

Consolidated comments on theme 'Land Use'

	1	2	(3)	4	5	(6)	(7)
Id¹	Name	Chapter, section or clause no./ Subclause No./ Annex²	Paragraph/ Figure/Table/ Note³	Type of com- ment⁴	Comment (justification for change)	Proposed change⁵	WG A observations on each comment submitted

¹ For internal use only. Not to be completed by reviewers.

² Use "3.1" instead of "Clause 3.1" or "Chapter 6.1". This makes grouping of comments easier.

³ E.g., Table 1

⁴ Type of comment can be G (general), E (editorial), T (technical), or Q (question)

⁵ The proposed change must be as precise and concrete as possible.

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1	Adv Germany			G	<p>The UN-GGIM: Europe draft document "Core Spatial Data Theme Land Use" is under the common goal that geospatial data (in this case land use) should support many of the goals and targets of the Agenda 2030 of the United Nations.</p> <p>In the document, land use is broken down into three sub-themes:</p> <ul style="list-style-type: none"> a) existing land use, b) planned land use (data from spatial planning procedures) and c) Plant maps on agricultural land. <p>Conclusion</p> <p>The document identifies core recommendations that are considered necessary and achievable. In the opinion of the PG LC/LU, Germany fully complies with these recommendations with regard to existing land use and in part with regard to planned land use and plant maps.</p> <p>Due to the separation of land cover and land use in the AdV scheme it can be assumed, that a transfer to the EU scheme described here is possible for a large number of attribute values.</p> <p>Overall, the document is considered to be a successful guide in terms of scope and depth. It can provide the basis for Europe-wide or globally comparable data and support in particular states that are planning to build up the data stocks. The explanations are clearly formulated and appear complete.</p> <p>On the part of the PG LC/LU, there is no need for changes or additions to the document "Core Spatial Data Theme Land Use - Recommendation for Content".</p>	Thanks for this approval
2	IGN F	3.1	NOTE 1	T	Separate classifications supported on same geometry enable many and rich combinations	This possibility has been added in paragraph 4.1.1
3	Lant- måteriet Sweden	3.1		G	Supporting that Land Use, separated from Land Cover, should be split into the two sub-themes existing land use and planned land use, handled separately.	Thanks for this approval

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4	Lant- mäteriet Sweden	3.2		G	<p>Opposing the suggestion that there should be crop maps as part of regular land use maps or land use data. Obviously, it would be valuable information for society supplying the geographical extent of cultivations of crops, though this is extra costs and efforts in addition to what it takes to produce recent land use data and maps. It would also become a large part of the classification system and the legend, considering the suggested extent of 100 classes of crops. The existing land use data are still a valuable resource without crop classification. Crop maps are not part of the INSPIRE-directive.</p> <p>Crop maps could be an opportunity to be developed by agriculture authorities, as it would be restricted to arable land and not an issue for land use data covering a country.</p> <p>Supporting the statement that planned land use should define land use that is allowed, prohibited or mandatory, it's legal status, and that it is necessary that all stakeholders are aware of use planned for an area for good governance.</p>	Crop maps could rather be suggested as an option, than a recommendation.	NA	<p>Crop maps would be valuable information for society and so would have significant benefits.</p> <p>The trend is to produce them using satellite images (such as free Sentinel -1 or Sentinel-2 ones) and new technologies (Artificial Intelligence) => their production is becoming quite feasible.</p> <p>In addition, in EU countries, the new PAC monitoring system is pushing Paying Agencies to produce such crop maps.</p> <p>Thanks for your approval regarding planned land use</p>
5	NSI NL	3.3.1	Bullet 2	Q	<p>How will 'ownership' of data on planned use be governed: challenging because of multiple government levels involved.</p>		AwM	<p>Data ownership is not in the scope of this deliverable.</p> <p>However, the issue of multiple authorities dealing with planned land use should be recognized. A Good practice has been added about offering a single access point to users.</p>

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6	AdV Germany	4.1			<p>On a) existing land use</p> <p>The most important core product is to be a nationwide standardised database of existing land use, which should ideally be updated every 3 years. The land use data should be collected from images and the corresponding cadastres. The expectations with regard to uniformity, timeliness and collection methods are met with the concept of land use in Germany. As in the draft document, the data model also includes geometries and land use types. The recommended minimum survey size of 0.25 ha is mostly met, often even less. A recording in connection with the cadastral data and thus a minimum registration size of 0.05 ha on average is explicitly recommended. This will facilitate the integration of land use into other core thematic areas. Furthermore, there are quality-assuring consistency checks.</p> <p>The requirements described by UN-GGIM: Europe are supported by the PG LC/LU. The land use scheme also meets these requirements.</p>		Thanks for this approval
7	Switzerland	4.1.1	Core Recommendation 1	G	<p>For some purposes (in particular for statistical monitoring and for monitoring the land use change) a point-based approach offers significant advantages. A point-based approach allows a more accurate classification of the land use, especially in complex areas (e.g. urbanised areas) where a polygon-based approach tends to make small features disappear because they are merged into larger features.</p> <p>In other words: For the production of land use statistics the use of sample points is more significant and economical than the use of areas or pixels.</p> <p>The production of statistics and the production of maps are two different things.</p>	Geometry (as surface, as point or as pixel)	<p>AwM</p> <p>Point-based approach has been added in considerations for future.</p> <p>Currently, main user requirements are about a product offering whole coverage of national territory.</p>
8	Switzerland	4.1.1	New Note		We propose to add a new NOTE for point-based datasets	<p>NOTE 3 : For specific uses, especially for monitoring purposes, land use types can be collected on a sufficiently dense sample of points. Ideally, land use will also be recorded for the same points. This approach allows a land use type to be assigned to each point and simplifies the capture in complex areas where a polygonal representation is difficult to acquire.</p>	<p>AwM</p> <p>Point-based approach has been added in considerations for future.</p> <p>Currently, main user requirements are about a product offering whole coverage of national territory.</p>

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9	Lant-mäteriet Sweden	4.1.1	Core recommendation 1, NOTE 1, NOTE 2.	G/T	Some surfaces (geometries) can simultaneously have different types of land use. It is important that all multiple types of land use on the surface are reflected, and that a difference in relative importance could also be expressed.	Add an optional attribute for importance to core recommendation 1. This attribute should only be used for geometries with multiple land uses.	AwM A NOTE has been added, recommending to use the INSPIRE solutions: ordered list or percentage for each LU value. Chapter 6.1.2 in Considerations for future has been added to deal with this complex issue of mixed LU values.
10	NSI NL	4.1.1	Note 2	Q	This approach risks confusion: which one (single use or several usages) is used in a particular dataset on land use. Proposal to always allow for several usages, regardless of zonal type.		A NOTE 2 has been split into NOTE 2 (about geometry choice) and NOTE 3 (about one or several land use values). NOTE 3 recommends the INSPIRE solutions to deal with several usages. In addition, Chapter 6.1.2 in Considerations for future has been added to deal with this complex issue of mixed LU values.
11	Lant-mäteriet Sweden	4.1.1	Core recommendation 2, NOTE 1, NOTE 2.	G	Supporting the recommendation that the code list used for the land type use should be easily matchable with HILUCS. Supporting the recommendation that theme Transport Networks is part of core data and data from its sub-themes (road, railway, air, water, cable).		Thanks for your approval
12	Switzerland	4.1.1	NOTE 2:	T	The use of existing geometries raises the problem of mixed use, which is difficult to document and even more complex to deal with. Moreover, it is very difficult to assess the percentage of one type of use compared to another. The document should only propose the use of existing geometries as a worst case scenario.	The LandUseZone should may have a geometry [...] have only one land use type. Note that several land use types may overlap and will be represented by distinct overlapping polygons. Pragmatically, but not recommended, the LandUseZone can reuse [...].	AwM NOTE 2 has been split into NOTE 2 (about geometry choice) and NOTE 3 (about one or several land use values). NOTE 3 recommends the INSPIRE solutions to deal with several usages.
13	Lant-mäteriet Sweden	4.1.1	Good practice 1	G	A national standard for both existing and planned land use is desirable.	Change "Good practice 1" to following text: "Member States should agree on national classification(s) for land use data, both for existing and planned land use."	A

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14	IGN F	4.1.1	CR2	T	Why not using EAGLE as for LC theme ? Classifications based on same EAGLE concepts would be better when combining LC and LU data		<p>General principle of core data is to reuse as much as possible the harmonized models and code lists from INSPIRE.</p> <p>EAGLE concepts have been promoted for core LC data because INSPIRE is not proposing any common classification.</p> <p>In addition, the EAGLE concepts (though not fully mature) have strongly influenced the INSPIRE approach on LC and LU</p>
15	IGN F	4.1.1	NOTE 2 after GP1	T	Having same LU classification for ELU and for PLU: it is not the case in France (for PLU, the classification is at higher level) but there are existing requirements on this topic		This comment confirms the interest of common (or at least matchable) classifications.
16	Lant-mäteriet Sweden	4.1.2	Good Practice 2	G	Agreeing on that versioning and life-cycle attributes to retrieve the status of geographic land use data at any time.		Thanks for your approval
17	Lant-mäteriet Sweden	4.1.3		G/T	A recommended target scale around 1:10 000 seems reasonable.		Thanks for your approval
18	Lant-mäteriet Sweden	4.1.4	NOTE 1	G	<p>There are areas lacking any existing land use as well as any planned land use. Other areas have multiple land uses. This could be considered as de facto gaps and overlaps in a land use data coverage, or perhaps the question is semantic. The gaps could be treated as geometries with attribute "no existing land use" and the overlaps as geometries with multiple registered attributes of various land use, possibly with ranking figures.</p> <p>In practice there is a difference from land cover, which necessarily has a complete cover with no gaps or overlaps. Land use may have gaps and overlaps, even if you model and treat them as geometries with attributes that might be void or have multiple uses.</p>	<p>In the text clarify that regarding land use, there are both areas with no land use and areas with multiple land uses which must be handled in model and practice.</p>	<p style="text-align: center;">Ap</p> <p>See comments 9, 10, 11 for multiple land use values.</p> <p>A NOTE has been added in chapter 4.1.4 to explain how to deal with areas with "no land use".</p>

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19	NSI NL	4.1.5	Example 2	E	Borders of waterways and roads do not meet cadastral borders	ADD: Waterways and transport networks may be excluded from this approach if cadastral parcels do not meet borders of roads and water.	<p>NA</p> <p>The given example looks rather specific. In general, the parcels devoted to waterways and roads correspond more or less to the footprint of the topographic features (even if borders are not exactly the same) and even for a large scale product, some generalization is required or at least acceptable.</p> <p>In addition, Example 2 does not aim to provide a full methodology about use of cadastral parcels but just the main possible impacts.</p>
20	Switzerland	4.1.5	Example 2:	E / T	The choice of cadastre as main source is not appropriate, because a parcel, especially if it is a large one, can have several contiguous land use types. It is then no longer possible to clearly assign a land use type to a given area.	The existence of a cadastre covering whole land territory and including the land use information declared by land owners may be a good starting point for a national land product. However, it will be necessary to verify (e.g. by using aerial or satellite images) that the whole parcel is used in the same way. If not, the LandUseZone will have to be adapted accordingly. In addition, the choice of cadastre as main source may lead to the adoption of cadastral parcels for the geometry of land use zones and to the adoption of a continuously updated product.	<p>NA</p> <p>You are right: the choice of cadastral parcels may lead to LU zones with several LU values.</p> <p>However, this is allowed by the core data recommendations on content. See comments 9, 10, 11 for multiple land use values.</p> <p>In case of good cadastral data, the choice of cadastral parcels as LU zones is considered as a good choice, even if not perfect.</p>
21	Switzerland	4.1.6.1	Good Practice 4	E/G/T	This good practice refers to polygon maps or pixel maps. For land use statistics with sample points, on the other hand, a defined density of points is needed. This can vary depending on the size of the perimeter over which statements are to be made. For the size of Switzerland, we can recommend a sampling network with a mesh size of 100m.	The MMU (Minimum Unit of Capture) for polygon or pixel maps should be adapted to the target scale (1/ 10 000) and be around 0.25 ha or smaller. For land use statistics with sample points, on the other hand, a defined density of points is needed. This can vary depending on the size of the perimeter over which statements are to be made.	<p>AwM</p> <p>Point-based approach has been added in considerations for future.</p> <p>Currently, main user requirements are about a product offering whole coverage of national territory.</p>
22	Lant- måteriet Sweden	4.1.6	Good practice 4	G	As for 4.1.3 above.		Thanks for your approval

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23	NSI NL	4.1.6.1	Good practice 4	E	Existing minimum area is larger (i.e. 1 ha). Is this dissemination level or data capture level?	ADD: or, if larger, a conglomerate of cadastral parcels.	The recommendation is about data made available to users, i.e. it is about dissemination level. "LU geometries referenced to cadastral or LPIS parcel geometries" has wide meaning, it is not excluding the case of "conglomerate of cadastral parcels" The existing product (1 ha) is not complying with the core data recommendations. Ideally, some upgrade should be considered.
24	Switzerland	4.1.7	Good Practice 5	G	The production of land use statistics and the production of land use maps are two different things. Good practice for statistics may be different.		See comments about point-based approach.
25	Lant-mäteriet Sweden	4.1.8	Good practice 6	G/T	Recommended update frequency 3 – 6 years is generally good, but for vast unpopulated areas without intense land use and thus without changes in land use it is not motivated. Periods between updates could be longer, even 10 years.	Add to good practice 6: "Vast unpopulated areas without intense land use could be updated at more sparse intervals, e.g. at 10 years."	Ap This case has been added as NOTE 3 after GP6.
27	Switzerland	4.1.8	Good Practice 6	G	The change in land use is happening creepily and in a dispersed way. This means short update cycles are very expensive and carry the risk of inaccurate data. Reasonably, a six year update is recommended.	The update frequency cycle should be ideally be 6 years or better and anyway not more than 6 years.	NA The Core data CR and GP are expressing targets considered as reasonable. The 3 years update frequency reflects user requirements and is already written with great caution (only a good practice, "should ideally be 3 years) in order to recognize feasibility issues in some countries. If applying the 6 years update frequency, a producer is conforming to GP 6.
28	Switzerland	4.1.9		G	Comparability over time is the most valuable property of all data. Accordingly, it should be one of the most important goals of data production. Snapshots are not good enough for decision-making.		Core data recognizes the value of comparability over time ... but this should not be an absolute reason to keep old-fashioned products that are not satisfying user requirements if new technologies enable to produce significantly better LU data

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29	AdV Germany	4.2			<p>On c) crop maps</p> <p>Annual inventory maps for plants are recommended as a core subject area. The creation of these plant maps according to their specific annual cycle appears, in the understanding of the PG LC/LU, to be only to a limited extent a land use topic that can be served by the surveying and cadastral authorities.</p> <p>In the LU model, arable land is divided into about 15 management classes. The cultivation of the land with these classes is usually perennial / partly permanent. In the annual cycle changing cultivation of arable land is not recorded. A differentiation of e. g. 100 different crop classes on the basis of image data (see 4.2.5) appears to be very complex and artificial intelligence appears to be very time-consuming and error-prone. Further sources of knowledge from other administrations (environmental or financial administration) should be used. Possibly, these data could be imported into our land use model.</p>		<p>Core data is not supposed to be provided only by surveying and cadastral authorities (even if NMCAs are the main candidates for most core themes).</p> <p>The sentence about number of crop type values has been reformulated.</p>
30	IGN F	4.2		Q	<p>Why separate crop maps in addition to general large scale product?</p>		<p>The recommended update frequency for large scale product is 3 years – up to 6 years (what is considered as quite ambitious).</p> <p>Such update frequency doesn't enable to provide data about crops whose cycle is generally annual. However, data about crops is quite useful to deal with SDG 2 (no hunger).</p>
31	Lant- mäteriet Sweden	4.2.1	Core recommenda tion 6, Good practice 7, NOTE 3	G	<p>As for 3.2 above.</p>		<p>See comment 4</p>
32	NSI NL	4.2.1	Core recommenda tion 6	Q	<p>No legend</p>	<p>Define recommended crop types</p>	<p>AwM</p> <p>NOTE 4 has been added. It proposes the use of the European classification LUCAS to define national relevant list of crop types.</p>

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33	Switzerland	4.2.1	Good Practice 7	G	Land use mosaic should just determine the arable land . The identification of crops should remain the business of agricultural statistics. Land use data tends to make a random map for the frequently changing crops.	Whole chapter 4.2 must be adapted!	<p style="text-align: center;">NA</p> <p>Core data is not supposed to be provided only by surveying and cadastral authorities (even if NMCA's are the main candidates for most core themes).</p> <p>Agricultural statistics may provide core data, useful for the whole community</p>
34	IGN F	4.2.3 4.2.5		T	In France, LPIS is not exhaustive enough to be used as single sources. In some areas, there is a significant rate of non-declared parcels.		<p style="text-align: center;">A</p> <p>Good remark. Paragraph 4.2.5 has been reformulated.</p>
35	Switzerland	4.2.6.1		E / T	The quality of the data produced by artificial intelligence must be carefully considered, and its use must be well targeted.	<p>The risk of confusion between crop type classes increases with the number of classes. It is advised to give priority to data reliability, i.e. to semantic accuracy rather than to very detailed classification. This is why Good practice 7 recommends use of a simple classification with limited number of classes.</p> <p>The quality of the data produced by artificial intelligence is not 100%. Although it is theoretically possible to distinguish relatively easily between more than 100 types of crops, one has to take into account the accuracy limit of the AI processes and not to multiply the categories, which would increase the risk of producing inaccurate data</p> <p>In practice, current production processes are often based on Artificial Intelligence processes that can make distinction between around 100 classes (or less).</p>	<p style="text-align: center;">A</p> <p>Thanks for this remark and its good formulation</p>
36	Switzerland	4.2.6.2.		G	Land use mosaic should just determine the arable land only. The identification of crops should remain the business of agricultural statistics. Crop maps are basically not part of the land use mosaic. They are rather agricultural statistical bases.		<p style="text-align: center;">NA</p> <p>Core data is not supposed to be provided only by surveying and cadastral authorities (even if NMCA's are the main candidates for most core themes).</p> <p>Agricultural statistics may provide core data, useful for the whole community</p>

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37	AdV Germany	4.3			<p>On b) planned land use</p> <p>The aim is the digital provision of planning data from other administrations, preferably in vector format. In Germany, the XPlanung standard was introduced for this purpose. To what extent the requirements can be met in full cannot be answered by the PG LC/LU. In this respect, the responsibility lies outside the surveying and cadastral authorities.</p>		<p>Core data is not supposed to be provided only by surveying and cadastral authorities (even if NMCAs are the main candidates for most core themes).</p> <p>Planned LU is expected to be provided from local authorities but with some national coordination.</p>
38	Lant- mäteriet Sweden	4.3.1	Core recommenda tion 9, Core recommenda tion, Good practice 1	G	<p>Supporting following the HILUCS scheme for existing land use.</p> <p>Supporting following same HILUCS scheme for planned land use.</p>		Thanks for your approval
39	Lant- mäteriet Sweden	5.2, 5.3		G	<p>The legally binding INSPIRE rules have been, and will continue to be, important to make valuable geographic information available.</p>		This is completely in line with core data CR and GP.