for a mix of 2D and 3D representations?		
8.7. How can internal and external user query and visualize the 3D content supporting rotating, slicing, transparency, perspective (3D web/view service, 3D pdf documents,...)?	No such possibility.	
8.8. What Spatial DBMS software do you use? Any 3D capabilities included and used?	No	
8.9. Do you have any validation rules for 3D representation in the database?	No, only for 2D.	
8.10. What (GIS/CAD) software is used for updating, editing, analysis, and visualization of the cadastral data? Any 3D capabilities included and used?	No, only for 2D.	
8.11. What web software is used for remote data access/distribution and visualization? Any 3D capabilities included and used?	No, only for 2D.	
8.12. Is your DCDB organised as Multi-Layers or Object Oriented or some other data model?	Object Oriented	
8.13. How do you query 3D objects in your DCDB?	No, it is possible to query only 2D geometry.	
8.14. Is it possible to query neighbourhood parcels to a 3D object,	No, only 2D.	

vertically as well as horizontally?		
8.15. Any other DCDB issues?		

9. Plans of Survey (including field sketches)

	Status 2018	Expectations 2022
9.1. Do the survey plans carry 3D parcel representations?	No. Only the 2D parcels and buildings are registered on the map, utilities and underground objects are not presented on a map at all.	Probably same as 2018.
9.2. If so, how are they represented?		
9.3. Is there specific legislation (regulations) describing the requirements for Plans of Survey in 3D? This could cover: a. accuracy/ quality, b. 3D survey method, c. conceptual information model survey plan, d. portrayal rules for graphic representation, e. format or encoding for submission. If so, please give link to the relevant documents.	No	
9.4. Is sketch level allowed (low geometric quality, but in principle enough to indicate the 3D object)?		
9.5. Is it possible to define a 3D parcel by referring to other 3D real world objects/ topography (and not specifying coordinates)?	No	No
9.6. In what format are the 3D parcels submitted for registration; attached to legal document in a single pdf (which has good 3D capabilities) or in an extension of (city)GML for 3D parcels, or....?		
9.7. Are the 3D parcels somehow checked for spatial validity; e.g. volume is closed, does not overlap with neighbour volume (and also no unwanted 3D gaps)?	No	
9.8. Do you have examples of (prototype or production) 3D survey plans available?		
9.9. Are any reference objects visible on the survey plan (e.g. real buildings, roads, that is 3D topography)?		
9.10. What form of 3D data acquisition is used (CAD, terrestrial surveying, sketches, stereo/oblique images, laser scanning,...)?		
9.11. What software do you use for creating and processing survey plans?	MapSoft, ArcGIS. No 3D capabilities included and	

Any 3D capabilities included and used?	used.	
9.12. Can 3D parcels be subdivided, consolidated or nullified?		
9.13. Is there any existing technical circular or directive to assist Surveyors in 3D data collection in the field?	No	
9.14. Are the surveyors required to undertake a field survey for 3D cadastral data?		
9.15. Are building construction plans used to compile 3D cadastral information for apartments?	Yes	Yes
9.16. Is 2D/3D field survey done by private licensed surveyors or by government surveyors?	By private licensed surveyors.	Same as 2018.
9.17. Are plans of survey created for each new 2D/3D parcel or are they updated in an index map or a cadastral database.	Plans are updated.	Same as 2018
9.18. Do you show dimensions or isometric views of 3D parcels on survey plans (do you also store this in a database)		
9.19. Do the cadastral survey plans differentiate between different types (e.g. volumetric plans, building plans and standard 2D plans)?		
9.20. What are the usual elements shown on the plan (e.g. North Arrow, Marks table, Observation table, Administrative data, Plan face and dimensions etc.?)		
9.21. Are authoritative cadastral surveys carried out by government surveyors or private licensed surveyors or both?	By private licensed surveyors.	Same as 2018.
9.22. What is the legal description of a cadastral boundary (e.g. coordinates or bearing and distance or lines on plan or any other)?	Coordinates	Coordinates
9.23. How much time does it usually take for a subdivision process to complete?	Not too much.	Same as 2018.
9.24. What is the legal source for cadastral representation (e.g. cadastral plans, or DCDB or index plans or descriptive sketch/text etc.?)	DCDB	DCDB
9.25. What is the positional accuracy of the cadastral plans (e.g. boundaries may be accurate but may not be referenced in datum properly)?	Yes	Yes

9.26. Any other survey plan issues?		
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10. Dissemination of 3D Cadastral information

	Status 2018	Expectations 2022
10.1. Is there a general purpose web-based dissemination of 2D cadastral (graphical or text) information (e.g. a portal for the public or for professionals)? If yes, does it include 3D data?	Yes, there is portal GeoSrbija (https://a3.geosrbija.rs/) but it does not include 3D data.	Maybe
10.2. Are specific file formats or standards used to distribute 3D Cadastral information? (e.g. LandXML, CityGML, BIM/IFC, 3D pdf,...)	No	Yes
10.3. Are there specific cartographic styling rules for representing 3D cadastral plans, or to represent 3D cadastral objects on 2D cadastral maps?	Yes	Yes
10.4. Are there specific cartographic styling rules for 3D cadastral maps (models; e.g. as disseminated in 3D pdf)? If yes, are there 3D specific cartographic rules developed or being developed?	No	Maybe
10.5. Is the 3D Cadastral information accessible in integrated manner with the 2D Cadastral information?		
10.6. Are there specific symbols on the 2D cadastral map (paper, digital or web-based) indicating the presence of 3D Cadastral objects (and in web-context perhaps even linked)?	No	Probably yes.
10.7. Is the legal information (RRRs and Parties) available in integrated manner in dissemination portal with the 3D Cadastral objects? (even if source of legal data may be a different organization, but then use information infrastructure approach)		
10.8. Are 2D/3D cadastral data available to the general public or just to the relevant parties?	2D cadastral data are available to the general public.	Same as 2018.
10.9. Any other 3D cadastral information dissemination issues?		

11. Statistical information

This part of the questionnaire refers to statistical information (and is most relevant for jurisdictions with parts of 3D Cadastre registration operational, but all are encouraged to complete this section, and especially the expectations for 2022).

	Status 2018	Expectations 2022
11.1. What is the smallest 2D and 3D parcel that is present/ allowed to be registered in the land administration?	200 m2 for 2D parcel.	Same as 2018.
11.2. What is the largest 2D and 3D parcel that is present allowed to be registered in the land administration?	No limitations	Same as 2018.
11.3. What is the typical (or average) size of 2D and 3D parcels which are registered in the land administration? Subdivide by nature of 3D parcel when relevant (e.g. related to building, apartment, airspace, tunnel,...)	Average 2D parcel - 4000 m2	
11.4. How many 2D and 3D parcels do you currently have in your land administration?	18 841 769 2D parcels	
11.5. Which year did you start registering 3D parcels in the land administration?		
11.6. What is the ratio of 3D parcels in rural vs. urban areas?		
11.7. Please specify names of cities or towns or suburbs or regions or locations where there are significant numbers of 3D parcels.		
11.8. Please provide the following data: (a) Size of jurisdiction in square kilometres (b) Current number of 2D parcels (c) Current number of 3D parcels (d) Current population	(a) 88361 km2 (b) 18 841 769 (c) - (d) 9 024 734	
11.9. Approximately what are the proportions of various types of the 3D parcels (related to apartments, subsurface parking, subsurface shopping centres, bridges, tunnels, airspace, utility networks, etc)?		
11.10. Approximately what surface area of the jurisdiction is affected by 3D parcels (the total area of all the footprint of all 3D parcels).		
11.11. Any other interesting statistical fact(s)?		

12. Reflection

This section is only relevant in case also in 2010 and/or in 2014 the 3D cadastres questionnaire for your jurisdictions was completed (otherwise skip this section).

	Remarks
12.1. Compared to the 2010 and 2014 expectations, which 3D land administration developments did go faster than expected?	There was no much development in context of 3D cadastre. However scientific researches on 3D cadastre were performed in that period.
12.2. Same question, but now, which developments did go slower than expected?	
12.3. If some (limited) form of 3D Land administration functionality has become available, what are the observed benefits? And for who?	
12.4. What are the (top-3) challenges of issues to be addressed to realize further 3D Land administration progress?	Research on 3D cadastre data model and legal aspect. Raising awareness of the need for a 3D cadastre system.
12.5. In case of not yet fully operational status, were there any 3D Cadastre registration pilots to take steps towards more full implementation?	
12.6. In case of known legal barriers, have there been made progress in creating and adopting new legislation to support 3D land administration?	No, still not work on adopting new legislation to support 3D land administration.
12.7. Any other reflections?	

13. Other Issues

Please include any other issues that may be of interest in an international context. For example, in some foreign jurisdictions 3D parcels can only be separated by horizontal planes.

	Remarks
13.1. Country (State, Province)	Serbia
13.2. Your name, function/position and your organization	Rajica Mihajlovic PhD, Associate Professor Nenad Visnjevaca, Teaching Assistant University of Belgrade, Faculty of Civil Engineering
13.3. Contact details: address email, telephone	Bulevar kralja Aleksandra 73, 11000 Belgrade, Serbia rajica@grf.bg.ac.rs, nvisnjevaca@grf.bg.ac.rs
13.4. Other issues	

References

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