

# INCLUDING LAND TAKE AND SOIL PROPERTIES IN IMPACT ASSESSMENT PROCEDURES

Background report for the Urban Agenda Partnership on sustainable use of  
land and nature-based solutions

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## **INCLUDING LAND TAKE AND SOIL PROPERTIES IN IMPACT ASSESSMENT PROCEDURES**

**GUIDEBOOK – Recommendations concerning consideration of including land take and soil sealing limitation procedures and methods into the Strategic Environmental Assessment and Environmental Impact Assessment procedures**

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## **Introduction**

### **Aim of the guidebook**

The general aim of the Land Use and Nature Based Solutions Partnership, as declared in the Action Plan published in 2018, is “to ensure the efficient and sustainable use of land and other natural resources to help create compact, liveable and inclusive European cities for everyone.

This general aim is underpinned by two objectives: 1) to promote the liveable compactness city model and 2) to mainstream and promote nature-based solutions as a tool to build sustainable, resilient and liveable urban spaces”.

The Action Plan of the partnership foresees nine actions to tackle the issues of land take and urban sprawl and promote sustainable compactness of urban areas and nature-based solutions in them.

As a first step toward achieving this general aim and the two consequent objectives in urban areas across Europe, Member States and their cities ought to secure the lowest possible amount of land taken and soil sealed by new developments. This can be done through effectively implemented impact assessment procedures of projects and plans from the standpoint of their effective capacity to limit, mitigate or compensate land taking and soil sealing.

Furthermore, the elaboration of a systemic approach ensuring lesser land take and soil sealing in land use regulations and development decisions requires a more widespread and focused approach in this direction in Member States.

This is possible to achieve through a clear inclusion into the Strategic Environmental Assessment and Environmental Impact Assessment procedures the assessment of the effects derived from land take processes, as well as their evaluation at planning stage, thus before the decision are taken.

Action 1 of the Action Plan of the partnership is meant to support the realisation of this goal. As explained in the Action Plan „The objective of Action 1, therefore, is to include land take in the Strategic Environmental Assessment at EU, national and local levels. To achieve this objective, a closer look on the effectiveness of existing legal measures as well as operational procedures and instruments used by different government levels in EU countries to regulate the sustainable use of land is necessary.”

### **Process adopted for building the guidebook**

A survey was conducted among cities of the Land Use and Nature Based Solutions Partnership as well as other cities through diverse networks to identify existing legal provisions in this area in EU countries.

The responses enabled to gather a knowledge base and a compendium of selected good practices of legal measures and procedures aimed at limiting land take and soil sealing in several EU countries. This base, supported by a study of publications and written sources on the topic of land use in member states permitted the elaboration of guidelines for a possible transfer of these sustainable land and soil management good practices to environmental impact assessments and strategic environmental assessments of the EU level.

The survey was split in two sections. The first one was focused on exploring land take and soil sealing impact assessment procedures implemented at national, regional and local levels as well as their relation to SEA and EIA directives. The purpose was to assess the level to which these directives play a role in urban planning of member states and their capacity to improve urban compactness and limit urban sprawl.

The second part was concentrated on collecting concrete methodologies and tools aimed at limiting land take included in national or local level impact assessment procedures. This could comprise procedures ensuring livable compactness and environmental sustainability of cities, good levels of green areas and livability of the urban environment.

As the results of the survey showed, land use legislation varies significantly between member states: impact assessment procedures with measures for limiting land take and protection of soil properties are embedded in diverse forms and with different intensity in land use legislation and engage different levels of national, regional and local governments of most member states.

The elaboration of this study required an understanding of different land take and soil sealing measuring methodologies and terminology. The main difficulty consisted in understanding the diverse legislation operational systems and respective terminology. Terms like 'land use' are defined in different ways in many European languages and can differ according to different professional areas (legal, economic, planning/design) or functions. Different terms might be used or the same ones might have slightly different meanings in different contexts. A common understanding of terms such as plans, projects, but also land take, soil sealing and other terms that refer to land use that might be important to tackle in this analysis.

This has been overcome in this report by adopting the terminology of the European Environmental Agency, since it gathers data from all member states, which have to adapt their own terms and meanings to one European standard. Since land take refers, according to the EEA, to „change in the area of agricultural, forest and other semi-natural land taken for urban and other artificial land development. Land take includes areas sealed by construction and urban infrastructure, as well as urban green areas, and sport and leisure facilities”<sup>1</sup> and soil sealing refers only to the permanent covering of soil by completely or partly impermeable artificial material, an additional term is also used in this report. This term is 'artificial' land and is related to the process of artificialisation, which describes a portion of land that has changed its function as well as its green coverage but has not been sealed by artificial surfaces or buildings. This term might be useful in the description of specific situations and procedures as well as description of several cases in EU countries described in this report.

### **Main contents**

In order to assess the procedures and methods aimed at limiting land take and soil sealing in EU cities and consider the possibility of embedding of the above procedures and methods into SEA and EIA, this report comprises several parts.

At first, the land-use planning and management systems of eleven EU countries are assessed in short, looking at them from the perspective of their actual ability to limit land take and soil sealing.

A general appraisal of land use change shows that although a general growth of land taken and soil sealed in European cities is observed, the speed has fallen in recent years, except for new accession countries, giving hope for a change in trend at EU level and possible setting of clear goals on net zero land take until 2050.

This will constitute a base for the showcase of several examples of good practices for land take and soil sealing prevention in these countries with an assessment of their consistency with SEA / EIA and, reversely, after the transposition of the latter into member states law, their real impact on land use and land take and soil sealing in particular.

Eventual difficulties in the adoption of these procedures and methods in the presented cases are also discussed separately.

The above steps conclude in a set of recommendations focused on the possibility to include these methods in the existing European SEA / EIA directives, ensuring liveable compactness and, at the same time, “foster” the introduction of NBS within the built environment.

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1 - <https://www.eea.europa.eu/data-and-maps/indicators/land-take-3>

## **A – Land use in Europe – a perspective**

Land take, artificialisation of land, soil sealing as phenomena in EU countries differ according to scale, rate, legal regulations and their actual effectiveness on the ground. As it is pointed out in scientific literature, a constant process going from land take of natural land to soil sealing takes place, with diverse levels of transformation of the surface, the artificialisation of it, takes place and can be measured combining quantitative (type and surface of soils taken) and qualitative (type of change and effects of it in the surrounding areas) criteria.

This process differs according to countries and time and a general trend toward its slowing down in Europe can be observed according to the European Environment Agency.

### **1- Land take and soil sealing in Europe.**

Urbanization is an ongoing process in Europe, although its more general form is a relatively recent situation. Fostered by the industrialisation of the continent, demographic and social changes but also the resulting increase and diversification of needs, natural and semi-natural land is being lost mainly for cities.

Countries that have specific geographical restrictions or which have experienced significant changes in land use, have developed diverse regulations to limit, mitigate or compensate land take and soil sealing.

From an insignificant percentage of people living in urbanized areas against those living in rural areas, the changes during the 19<sup>th</sup> century, it is estimated that today this proportion is reversed to a significant degree: the population in cities, towns, and suburbs represented in 2018 of 74% of the total population of Europe and is expected to grow to slightly under 84% in 2050 (EC-UN/HABITAT).

Although the total population of Europe continues to grow, the overall demographic trend is one of decline, specially in the northern and eastern part of the continent but also in some of its Mediterranean regions. Another important trend consists on a shift in the density of population between urban and rural areas, with an increase in the first with a visible growth of larger functional urban areas (FUAs), specially in and around capital cities and decrease in smaller cities and rural (Eurostat, 2016a).

According to the data gathered by the Corine Land Cover inventory program by the European Environment Agency, in 2015, over 1,9% of the total surface of the 28 European states was sealed and 4,4 % of it is considered as artificial, with higher figures in the Netherlands, Belgium, Germany, Denmark and lower in central and eastern EU countries.

Land take, artificialisation and soil sealing processes taking place in Europe can be observed by the level of built-up areas, which continuously grow in the last decades. In general demographic change and economic growth, together with other drivers and their combinations can be accounted for this evolution (Fina, 2017).

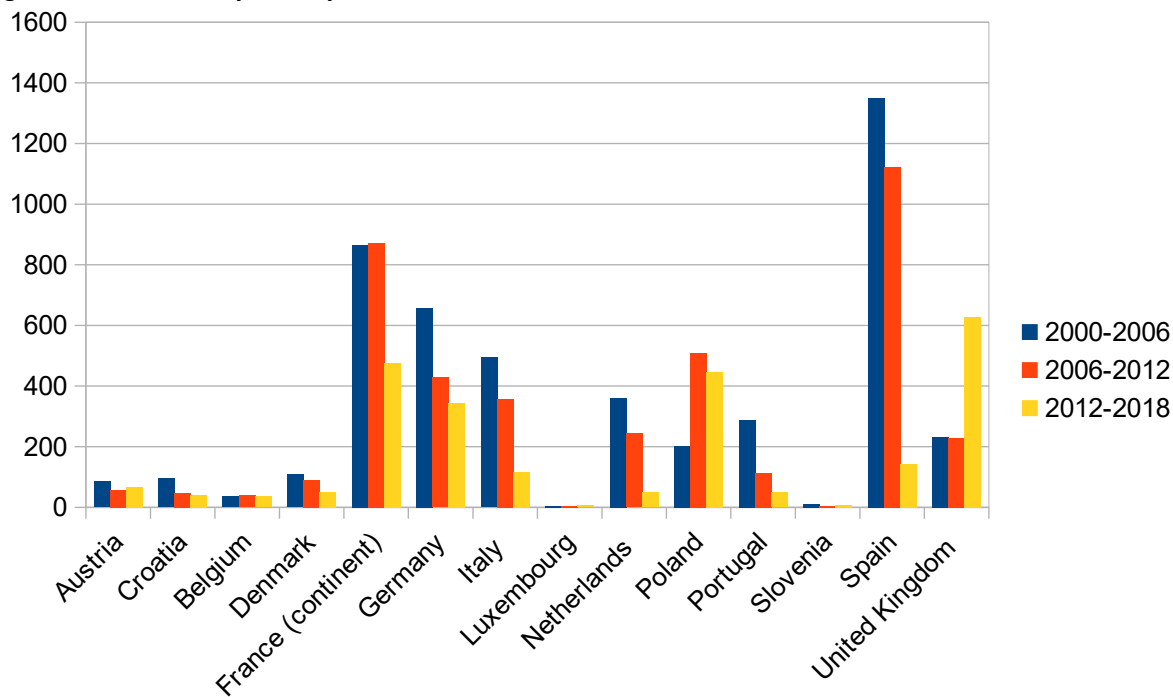
**Table 1. Surface, population and land take by country**

European	Total	Population, in	Average density	Land take (in Km <sup>2</sup> )
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state	surface (in Km <sup>2</sup> )	millions (2019)	of population (inh./ Km <sup>2</sup> , 2017)	2000-2006	2006-2012	2012-2018	2000 – 2018
Austria	83879	8,8	106,8	84,93	58,21	68,18	208,63
Croatia	56 594	4,1	73,9	95,39	46,17	41,82	182,35
Belgium	30 528	11,5	373,6	35,70	39,33	35,98	104,31
Denmark	42 921	5,8	137,3	108,70	89,50	51,18	241,36
France (continent)	543 940	67	105,5	864,90	872,18	475,59	2155,33
Germany	357 340	83	234	657,25	428,47	344,07	1381,11
Italy	302 073	60,4	203,3	494,32	356,06	116,53	953,12
Luxembourg	2586	0,6	230,6	4,09	5,19	5,98	14,63
Netherlands	41 540	17,3	501,1	361,38	243,65	48,58	642,40
Poland	312679	37,9	123,6	202,31	509,27	446,94	1133,82
Portugal	92 225	10,3	113,2	288,76	112,65	48,58	438,28
Slovenia	20 273	2,1	102,6	10,78	5,34	6,39	22,43
Spain	505 970	46,9	92,7	1348,87	1121,54	142,83	2489,90
United Kingdom	248 527	66,6	272 ,4	232,45	228,22	628,77	1052,03
EU Total	4464163	513,4	117,7	6130,25	5160,81	3236	14048,85

Source: EEC - Corine Land Cover, Eurostat

Figure 1.1. Land take by country - Km<sup>2</sup>

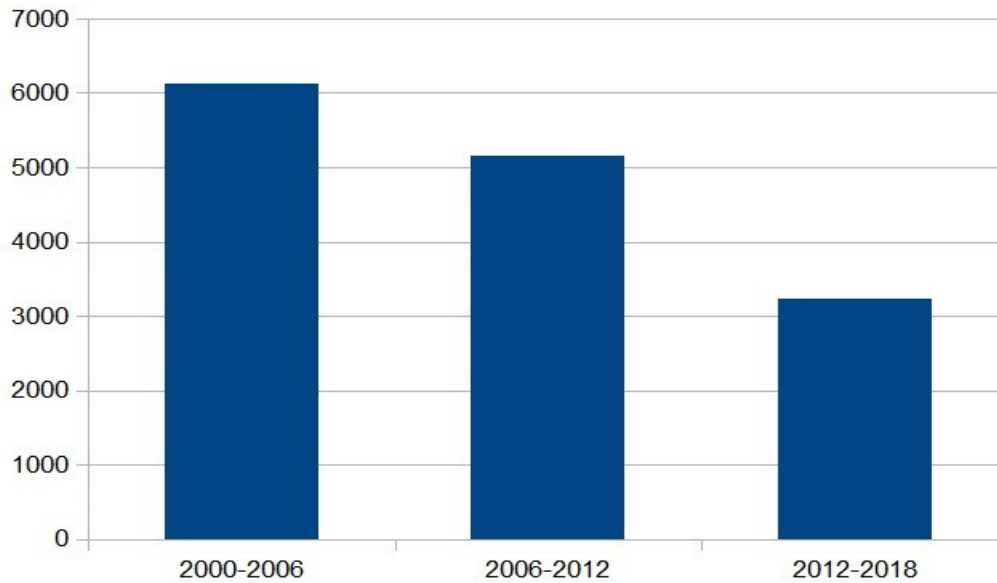


Source: EEA – Corine Land Cover

These numbers show an increase in land take of over 6 thousand Km<sup>2</sup> between 2000 and 2006, and over 3000 km<sup>2</sup> between 2012 and 2018.

It can be observed that land take related to this growth shows in the last almost 20 year significant changes, both in terms of country, pace and type of development. Most countries have witnessed a decrease of land take, except the United Kingdom with a significant increase in the last few years.

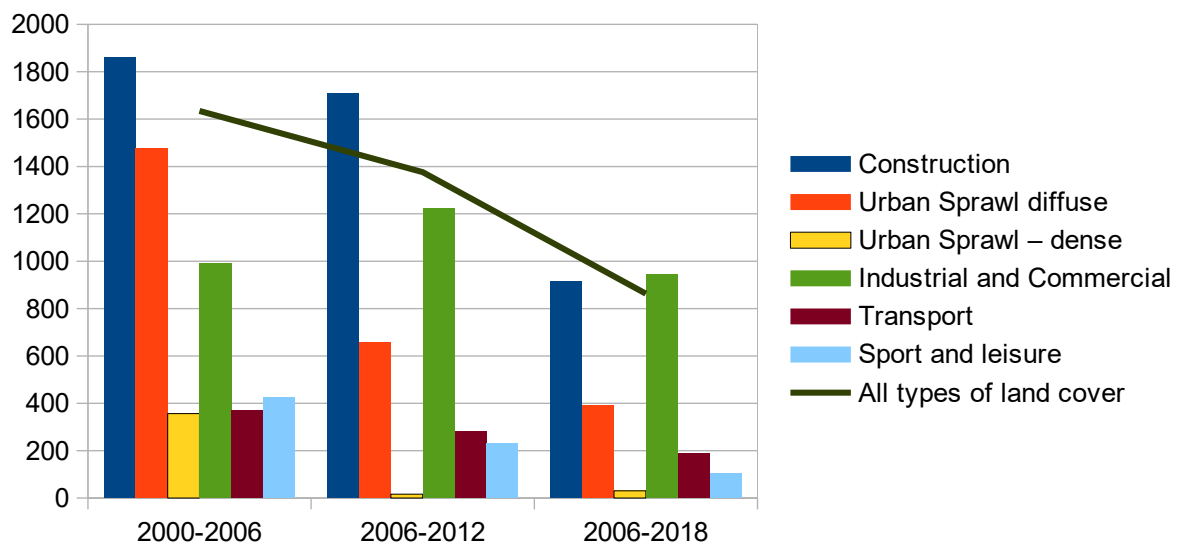
**Figure 1.2. Total land take in Europe 28 - Km<sup>2</sup>**



Source: EEA – Corine Land Cover

As EEA data show, in general terms, in the whole of the European Union the amount of land taken is diminishing quite rapidly since 2000 (Figure 1.3.<sup>2</sup>), with some specific exceptions for Industrial/commercial land as well as dense urban sprawl. Diffused urban sprawl (around cities) and dense urban sprawl (counted as development in the city core) have both noted a decrease in the period between 2000 and 2018, but the first has seen a small increase by the end of that period. Also land taken for industrial and commercial purposes have not followed the general trend, with a small increase in the middle period.

**Figure 1.3. Land take by type of use – Km<sup>2</sup>**



Source: EEA – Corine Land Cover

<sup>2</sup>- The curve describing all types of land cover has been reduced by 2,5 to make the figure more readable.

Urban sprawl understood in its wider sense as the increase in built-up and artificial areas has long been an important source of concern mainly for local governments. It moved out city inhabitants in search of comfort and better quality of life to peri-urban and sub-urban areas, causing changes in the formerly rural landscape and increasing urban traffic as well as provoking many economic, social and ecological effects.

Another interesting feature of this phenomenon is the regular growth of sealed surface in member states (Table 2).

**Table 2 - Artificial land and sealed surface in Km<sup>2</sup>**

European state	Artificial land (in Km <sup>2</sup> - 2012)	% of Artificial land (2012)	Sealed surface (in Km <sup>2</sup> )			
			2006	2009	2012	2015
Austria	4652	5,5%	1427	1448	1470	1475
Croatia	1972	3,5%	674	685	694	699
Belgium	6312	20,6%	1799	1816	1838	1848
Denmark	3452	8%	1197	1211	1231	1236
France	30612	5,6 %	11440	11722	11909	12014
Germany	34088	9,5 %	14945	15124	15324	15419
Italy	16056	5,3 %	7828	7934	8040	8071
Luxembourg	237	9,2 %	104	107	109	110
Netherlands	5392	13 %	2654	2692	2744	2753
Poland	17826	6%	4138	4212	4316	4496
Portugal	3679	4%	1855	1888	1912	1935
Slovenia	609	3 %	328	335	340	341
Spain	13410	2,7 %	5806	6034	6164	6224
United Kingdom	20572	8,3 %	7260	7299	7372	7402
<b>EU Total</b>	--	--	82002	83383	84858	85861

Source: EEA Corine Land Cover,

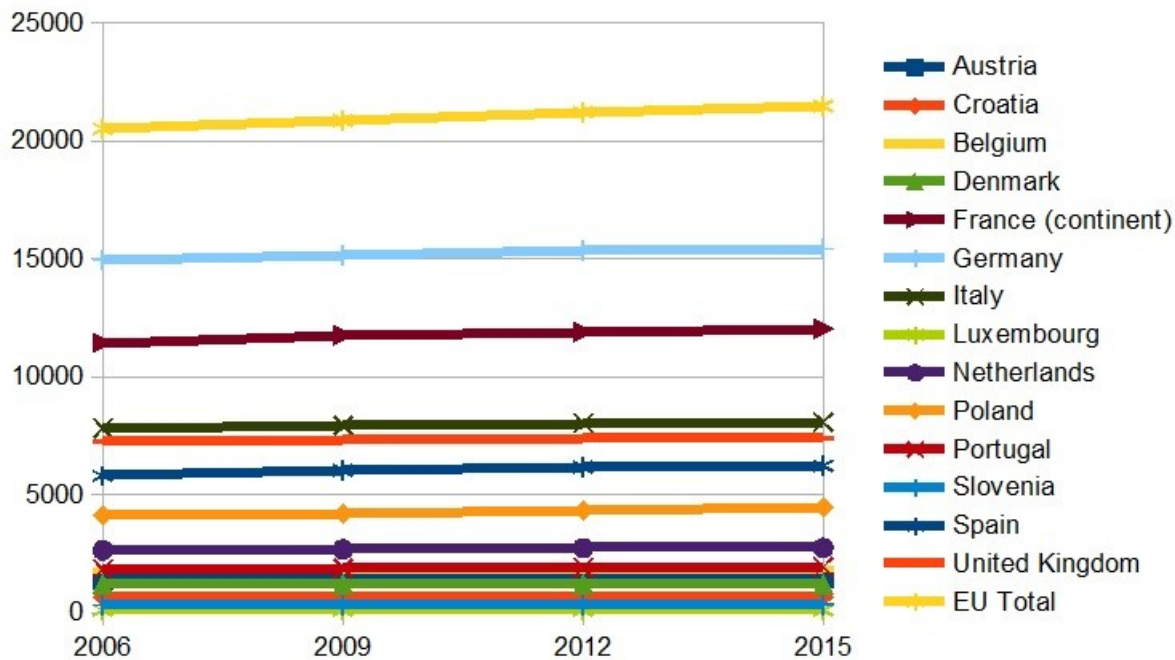
The data show an increase of 1381 Km<sup>2</sup> of soil sealed 2006 and 2009, of 1475 Km<sup>2</sup> between 2009 and 2012 and of 1003 Km<sup>2</sup> between 2012 and 2015.

Although the analysis of land taken in the EU member states show clear signs of rapid change, this seems not to be reflected in the changes in surface of soil sealed, as it is demonstrated by the steady and rather regular increase of this type of surface in the whole of Europe (Figure 1.4.<sup>3</sup>).

<sup>3</sup> - The curve describing EU total sealed surfaces has been reduced by 4 to make the figure more readable.



Figure 1.4. EU 28 sealed surface between 2006 and 2015



Source: EEA Corine Land Cover

Understanding the reasons behind changes in land take, whether they are factor driven (economy, demography, other) or are driven by stronger regulations or any other reason, would help in setting goals for future land take.

In conclusion this observation let us notice that, if these trends will continue in the following years, we can expect an even stronger decrease in land take.

In the last decades European citizens have been able to observe a significant overall improvement of air and water quality as well as a decrease of soil pollution due to a broad range of environmental legislation. However, many challenges persist, for example the artificialisation of land as one of the main factor influencing soil functions and ecosystem services and these must be tackled together in a structured way. Land take and soil sealing are to blame for the loss in these functions and services of European land, which is one of the major environmental challenges Europe is facing. This is why in the EU 7th Environment Action Programme to 2020 (7th EAP) the European Commission has proposed to have policies in place by 2020 to achieve ‘no net land take’ by 2050, to help address this global problem. As it is stated in the Communication of the Commission:

“By 2020, EU policies take into account their direct and indirect impact on land use in the EU and globally, and the rate of land take is on track with an aim to achieve no net land take by 2050; soil erosion is reduced and the soil organic matter increased, with remedial work on contaminated sites well underway.” (COM, 2011)<sup>4</sup>

## 2- Methodology of the survey and literature review

The assessment policies for land use in EU countries differ as a consequence of the different land use and planning systems. In order to better understand the actual situation in this field at the most practical, local level in different Member States, a survey was elaborated and shared with cities through diverse channels (networks of cities, national cities associations).

4 <https://eur-lex.europa.eu/eli/dec/2013/1386/oj>

The aim of the survey was to assess the effectiveness of legal procedures and methods and tools to prevent land take and soil sealing and thus limit the spatial and environmental impact of urban sprawl, to improve urban compactness and sustainability.

Several relevant answers were gathered among the total sent, specifying the situation of land take and soil sealing assessment procedures in nine EU countries, with specification of the concrete laws that regulate them. The survey was divided in two parts. The purpose of the first was to assess the level to which these directives, and more concretely their national transpositions, play a role in the urban planning practice of member states.

The second part was focused on gathering specific methodologies and tools included in national or local level impact assessment procedures and used by European cities to limit land take and soil sealing. The purpose of it was to know the mechanisms by which cities try to improve urban compactness and limit urban sprawl and soil artificialisation.

Since the assessment procedures and their relation to local land use planning is a complex topic, in order to gather additional data, basing on the received surveys the research was further deepened by direct correspondence and interviews with representatives of cities and experts in the field of land planning and assessment directives and procedures.

Additional information was also gathered through targeted research and literature review of publications, articles and results of research projects that dealt with land use.

This enabled gathering data and focused answers from Germany, Spain, Portugal, Italy, Croatia, Belgium, Slovenia, Poland, Denmark, France, United Kingdom, Holland and Austria.

Literature review consisted of a research of relevant articles, reports and project results related to land take and soil sealing. Among many documents collected, all of which were related to the topic of

The most relevant reports and projects were:

- EU-LUPA (European Land Use Patterns) ESPON project
- RECARE (preventing and remediating degradation of soils in Europe through Land Care) 7<sup>th</sup> Framework Programme project

The most relevant reports were:

- "Overview of best practices for limiting soil sealing or mitigating its effects in EU-27" a Study contracted by the European Commission, DG Environment and realised by the Environment Agency Austria,
- "Guidelines on best practice to limit, mitigate or compensate soil sealing" Commission Staff Working

Document,

- "Landscapes in transition - An account of 25 years of land cover change in Europe" a report by the European Environment Agency,

Basic information on land use and planning were also (pozyskana) from Eurostat and OECD, as well as country data sources.

Information of crucial importance for the analysis of land take and soil sealing at the European scale were collected at the Land Take webpage of the European Environment Agency.

The information gathered through the survey from European cities was analysed and compiled in this and the following chapter.

### 3 - Land use and land take / soil sealing in EU member states

The survey was conducted in many EU countries to better understand land take, soil sealing and the and the legal organisation that regulate, supports or try to limit them as well as the possible effect of EU regulations related to impact assessment on these national regulations.

A closer look on several countries will enable to understand the processes of land take and soil sealing that are hidden behind these regulatory frameworks.

#### Specification by country

##### Austria

Austria is a federal state with three levels of government: the national level, nine federal states and 2100 municipalities. The federal constitution assigns responsibility for local planning to municipalities. As it does not mention other aspects of planning, those remain within the responsibility of the federal states. Despite the lack of responsibility for formal planning, the national government has important tools to influence the spatial structure of the country. It plans and finances major infrastructure projects such as national road, railways and main energy transmission lines. Furthermore, it enacts some environmental and heritage protection legislation that restricts and steers the possibilities to develop land. (...) States hold most powers related to planning and pass their own framework legislation to organise spatial and land use planning. Despite this, most states have structured their planning systems in comparable ways. (...) Besides their direct responsibilities for planning, states can also shape their spatial structure through their responsibility for environmental legislation, housing, economic development and infrastructure of state-wide importance.

Land-use Planning Systems in the OECD - Country Fact sheet

Austria is one of eleven EU member states that has implemented specific measures to reduce soil sealing and sprawl.

Also, it's also one of six countries that has specific policy targets in force, including a quantitative limit for annual land loss.

To guide policies at lower level, spacial development concepts are published every 10 years by a political decision-making body, the Austrian Conference on Spatial Planning (Österreichisches Raumentwicklungskonzept, ÖROK). These policies are not legally binding and the Federal States also elaborate non-binding development concepts to supervise the conformity of local land use decisions and their financial coherence to these concepts. Legal decision are taken by the 2100 municipalities, through zoning plans that classify land on the basis of their planned use, furthermore through specific site plans for single plots of land.

Attempting to reduce the annual increase of soil sealing, the Central Government published in 2002 the "Austrian Strategy for sustainable development" (STRAT). It indicated a target of 10% maximum of permanently sealed soil in relation to the 2002 level, to be achieved in 2010. This was an ambitious target that was never achieved, since it assumed a tenfold reduction of soil sealing in less than 10 years.

A monitoring system of land consumption with a standardized methodology, covering all nine Federal States was established in 2009 to increase the effectiveness of the sustainability strategy.

The Federal States adapted their respective state strategies and the introduced changes were of three main types: a time limit for building permissions, to recover and eventually re-green plots of land that have not been developed; most Federal States have enabled their municipalities to draw up development contracts with landowners, which

provides municipalities with the possibility to influence the decisions of the landowners; some Federal States have also implemented policies to mobilize vacant land (f.ex. Mobilization of brownfield), to effectively protect their green areas and to limit landscape and ecosystems fragmentation.

Furthermore, municipalities co-operate in developing and advertising one common location and share the costs and revenues. By concentrating the efforts of several municipalities, the overall land take is lower compared to several smaller projects and the chance that developed locations are efficiently used is higher.

Despite the implementation of strict regulations aimed at land protection, there is still a significant difference between declared objectives and real achievements in this area by the Austrian government. The foreseen target is of 2 hectares per day but remained at a level of about 20 hectares in the period 2007 – 2016.

It's not clear whether impact assessment policies account in reality for the limitation of land take.

As research shows (Getzner, Kadi 2019) the implementation of very strict planning policies and instruments do not seem to make a clear-cut discernible difference between regulatory influence on land take limitation and market forces. "Although Austria ranks among the countries with the strictest planning frameworks in place, and new regulatory instruments and guidelines have recently been implemented to curb land consumption, the analysis does not reveal any statistically significant and discernible effect of spatial planning regulations, strategies and concepts on land consumption". Further research at the local level is needed to understand the reason of this situation but generally speaking the non-binding nature of state and regional strategic land-use concepts, low land taxes as well as the fragmented system and the spread of legal competences between the provincial and municipal levels impede a more efficient land use and leave room for ineffective policy implementation and enforcement. Only 10% of spatial planning processes are chosen to undergo a full SEA, therefore undermining the relevance of this instrument (Getzner, Kadi, 2019). Clearly not enough local plans undergo the full SEA procedure and an enforcement of it at the earliest stage could improve the situation.

For several years, the municipalities have designated much more land for construction than actually needed.

As economic output of companies are an important source of local taxes, local governments compete in their attempt to attract companies and use land for building purposes as a location factor to attract new businesses.

## Belgium

**Belgium** is a federal country with 4 levels of government: the national level, 3 regions (Flanders, Brussels and Wallonia), 10 provinces and 589 municipalities. The division of tasks with respect to land-use policies is determined by the constitution and regions have almost complete autonomy in land-use decisions. The federal government affects land use only through national legislation, such as the *Civil Code*, which contains elements related to building activities. (...). Regions enact the framework legislation that structures planning, but they delegate many tasks to lower levels of government. Directly, they influence land use by preparing *Regional Spatial Development Plans*. Furthermore, they are responsible for important related policy fields, such as environmental legislation, energy and building code regulations. In Flanders, the regional government can also prepare *Implementation Plans (Ruimtelijke uitvoeringsplannen)*, i.e. zoning plans for specific areas or development projects. (...) Provinces can affect land use only indirectly, for example through their responsibility for provincial infrastructure and housing. All regions delegate significant authority to municipalities. In all of Belgium, municipalities may prepare *Municipal Structure Plans* and detailed *Municipal Implementation Plans*. Especially in the Flanders region, local responsibility for land-use decisions has been strengthened in recent years. In contrast, in the Wallonia region, less emphasis is placed on local autonomy. Instead, integrated planning for functional areas plays a more important role.

Land-use Planning Systems in the OECD - Country Fact sheet

Among European countries Belgium has the highest shares of developed land. Population density combined with high per capita consumption are responsible for this situation. This contrasts sharply with one of the lowest mean annual land cover change rates among member states, with only 0,1% of the total areas converted to different types of use between 2000 and 2012, which is a clear slowdown compared to the previous decades.

The only major national law that influences land use directly is the *Civil Code*, which regulates specific aspects of building activity. Besides that, all regions provide environmental regulations that have direct consequences on land-use patterns. Land take regulations exist in regional and local laws.

### **Land Take and soil sealing**

**In Flanders**, the framework legislation on the land-use planning system is contained in the *Decree on Land Policy*. Limitation on land take and densification are set as general principles in the regional spatial planning. These are formulated in numeric references of parameters, which are then used to confirm and approve local spatial planning instruments. The regional level sets forward specifically the term 'land take' to include a broader terminology for urban expansion. Soil sealing is included in these definitions. Aside from this it supports local governments and other stakeholders with specific 'un-sealing' programs and related funding.

Local authorities develop local spatial development plans in which land take is delimited and differentiated in concrete spatial terms. Space in Belgium, and specially in Flanders, is limited and efficient land use a national priority. The Spatial Structure Plan for Flanders (RSV, adopted in 1997) offered an initial long-term vision. Since then, the regional government supports local governments in their realisation of strategic projects for sustainable spatial development through a funding mechanism, which includes the acquisition of land for projects, the regeneration of run-down areas and the establishment of green urban areas. The mechanism relies on a ranking of proposals submitted by local governments to the spatial planning department of the Flemish government.

The new Policy Plan for Town & Country Planning in Flanders (BRV, adopted in 2017) set even higher targets. The new plan bets on the intensification, re-use, support of temporary use and mixed- use of built-up urban land. It also sets a target on not be taking up any more open space after 2040.

A quite new instrument in Flanders aimed at the reuse of developed land is the Brownfield Covenant. It relies on setting agreements between the regional Government and one or more private or public parties to secure the proper and environmentally friendly realization of developments in brownfield areas.

**In the Walloon region**, there are a range of laws that have a direct influence on impact assessment procedures. These are laws, plans and monitoring instruments:

#### **Laws:**

- Code of Territorial Development (2017 – CoDT, land planning legal basis) which include Land Use Plans (Maps of legally defined land use for the Walloon region), indicative documents for regional and local land planning, as well as procedures for recycling of abandoned polluted sites.
- Decree on the Management and remediation of Soils (2018),
- Environmental Code (2004 and later amendments),
- Nature conservation law (1973), aimed at protecting of natural areas from urbanisation,
- Environmental permit decree (1999), requiring Impact Assessment previous to the implementation of a projects involving classified installations or activities.

#### **Plans:**

- Marshall Plans (financial plans from the Walloon government, including recycling of polluted sites, 2015)
- Development Plan of the Territory (SDT - tool from the CoDT)
- Diverse plans from the Environmental Code:
  - Environmental Plan for sustainable development (PEDD – 1995) with its action programmes for soils and Nature Protection.
  - Plans for management of flood risks (PGRI) & Plan for the prevention of floods and their effects on flood victims (PLUIES, both from 2003)
- 2nd Strategy for Sustainable Development (2013),
- Plan for Rural Development for 2014-2020 (a financial tool for rural development indirectly linked to urbanisation of rural areas).

**Monitoring instruments:**

- State of Environmental report Wallonia 2017,
- Walonmap – a centralised georeferenced data for Wallonia, including soil map, land use maps, atlas from SOER, Soil Status Database and other information.

The **Walloon** Regional Government wishes to reduce the consumption of soil. Methodologies and tools for land take and soil sealing limitation are provided at the regional level. The intention is thus reflected in the Walloon Territory Development Plan adopted by the Government in May 2019: "Reduce the consumption of non-artificial land to 6 km<sup>2</sup> / year by 2030 and aim for 0 km<sup>2</sup> / year by 2050 ". Reducing the artificialisation of soils involves two complementary approaches: on the one hand, preserving as much land as possible and, on the other hand, ensuring more efficient use of land through urbanization, past and future.

On a practical side, a total of 23 sectoral plans (plans de secteur - PDS) adopted between 1977 and 1987 and constantly actualised, define zones which can be built on and zones dedicated to other more natural functions.

The Permanent Conference on Territorial Development (Conférence Permanente du Développement Territorial - CPDT) develops further these aspects in a guideline "Let's reduce the artificialisation of soils in Wallonia". This document provides indications for local governments on land-use planning aimed at limiting land take and soil sealing, the reuse of already artificial land and the management of the land-use existing consequences, aimed at compensating land take and soil sealing (Since 2005, any new zone to be urbanised must be compensated).

In the opinion of some regional representatives, EU guidelines would be welcome to ensure that EIA and SEA are truly taken into account in the Walloon Region. This could take for example the form of prototypical regulatory sets with exemplary solutions and accompanied with best suited tools and methods. These however could only play a role of exemplary solutions to be adapted to local conditions and not as a predefined model of action.

**Croatia**

Croatia is divided into units of regional self-government (20 counties and the City of Zagreb which bears a special status), 127 towns and 429 municipalities as units of local self-government. Each has their own representative bodies (assemblies and councils) and executive authorities (county prefects, mayors and municipal mayors). Many local self-government units do not have sufficient capacity to perform all functions within their competence.

World Bank 2016

In the end of 2013, the Draft of the Regional Development Law was introduced to the public as an update to the former Regional Development Law enacted in 2009. The Regional Development Law determines the goals and principles of regional development management in the Republic of Croatia. It carries out the necessary planning documents, appoints competent state entities and classifies development stages of different spatial units. The enactment of the new and complete Regional Development Law took place in the beginning of 2014. Regional Development Law appoints strategic planning – as one of several principles of regional development politics - by the enactment and implementation of planning documents to enable more efficient planning and to coordinate the regional development politics. Therefore 5 planning areas covering the whole country are constituted, but they are not a regional self-government unit – as in the case of 21 counties - nor are they legal entities. (...)

To realize a more efficient regional planning system, urban areas are constituted, besides the planning areas stated above. By the Regional Development Law urban areas include urban agglomerations (Zagreb, Split, Rijeka, Osijek) and other urban areas (local self-government units which have a population over 35.000, according to the last census).

Build see Country Report Croatia (2014)

Impact assessment procedures aimed at assessing and limit land take and soil sealing are embedded in it.

The spatial planning system of the Republic of Croatia is regulated by the Physical Planning Act<sup>5</sup>. The Act prescribes the regulations regarding the determination of construction areas, which is made at the local level, precisely in the spatial development plan of a city or municipality. Impact assessment procedures aimed at assessing and limit land take and soil sealing are embedded in it.

Other regulations that also play an important role in the assessment procedures are:

- the Environmental Protection Act<sup>6</sup>. According to the Environmental protection Act the development of a strategic environmental impact assessment is mandatory for strategies, plans and programs, their amendments, including those financed from EU funds, adopted at national, regional and local level, in the fields of agriculture, forestry, fisheries, energy, industry, mining, transport, electronic communications, tourism, spatial planning, regional development, waste management and water management when providing the framework for interventions to be assessed for the need for environmental impact assessment or environmental impact assessment (article 63). This Act recognises soil as one of the environmental components which needs to be addressed in environmental impact assessments, beside air, water, sea, landscape, biodiversity and geological features. According to this Act, the soil is a non-renewable asset which has to be used in a sustainable way (article 11).
- the Agricultural Land Act<sup>7</sup>. This Law regulates the maintenance and protection, use and change of use, compensation and disposal of agricultural land owned by the Republic of Croatia.
- Regional and local spatial plans. Local plans provide detailed regulations in accordance with the Physical Planning Act and regional spatial plans.

One of the difficulties related to Environmental Impact Assessment as defined by the national Act refers to the lack of data regarding green spaces and green infrastructure in cities, as there is no continuous monitoring of green surfaces in Croatian cities, not even of larger ones. This makes it difficult to track the progress when trying to implement strategies (or goals or priorities which are part of the strategies) related to green infrastructure and spaces, and indirectly to land take.

This also makes it hard to compare land take and green surfaces between different cities. Additionally, Croatian cities face two different processes: on the one hand a large number of cities is shrinking, population wise, which translates into emptying industrial spaces and residential areas. On the other hand, suburban areas of the largest cities such as Zagreb, Split and Rijeka are growing population wise, which also means that land take in these areas is increasing. Since there are no major soil regeneration programmes, this contributes to a rapid increase in land taking and soil sealing. The complex and uncoordinated legal framework of administration competences territorial development represent a barrier in the proper performance of the assessment procedures and taking efforts towards land protection.

In order to control land take there is a need to better integrate strategic and spatial planning in Croatia, because the two systems are now legislatively separated. Strategic and spatial plans should act complementary and should depend on each other to a certain degree.

In further positions for land/soil recovery constraints are insufficient financial resources, unsolved property-legal relations, complicated public procurement issues, inconsistency of policies due to frequent changes and slow administrative procedures.

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5 - Physical Planning Act (Zakon o Prostornom Uređenju) <https://www.zakon.hr/z/689/Zakon-o-prostornom-ure%C4%91enju>

6 - Environmental Protection Act (Zakon o Zaštiti Okoliša) <https://www.zakon.hr/z/194/Zakon-o-za-%C5%A1titi-okoli%C5%A1a>

7 - Agricultural Land Act (Zakon o poljoprivrednom zemljištu), <https://www.zakon.hr/z/133/Zakon-o-poljoprivrednom-zemlji%C5%A1tu>

## France

France has four levels of government; the national government, 18 regions, 101 departments, and 35 885 municipalities. The national government is active in land-use governance primarily through its responsibility for the legal framework concerning land-use planning, environmental policy and other policy fields. Furthermore, it plans and finances infrastructure projects of national importance such as motorways and railways as well as facilities such as universities. No national level spatial plan exists in France.

The influence of regions on land use comes primarily through their involvement in the planning and financing of large scale infrastructure projects. Furthermore, regions prepare a general strategic plan that outlines their policy priorities and develops a spatial vision for the region.

The intermediate level of government between regions and municipalities (the departments) does not have any formal responsibilities in the field of land-use planning. It has limited influence on land use through its responsibilities for other policy fields, such as the construction of schools and departmental roads.

Several different types of inter-municipal authorities exist in France, depending on the population size of urban agglomerations. Especially inter-municipal associations in larger urban areas play an important role in the French planning system. They are responsible for creating strategic plans that focus on providing a coherent strategy for the entire urban agglomeration. These plans are legally binding for local land-use plans.

Municipalities are responsible for creating local land-use plans and for issuing building permits. (...) Municipalities in France are among the smallest within the OECD. While they can form inter-municipal associations to create local land-use plans (PLUI), the responsibility for issuing building permits always rests with an individual municipality.

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Article L110 of the Town Planning Code defines the general principles of town and country planning.

Each public authority is the manager of the French territory and the guarantor within the framework of its competences. In order to develop the living environment, manage the soil economically, ensure the protection of natural environments and landscapes, public authorities harmonize, with mutual respect for their autonomy, their forecasts and their decisions for land use.

Many laws and regulations effectively frame the possibilities of artificialisation or limit urban sprawl. The law of 1976 relating to the protection of nature constitutes the founding text of the preservation of landscapes, through compulsory ecological compensation. By defining the basis of the regulatory corpus aimed at avoiding, reducing and compensating for the environmental effects of infrastructure projects, this law has helped to limit artificialisation and the change in land use.

It was supplemented in 2014 by the agricultural economic compensation, within the framework of the law of agriculture.

The corpus relating to planning and land use planning is particularly substantial. It is based both on systems for bringing local construction policies into coherence, such as territorial coherence schemes (SCOT), and systems for protecting natural or agricultural areas. In 2018 a new law (so called ELAN) was introduced with its incentives to densify the urban tissue.



## Germany

Germany is a federal country with four levels of government. Below the national government, 16 federal states exist. At an intermediate level, there are 402 administrative districts and at the local level 11 092 municipalities. (...) According to the constitution, federal and state governments have overlapping legislative authority in spatial planning matters. The federal government can pass laws related to spatial planning (Raumordnung), but states may do so too. If both levels of government adopt spatial planning laws, the latest enacted law (either federal or state law) takes precedence.

States largely follow federal legislation, but frequently pass laws that deviate in parts. This leads to a system that is broadly comparable in all German states but contains a lot of variation in the details. The system follows the so-called “counter flow principle”, where decision-making mechanisms contain a mix of top-down and bottom-up elements. States generally develop spatial development plans for their territory that, depending on the state, impose more or less restrictive guidelines on lower levels of government. Often, deconcentrated parts of the state administration also create regional plans that are binding for local land-use plans.

In most states, districts have only limited powers related to spatial planning (...). The constitution allocates considerable powers related to land-use decisions to municipalities. In all states, they are responsible for the preparation of local land-use plans and other detailed urban planning instruments.

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Germany is probably the largest country with extensive experience in land take and soil sealing procedures, given the sealed surface, population size and number of cities dealing with regeneration programmes. Land take and soil sealing in Germany are present in national and Federal State legislation. Land take limiting procedures are led and implemented by all levels of government, through national, federal state and local laws.

Impact Assessment procedures are implemented at the federal level through the Environmental Impact Assessments procedures for planning processes and result in a variety of solutions, such as impact compensation for specific construction plans or simplified planning procedures for construction projects on already used sites in comparison to sites never used as construction site before, or other types of solutions.

Germany is the country in Europe with the largest amount of sealed surface and is one of the countries with the highest scores of land taking. It has formulated an ambitious plan to reduce land taking to 30 hectares a day, compared to 120 hectares a day in the period 1993 – 2003, and to reduce to zero, by 2050, the greenfield land take.

These goals have been set and the national level government supports the efforts by the federal states to achieve them, setting also interim goals.

The main methods chosen are the concentration of inner city areas and the reuse of derelict land. New settlement areas with all the needed infrastructure need to be developed according to this assumption.

As the Federal Environment Office, the measures and instruments defined to reach it are:

Strengthen state and regional planning and use existing spatial planning instruments in a targeted way towards limiting greenfield development

- Reduce harmful subsidies which encourage greenfield development, like commuter allowances or funding for industrial estate development on greenfield
- Apply the set of instruments provided by the Building Code and target funding at activating inner urban development and brownfield redevelopment potentials
- Create, to this end, inter-office organizational structures in administrations which facilitate effective land management
- Further improve the framework needed to activate unused inner-city building plots
- Minimise pressures brought on by further urban sprawl through appropriate property tax reform, including introduction of a zoned municipal statutory law for property tax which enables a targeted mobilization of

properties that are ready for building or unused. Framework conditions can also be improved via the land transfer tax and/or by establishing a levy on allocation of land for building or a charge on greenfield development

- Reduce new construction of buildings, federal trunk roads and other transport infrastructure and instead maintain and upgrade existing buildings and infrastructure
- Raise awareness of the disadvantages and risks which land consumption entails, highlight the opportunities which land saving brings and inform each and every actor and citizen about how they can help save land.

The Federal Environment Agency is advising the Federal Environment Ministry within the scope of current legislative projects and other land policy activities.

Land take is for example tackled by Federal laws and procedures: Environmental Impact Assessments for planning processes, impact compensation for specific construction plans, simplified planning procedures for construction projects on already used sites in comparison to sites never used as construction site before.

Trading of land planning permits is a new, innovative instrument to promote land saving. It is currently being tested in a pilot project commissioned by the Federal Environment Agency. Similar to trading of CO2 emission allowances, it aims to set financial incentives for municipalities which redevelop brownfield sites and use land efficiently.

The legal setting for realising these targets at the national level (followed by regional states) are mainly:

- The Sustainability strategy (Nachhaltigkeitsstrategie) sets objectives and principles, but is not legally binding.
- Regional Planning Act (Raumordnungsgesetz ROG) is a legally binding document, with objectives and principles for supra-local spatial planning.
- Federal Nature Conservation Act: objectives and principles for the development/protection of nature and landscape, legally binding.
- Building Code (Baugesetzbuch), which determines the necessity to present an environmental report of the planned developments (environmental impacts of programmes, protection of wild fauna and flora, bird species, compensation and replacement for construction projects)

Generally speaking, the German regions experience in environmental assessment procedures application is positive and benefits from the length of its functioning in the country. It seems however that EIA procedures still lack of an in-depth monitoring of real life impacts vs. impacts foreseen in the assessment, to verify whether the results are compatible with the assumptions.

Besides, whether the planning concepts are successful often depends on the good will of the responsible bodies. Setting reasonable and achievable priorities is particularly important at an early stage of the planning process.

## Italy

Italy has four levels of government: national, regional (19 regions and 2 autonomous provinces with regional powers), provincial (110 provinces, out of which ten acquired the status of metropolitan city in 2015) and local (8 047 municipalities). Italy is a unitary country, but its land-use planning system follows a model generally observed in federal countries, with regional laws and regulations as the main source of legal provisions outlining the planning process. Despite the high degree of regional autonomy, actual planning systems are similar across the country. The national government provides guidelines for territorial development (...). It is also in charge of the construction and management of infrastructure of national importance as well as of the protection of heritage sites and of the natural landscape.

Regional laws and planning acts define the structure and processes that local authorities follow in preparing statutory land-use plans. Given the absence of a national framework law, regional provisions can vary from each other. Regions prepare Regional Landscape Plans together with the National Ministry of Cultural Heritage and Activities and Tourism. They also produce Regional Territorial Plans whose contents vary from region to region. The second level of subnational government, the provinces, produces the Provincial Territorial Coordination Plan to coordinate land-use decisions across municipalities and plan major infrastructure projects.

Actual land-use decisions are primarily made at the local level by municipalities through the Local Development Plan. (...) The exact nature of the planning process differs from region to region.

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Impact Assessment procedures for land take and soil sealing limitation derive from national laws and are inscribed in regional and local laws. The case of the Emilia Romagna and Tuscany Regions are explained below.

At the national level, three decrees regulate this subject:

- Legislative Decree no. 152 of 3 April 2006 "Environmental regulations"
- Legislative Decree 16 January 2008, no. 4 "Further corrective and supplementary provisions of Legislative Decree no. 152 of 3 April 2006, containing environmental regulations"
- Legislative Decree of June 29, 2010, n. 128 "Amendments and additions to the legislative decree 3 April 2006, n. 152, concerning environmental regulations, pursuant to article 12 of the law June 18, 2009, n. 69

Although law n. 152/2006 with its further amendments sets a wide range of environmental regulations, among others to limit land take and soil sealing and provided a considerable number of "implementing decrees", to make the principles contained in this law operational and effective, in reality, in recent years very few actualised decrees were issued, rendering in part ineffective many important provisions of this law.

There has been attempts to formulate country regulations but no specific law has been issued for the time being.

Given the diversity of legislation at this level, impact assessment procedures can be differently enshrined in regional law. In the Emilia Romagna region for example, the Regional Law 24/2017 "Regional regulation on the protection and use of the territory"<sup>8</sup> is in charge of regulating the urban planning and the institution of the General Urban Plan.

In the Tuscany Region the main reference law is the Regional Law 10/2010 "Rules on Strategic Environmental Assessment (VAS), Environmental Impact Assessment (VIA) and Impact Assessment".

Indications concerning impact assessment exist also at the local level and rely on SEA/ EIA directives.

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8 - <http://territorio.regione.emilia-romagna.it/codice-territorio/pianif-territoriale/legge-regionale-21-dicembre-2017-n-24/legge-regionale-21-dicembre-2017-n-24>

## Luxembourg

Luxembourg is the second smallest country in the European Union. It is divided into 12 cantons, which are further divided into 102 communes. Twelve of the communes have city status; the city of Luxembourg is the largest. Luxembourg has two main spatial planning levels. These involve state ministries at the national level with national strategic instruments and municipalities at the local level with municipal land-use plans. The parties sometimes have different aspirations for spatial planning. The state has opted for a direct role in planning and sometimes implementing national projects, overruling local interests.

Based on: OECD – The state of national urban policy in Luxembourg

The Department of Spatial Planning (Département de l'aménagement du territoire) is responsible for spatial planning:

- the implementation of the integrated concept of transport and territorial development (IVL);
- the management of the natural reserves;
- the implementation of international and interregional policies on land use planning (territorial cohesion and urban policy).

Land use in Luxembourg is ruled by two laws:

- Law of 17 April 2018 concerning spatial planning (Loi du 17 avril 2018 concernant l'aménagement du territoire). This law defines the framework for spatial planning.
- Modified law of 19 July 2004 concerning municipal planning and urban development (Loi modifiée du 19 juillet 2004 concernant l'aménagement communal et le développement urbain). This law defines the framework for municipal planning and the procedures for municipal land use plans (General Land Use Plan and Detailed Land Use Plan).

Luxembourg does not have an explicit national urban policy, but its national spatial plan, the *2003 Master Programme for Spatial Planning (PDAT)*, does cover urban policy issues. It determines the government's general guidelines and priority objectives for the sustainable development of the "living environment". An update of the PDAT is planned for 2018 (OECD, 2015). The *Integrated Transport and Spatial Planning Concept (IVL)*, developed in 2004, guides the implementation of the main targets set out in the PDAT and defines more precisely the polycentric urban spatial model of Luxembourg.

## Netherlands

The Netherlands is a unitary state with 3 levels of government; the national level, 12 provinces and 390 municipalities. The national government creates the legal framework for spatial planning that determines the responsibilities of individual actors. It decides based on a principle of subsidiarity, i.e. it gives powers to the lowest level of government if possible and to a higher level if necessary. The national government is primarily responsible for areas and networks of national significance for the development of the country and defined in the National Structure Plan. (...) The national government is responsible for infrastructure of national importance and has to take its spatial impact into account when making decisions. It also influences decisions of lower levels of government by offering financial incentives and by passing important laws and regulations, such as the framework decree structuring spatial planning. The provincial level has the responsibility for spatial planning of issues of provincial importance and is mostly free from national guidance in determining what these issues are. (...) They may also supervise the spatial policies of municipalities and can intervene if the decisions of one municipality have negative consequences on other municipalities.

Municipalities are the most important actors in determining land-use policies. Although higher governmental levels have significant powers to override municipal planning decisions, they make seldom use of these powers. Municipalities exercise their powers partly by preparing local land-use plans, but also by practicing pro-active planning and have powerful vetoes. (...) If municipalities want a development to take place, they are frequently successful in realising it even if it contradicts existing plans. There are also several other important public actors that influence land use: water boards, housing associations, associations of municipalities that prepare joint structure and land-use plans for their territories.

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spatial planning in the Netherlands is regulated by the Spatial Planning Act (2008).

From this Act derive the subsequent regulations, such as structure plans and land use plans, which are the major type of spatial plans in the country, and project plans.

Impact Assessment procedures in the Netherlands are inscribed at all levels of government. They are directly related to the EIA and SEA Directives.

At the national level, the Ministry of Infrastructure and Watermanagement is responsible authority responsible for the EIA implementation.

Environmental assessment can be undertaken at two levels:

- Environmental Impact Assessment (EIA) for individual projects (f.ex. dams, motorways, airports or factories).
- Strategic Environmental Assessment (SEA) for plans, programmes or policies such as land use plan, energy development plans, or a sustainable development plan. This influences directly land-use at the level of municipalities.

One of the specificities of land-use in the Netherlands is that most of the land for building is provided by municipalities, not private owners. Municipalities (but the regional and national levels can do the same) buy all the land that will be developed, reorganises it in a suitable way to fit the planning requirements and resales it to investors. This approach guarantees a proactive role of the municipality in shaping the local landscape. This also helps in a significant level to land and soil protection.

The Netherlands have many regulations concerning land-use and protection. There are two main laws for soil protection, namely the Soil Protection Act (Wet bodembescherming - Wbb) and the Environmental Protection Act (Wet milieubeheer - Wm). Both deal mainly with remediation and prevention of soil pollution, but tackle also issues of land use.

The national soil protection guidelines (NRB) are nation wide agreed indications on serve as a harmonised toolkit to assess the need and feasibility of soil protection measures and facilities. Despite lacking a legal status, the guidelines do have a powerful steering function. Once they have been converted into conditions in permits or general administrative orders, they give rise to legally binding regulations.

## Poland

Poland has 4 levels of government; the national government, 16 regional governments (Voivodeship), 380 intermediate governments (Powiat) and 2478 local governments (Gmina). Concerning land use, the national level, regional level and local level have relevant powers. The national government has a direct role in spatial planning through its responsibility for developing a national spatial development concept. It is also responsible for the Spatial Planning and Development Act, which is the framework law for the planning system, and for other laws that affect land use directly and indirectly. Furthermore, the national government influences land use through its responsibility for large infrastructure investments. Voivodeships play a limited role in spatial planning through their responsibility for Regional Spatial Plans. Powiats have only minor functions related to planning. The head of a Powiat issues non-binding opinions on local plans. In special circumstances, the Powiat may also establish an architectural commission. Powiats are also responsible for issuing planning permissions in those areas. However, due to the national legislative framework, they have much less discretion in influencing land use in areas that are not covered by land-use plans than in areas that are covered. The main actors in land-use planning are local governments. They have responsibility for creating and approving Local Spatial Development Plans, which are the only legally binding zoning plans in Poland even though large parts of cities are not covered by them. Furthermore, they may prepare Spatial Studies that provide visions and non-binding concepts for areas of varying size.

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Among the various solutions whose task is to ensure that the environmental requirements are met throughout the entire spatial planning process, in Poland functions the environmental impact assessment.

The law in force in Poland regulating the principles of conducting environmental impact assessments, understood as research on the impact of investments on the environment, originates from European Union legislation under the EIA and SEA Directives.

The aforementioned directives are currently transposed into National Environmental Impact Assessment System by the Act of October 3, 2008 on the provision of information on the environment and its protection, public participation in protection

the environment and on environmental impact assessments (hereinafter: the Environmental Protection Act).

The regulations regulate the principles of carrying out strategic environmental impact assessment, i.e. assessment of draft documents:

- planning, e.g. projects of local spatial development plans, requiring a strategic impact assessment on environment,
- sectoral, which set the framework for projects that can significantly affect the environment,
- other than those mentioned above, setting the framework for projects that may have significant effects on the environment.

The provisions on environmental impact assessments also apply to changes in adopted documents and changes implemented or completed projects.

Most cities in Poland have to deal with an important decline in their population, although the picture is not similar for all cities. Although medium size and small cities notify clear drop in the size of their population and have to deal with emptying spaces, larger cities and specially their closest neighbourhood communities observe a clear increase in the number of inhabitant, marking a classical type of urban sprawl. Cities have to deal with problems generated by citizen that are not city residents. This poses a problem also on the side of determining limits to grow: cities prefer not to settle this kind of barrier to their development, or better to say aspirations to not to shrink. It appears that certain elements of the Polish planning system are inconsistent, such as national legislation on infrastructure overriding local

planning law and an absence of local spatial development plans in many areas, while in special economic zones other rules apply. Collaboration among urban, peri-urban and rural locales is only just beginning.

## Portugal

Portugal is a unitary state with two levels of government; the national level and 308 municipalities. The national government has four distinct functions related to land-use policies. First, it provides the legal framework that regulates planning at the national, regional and local level. Second, it defines national and sectoral strategic policies aimed at integrated, cohesive and sustainable territorial development of the country. Third, it allocates national and EU funds to specific territories and projects. With respect to spatial planning, funds for transport infrastructure have been especially important. Fourth, it provides technical assistance for regional and municipal planning. The spatial dimension of these four functions is spelled out in the National Programme of Spatial Planning Policies and Special Programmes for particular regions. The national government also supervises the Regional Co-ordination and Development Commissions. They are de-concentrated branches of the Ministry for the Environment and have administrative and fiscal autonomy. They co-ordinate national and local policies related to environmental and spatial planning and prepare the Regional Spatial Development Programmes.

Municipalities exercise their responsibility for land use primarily through the preparation of one of the three possible local land-use plans.

Several other public authorities and public companies affect land-use policies in Portugal. Most of them are controlled by the national government. Among them is the Institute for Nature Preservation and Forestry that is responsible for ensuring that land-use planning follows sustainable development principles. It has a co-ordination role between different public bodies and is represented on the advisory committees for Municipal Director Plans.

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Impact assessment procedures in Portugal are implemented through national, regional and local laws.

At national level there are basically two laws that regulate this issue:

1) Law No. 31/2014 of May 30, Law of the General Basis of Public Policy of Soils, Spatial Planning and Urbanism<sup>9</sup>

This Law defines a set of principles and objectives aimed at the valorization of soils, as a scarce and non-renewable resource, safeguarding its quality and promoting the fulfilling of its social, environmental and economic functions. It recognizes that safeguarding soil plays a key role as a source of natural resources, a carbon reservoir and a biodiversity reserve.

It stipulates that territorial organization should be based on containing urban sprawl and dispersed construction, ensuring the reduction of territorial asymmetries and equal access for all citizens to essential goods and services.

Other objectives of this Law are to ensure climate resilience of the territory, minimizing greenhouse gas emissions and avoiding soil contamination, nullifying and minimizing the effect of polluting substances.

2) Law No. 80/2015 of 14 May, Legal Framework for Territorial Management Instruments<sup>10</sup>. This law develops the foundations of public land policy, land-use planning and urbanism, defining the national, regional, inter-municipal and municipal coordination system of the territorial management system, the general land use regime and the arrangements for drawing up, approving, implementing and evaluating territorial management instruments.

Soil sealing limitation regulations also exist, namely:

- Law n.º 80/2015 as of 14 May, Legal Regime of Territorial Management Instruments<sup>11</sup>

- Law n.º 166/2008 as of 22 August, on the National Ecological Reserve (REN)<sup>12</sup>

9 - <https://data.dre.pt/eli/lei/31/2014/05/30/p/dre/en/HTML>

10 - <https://data.dre.pt/eli/dec-lei/80/2015/05/14/p/dre/en/HTML>

11 - <https://data.dre.pt/eli/dec-lei/80/2015/05/14/p/dre/pt/HTML>

- Law n.º 73/2009 as of 31 de March, on the National Rural Reserve (RAN)<sup>13</sup>

These territorial management instruments identify natural resources and values and all systems indispensable for the sustainable use of the national territory, where building and sealing in rural soil is exceptionally permitted.

## Slovenia

Slovenia is a unitary country with 2 levels of government; the national level and 212 municipalities. As in most unitary countries, the national government adopts the framework legislation that structures the spatial planning system. It conducts most land-use related work through the Ministry of the Environment and Spatial Planning, which is responsible for the preparation of national level spatial plans, for environmental impact assessments, for the designation of nature conservation areas, for land surveys and for the provision of land and cadastre data. In addition to the Ministry of the Environment and Spatial Planning, other ministries may also propose the preparation of National Spatial Plans if necessary. Furthermore, the national government influences land use through its responsibility for national roads, railways and other structures of national importance, for agriculture and for heritage protection. Through an administrative agency, the national government is also responsible for issuing building permits. No regional level of government exists in Slovenia, but Regional Development Agencies exist to support economic development at the subnational level. These agencies may also initiate the preparation of inter-municipal Regional Spatial Plans although local communities should mainly initiate their preparation. Municipalities have the right to manage the spatial development in their jurisdiction except for those aspects that are under the direct control of the national government. They adopt municipal land-use plans in accordance with national guidelines that aim at creating rational, mixed and sustainable land-use patterns. Municipalities are allowed to form inter-municipal associations to prepare their Regional Spatial Plans, but this is rare in practice.

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Impact assessment procedures to limit land take and soil sealing in Slovenia rely on national regulations. They are embedded in the Spatial Development Act and in the Agricultural land Act.

Soil sealing is indirectly addressed by Spatial Planning Act set in 2017, with guidelines for compact cities and inner development as a priority. It is also indirectly dealt with in the Spatial Management Policy of Slovenia (2001).

The necessary impact assessment procedures to assess the effects of land take are to be found in the spatial planning process, one of the main guidelines (General guidelines for spatial planning on local level) is urban densification. The land take on agricultural land is tackled also in the SEA process by the Ministry of Agriculture, Forestry and Food.

As for soil sealing, the assessment mainly deals with the change of the form of land use from agricultural land to development land. The assessment procedure within SEA deals with impacts of the spatial plan on the environmental objectives, including soil.

In Slovenia, the central government is responsible for the provision of regulations and methods for fostering liveable compactness of cities. These are to be found in the Decree on Spatial Order of Slovenia<sup>14</sup>.

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12 - <https://data.dre.pt/eli/dec-lei/166/2008/08/22/p/dre/pt/html>

13 - <https://data.dre.pt/eli/dec-lei/73/2009/03/31/p/dre/pt/html>

14 - Decree on Spatial Order of Slovenia - Uredba o prostorskem redu Slovenije  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED3526>



## Spain

Spain is defined by the OECD as a quasi-federal state with 4 levels of government; the national government, 17 autonomous communities, 50 provinces and 8 119 municipalities. The division of powers regarding land-use policy is specified in the constitution and in other national legislation. The constitution assigns responsibility for spatial planning to the autonomous communities, but the national government prepares framework legislation that guides regional laws. Furthermore, the national government has important powers in policy fields related to spatial planning. It can impose environmental legislation and related legislation that affects the possibilities to develop land. It also prepares a sectoral plan for national infrastructure, for example related to transport and energy. However, according to a decision of the constitutional court, it has no authority to prepare a general national spatial plan.

Autonomous communities develop and complement the basic national framework legislation concerning land use by establishing their own legislative framework on land-use planning. Within the limits set by the national framework, this allows them to establish their own comprehensive planning systems. This includes, for example, the definition of the requirements of municipal master plans to delineate land as “suitable for urban development”, as “not suitable” or as “protected according to its environmental, natural cultural, etc. value”: and the definition and the content of the different planning instruments. Most regions have adopted a hierarchical system in which the regional government is responsible for preparing a regional spatial plan that is binding for municipal governments. Depending on the region, regional governments are also responsible for issuing building permits for specific development projects, such as large scale or particularly sensitive projects.

Land-use Planning Systems in the OECD - Country Fact sheet

Impact assessment procedures to limit land take and soil sealing are embedded in all three levels of government. At the national level, this is regulated by the law nr 7/2015 on Soil and Urban Regeneration<sup>15</sup>.

*In the exemplary case of the Valencia Region, at the regional level this is regulated by the Law nr. 5/2014 of 25 of July, on territory, urbanism and landscape planning. It regulates the Valencian region land management, the urban activity and the use of soil for the purpose of its rational benefit and in accordance with its social functions, as well as the environmental and strategic territorial evaluation of plans and programs.*

A specific case of the municipality of Castellón de la Plana. Shows the regulation for the local level. This is the law nr 7476, of 2 of March of 2015. It regulates the municipal instrument of integral management of the territory. Each and every kind of soil in the municipality with its specific function is determined and so is the basic land system equipment of the town.

As for the soil sealing procedures, this is regulated at the national level through the Royal Decree 9/2005, of 14 of January<sup>16</sup>, enlisting the type of activities that are susceptible of causing soil contamination and the approaches and standards for the declaration of contaminated soils.

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15 - *Real Decreto Legislativo 7/2015, de 30 de octubre, Ley de Suelo y Rehabilitación Urbana.* [https://www.fomento.gob.es/recursos\\_fmof/pdf/BEB1A059-9357-4408-99CD-97AC4312DBA8/134400/RDL72015TRLSyRU.pdf](https://www.fomento.gob.es/recursos_fmof/pdf/BEB1A059-9357-4408-99CD-97AC4312DBA8/134400/RDL72015TRLSyRU.pdf)

16 - Real Decreto legislativo 9/2005 del 14 de enero, <https://www.boe.es/eli/es/rd/2005/01/14/9/con>

## Denmark

Denmark has three levels of government: the national government, 5 regional governments and 98 local governments. On the national level, the Ministry for Business and Growth prepares a national planning report after each parliamentary election. The report presents the government's long-term considerations on the spatial development in Denmark and provides overall guidelines for spatial planning in Denmark. Furthermore, the ministry is responsible for safeguarding national interests in physical planning and releases a report on National Interests in Municipal Planning (every four years). The ministry also provides a national planning directive for overall planning in the greater Copenhagen metropolitan area. More generally, it has the power to issue national planning directives related to areas that are of importance for the broader society, such as infrastructure construction. Lastly, the ministry can establish special rules for the planning of certain activities (...).

Regional governments are primarily responsible for strategic development planning with a focus on regional economic development. They create Regional Growth and Development Strategies that are supposed to align different stakeholders behind a common vision for the region. Furthermore, they prepare the Regional Raw Materials Plan.

Municipalities are the most important actors in land-use planning. They conduct extensive forward-looking strategic planning for their territory and prepare detailed municipal and local plans that steer land use (unless being overridden by a national planning directive).

Land-use Planning Systems in the OECD - Country Fact sheet

Land use planning in Denmark is ruled by the Danish Planning Act. The responsibility of its implementation falls on the Danish Minister for Industry, Business and Financial Affairs and the five regional councils and the 98 municipal councils. This Act defines overall guidelines for planning. Municipalities are responsible for spatial planning through municipal plans and local development plans.

Environmental Impact Assessment is part of the local authority planning and is carried out generally by the local council. A statutory order requires developers to submit certain proposed projects to the local authority for screening to determine whether environmental impact assessment is required. The EIA statutory order contains a list of projects that always require EIA. For by far the majority of projects, screening is the only aspect of the EIA regulations that affects them. The screening is conducted as an administrative process based on a number of criteria listed in the statutory order.

The Minister for the Environment, on behalf of the government, is required to veto municipal plan proposals that contradict national interests. Regional councils may veto municipal plan proposals that contradict the regional spatial development plan. The municipalities may object to the plan proposal of a neighbouring municipality if the proposal is important for the objecting municipality's development.

## **B – Impact Assessment procedures and loss of land prevention**

Strategic Environmental Assessment procedure acts as a joining platform between the policy governance and the preparation and implementation of strategic decisions. Anticipating environmental impacts, informing the public and taking into account the concerns expressed is a guarantee for an informed decision-making.

The SEA and EIA Directives have been influencing planning and decision-making processes in the Member States for many years already. The setting of the planning systems in EU countries are very different from one another, therefore the transposition of SEA and EIA directives are different from one country to another.

A few cases of SEA / EIA transpositions in Member States show the variety and scope of these laws in Europe.

### **1 - Strategic Environmental Assessment and Environmental Impact Assessment in EU countries**

#### **Belgium**

**In Flanders** the „Transit Oriented Development“ strategical approach sets the model of territorial development. Its based on the railway network and related services and facilities to play a key role in the transition to more sustainable daily travel patterns in the region) and spatial efficiency are two main principles for defining spatial strategies on land take.

In earlier planning instruments in Flanders, the European SEA and EIA directives were applicable only in implementation-oriented instruments existing in both the regional and local levels and had an effect on land take and soil sealing limitations. Yet in the case of the renewal of more generic building ordinances, which have a huge impact on individual building and soil sealing, the applicability of SEA/EIA is object of research and discussion.

Since spatial planning instruments have been redefined quite recently by law at the regional level, there is currently legal uncertainty about the mandatory character of the environmental assessment of development plans. Specifically for the new strategic (long term and mid term) spatial development planning there is no clear criterium for its mandatory character, leaving the option for local governments to avoid these tasks.

The **Walloon region**: the CoDT takes into account both EIA and SEA procedures for land take. The content of this assessment is established by a specific article of this document, which defines that alternatives must be evaluated. This procedure is however not considered enough to implement EIA at the local level. Although European SEA/EIA directives have already transposed, no guidelines for experts in charge of SEA/EIA implementation are provided on the issue of land take.

Soil sealing is included in the context of the building permit. In the permit demand form of any new development, among many others, there are questions related to the impact of soil foreseen by the development.

But in the opinion of planners and experts, soil sealing limiting procedures should be improved in the EIA procedure and maybe at the SEA level too.

#### **Croatia**

The formerly enumerated Acts determine procedural frameworks for impact assessment of plans and programs. Environmental Impact Assessment is foreseen by law in Croatia. The regulation on the strategic assessment of the environmental impact of plans and the programs was first introduced in 2008. Several law amendments have been introduced throughout the years. Today, these regulations are a part of the Environmental Protection Act.

The Directives 2001/42/EC (SEA) and 2014/52/EU (EIA) have been transposed into Croatian legislation into the Croatian Environmental Protection Act. In this Act, soil is considered a non-renewable asset and adverse effects must be avoided as much as possible. Soil protection includes maintaining the health and functions of the soil, preventing soil damage, monitoring the condition and changing soil quality, and repairing and restoring damaged soils and sites.

Pollution, i.e. damage to soil, is a harmful impact on the environment, and the determination of acceptable limit values for soil quality is carried out on the basis of special regulations (article 21). Soil sealing as a term does not exist in Croatian terminology. Protection of soil is mostly regarded through prevention of land contamination.

The methodology for impact assessment is the following:

1. Overview of the content and main goal of the assessed document (strategy, plan, programme),
2. Current state of the environment and possible environmental development without the implementation of the development described in the assessed document (subchapters: air, water, geology, biodiversity, landscape, population, economy, infrastructure, waste management, protected natural areas, cultural heritage),
3. Environmental properties of the area under potential significant impact following implementation,
4. Existing environmental issues,
5. Environmental objectives established following conclusions of international agreements related to the assessed document,
6. Potentially significant environmental impacts (subchapters according to environmental components, as noted above),
7. Proposed measures of environmental protection and monitoring,
8. Explanation of the most acceptable optional solution for the environment and description of the evaluation,

- The Spatial Planning Act states that new separated construction areas outside settlements, or the expansion of construction areas within the settlement can be planned only if 50% or more of existing construction areas are already being built up. However, areas of special (natural) importance can be defined at the state or regional level. Local plans need to comply with the regional and state plans (article 42-43).

The Act also prescribes special regulations on construction in the protected coastal zone (territory of all coastal municipalities), and restricted area of the coastal zone (1000m wide terrestrial zone from the coastal line, article 45-49).

- The Agricultural Land Act prescribes fees for agricultural land conversion. The fees depend on the value and location of agricultural land. The fees for plots outside the construction area amount to 25 or 50% of the market value of that plot if it were within the construction area, depending on the agricultural value of the plot. If the agricultural plot is located within the construction area, the fees are 2.5 to 5% (article 18-26).

- Regional and local spatial plans. They determine valuable agricultural land and separated construction areas outside settlements for economic purposes of regional importance.

## **Denmark**

The Spatial Planning Act of Denmark involves the public in the planning process at the municipal, regional and national levels. This Act also mentions clearly Environmental Impact Assessment obligation under §11g: "Projects that are likely to have significant effects on the environment shall not be initiated before guidelines are produced in the municipal plan on the location and design of the project with an accompanying environmental impact assessment".

This Act provides clear restrictions concerning the construction of large shops and shopping centres outside the largest cities and on greenfield sites. On the contrary it promotes small retailers in small and medium-sized towns, hence counteracting dispersed settlement structures in rural regions with a shrinking population.

## **Luxembourg**

Land take and soil sealing are present in land use and planning regulations in Luxembourg, although the latter is not directly targeted in them. There are multiple references to land take in the 2003 Master Programme for Spatial Planning (Programme directeur d'aménagement du territoire, PDAT) and the 2010 National Plan for Sustainable Development (Plan national du développement durable, PNDD). Both documents are strategies adopted by the Council of Government and do not have legal force as such (although they are based on legal acts).

Currently, a new law targeting soil sealing is being drafted by the Ministry of Environment, Climate and Sustainable Development and the Environment Agency.

In Luxembourg the SEA procedure is based on the Modified Law of 22 May 2008 concerning the evaluation of the impacts of certain plans and programmes on the environment. The EIA procedure is based on the Law of 15 May 2018 concerning the evaluation of impacts on the environment.

The responsibility for the implementation of these procedures with accompanying application methodologies relies on the Ministry of the Environment, Climate and Sustainable Development. After the identification of land areas that need to be evaluated in terms of their environmental impacts, the impact of the plan/programme on soil as a natural resource is evaluated as part of Phase 1 of the Environmental Report. In this context, the municipality needs to describe the impact on soil as a natural resource (e.g. soil pollution) and quantify 'land take', measured by the hectare sum of soil to be sealed, for each land area under evaluation. The terminology is important here as the SEA guidelines (only available in German) established by the Ministry of the Environment, Climate and Sustainable Development deliberately create a connection between the protection of soil as a natural resource ("Boden als Ressource") and the sustainable use of land ("Boden als Fläche"). The amount of land taken is then considered in relation to an annual benchmark target for the maximum land take, which is also measured by soil sealed in hectare, for each municipality. This annual benchmark target is established by the Ministry of the Environment, Climate and Sustainable Development and is based on the overall objective of limiting land take in Luxembourg to 1 hectare or less per day (as defined in the National Plan for Sustainable Development or Plan national du développement durable, PNDD). This annual benchmark target has been extrapolated to a short- to medium-term benchmark target over 12 years. This leaves every municipality with a potential for urbanisation (defined in the SEA guidelines, which are only available in German, as "Flächenpotenzial"). It is not clear whether a municipality has ever exceeded this potential for urbanisation and, if so, what the Ministry has done about it. The entire methodology of the SEA is described in a special online guideline<sup>17</sup>. There has not yet been a full evaluation of the SEA a procedure and of whether land take has been reduced to 1 hectare or less per day (as defined in the National Plan for Sustainable Development). There are some indications that this benchmark target has not been low enough from the beginning as land take seems to have never been that high. On the other hand, there are some indications that land take is not growing and has stabilised over the years.

## Germany

Germany complies with European environmental assessment requirements whenever decisions concerning plans and programmes relating to the environment, as well as infrastructure measures and permits for industrial facilities are concerned. The federal body responsible for environmental regulations is the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The main legal managing document is the Act on Strategic Environmental Assessment (Gesetz zur Einführung einer Strategischen Umweltprüfung<sup>18</sup>) and influences laws supervised by other ministries, f. ex. Planning and land use regulations.

Important decisions related to the environment often have to be taken in the context of preparatory plans and programmes. The Strategic Environmental Assessment is compulsory (the first 'screening' phase determines whether the full SEA has to be elaborated) and is carried out at the planning stage. It is performed for programmes and plans (development and land-use plans for example), whereas Environmental Impact Assessment procedures are performed at a later stage, for concrete projects.

Regulations governing the EIA are set out in the Act on the Assessment of Environmental Impacts (Gesetz über die Umweltverträglichkeitsprüfung – UVPG<sup>19</sup>). They provide the possibility to assess different planning options.

Both types of assessment procedures are essentially the same: they start with a screening process, to decide whether an environmental assessment is required or not. The following step is the scoping process which provides for the decision on the geographical scope, the content and the level of detail of the assessment and the assessment methods to be used. At the core environmental assessment involves an analysis of the likely effects on the environment, elaborating a report, undertaking public consultations on it, considering the comments and the report in the final decision making. The last step consists on informing the public about that decision taken. With 15 years of experience, impact analysis methods have reached sophisticated levels. This experience shows that the best effects of the SEA and

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17- Strategic Environmental Assessment - updated guidelines. Ministry of Sustainable Development and Infrastructure, Department of the Environment. <https://environnement.public.lu/fr/support/faqs/faq-eie-new.html>

18 [https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Umweltpruefungen/sea\\_protokoll.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Umweltpruefungen/sea_protokoll.pdf)

19 <http://www.gesetze-im-internet.de/uvpg/index.html>

EIA procedures are obtained when they are taken as early as possible in the planning or programming process, before crucial decisions are taken. The SEA procedure is carried out for all levels of planning: state-wide spatial plans, regional plans, land-use plans, development plans and many others. The SEA procedure covers a larger area and time perspective and requires a monitoring of the environmental impacts during the implementation of the plan or programme. It assesses the likely cumulative effects of many single projects of a whole region. Guidelines are provided by national and regional (Länder) experts to support the implementation of both procedures.

As for the methodology for evaluation of land take (with application of SEA and specially EIA regulations), indications are set at the national level and are further developed at regional and municipal levels. The regulations are adapted in each region and differ from one another, to comply with the regional specific needs and constraints.

Soil sealing regulations are set at the national level, through the Federal Soil Protection Act and Federal Nature Conservation Act (Bundesbodenschutzgesetz, Bundesnaturschutzgesetz), later translated into regional applications of these regulations (Landesbodenschutzgesetz, Landesnaturschutzgesetz).

Through the application of the EIA regional regulations, a common feature consists on the checking of different planning options and in case of concrete construction plans there's a necessity to define measures to reduce environmental impacts. The assessment focus on impacts on environmental media (soil, surface and ground water, climate, vegetation and animal life, landscape).

In the case of soil sealing limiting regulations, the assessment relies on calculating the amount of sealed soil in combination with soil quality;

There are many good experiences of land take and soil sealing limitation that rely and result from the above mentioned SEA and EIA procedures. Among them land recycling, pooled space, inter-communal cooperation, temporary use of land, "village development" or inner city development.

## **Italy**

At the national level, the law n.152/2006 sets environmental regulations to be followed by regional and local governments. It provides a considerable number of "implementing decrees", to make the principles contained in Legislative Decree 152/06 operational and effective. In recent years there were very few decrees issued, rendering in part ineffective many important institutions provided in the decree.

At the regional level, an example of target setting for land take can be observed in the case of Emilia Romagna region and its Regional Law 24/2017 for the institution of the General Urban Plan. This Law fixes a target of 3% maximum of new land take by 2050 compared to the actual (2017) size of the city, with very few exceptions mainly for public developments. It also provides a series of other mechanisms which can lead to land take and soil sealing limitation, for instance extraordinary funding for urban regeneration projects realised by 2020, fiscal and volumetric incentives aimed at increasing urban density (and limit sprawl), simplification of administrative procedures and measures to alleviate earthquake consequences.

This promotion of denser urban environments is regulated at planning stage by the application of the SEA that inform planning decisions, ensuring the comparison with alternatives. This comprises also monitoring procedures, for which each municipality has to report the changes in land take as well as impacts at territorial and environmental level. This law however does not provide specific tools to assess the effects of soil sealing, making it difficult to evaluate the effects of soil sealing on a longer perspective.

Not all Italian regions have adopted this kind of regulations. The situation thus differs from one region to another.

## Portugal

Portugal sets rules for land take limitation mainly through two national level laws:

1) To achieve the objectives of the Law of the General Basis of Public Policy of Soils, Spatial Planning and Urbanism, Portugal establishes a territorial management system that materializes in:

(a) programs, which set out the strategic framework for territorial development and its program directives or define the spatial impact of national policies to be considered at each level of planning.

(b) Plans, which set out concrete options and actions for land planning and organization as well as defining land use.

This territorial management system is organized within a framework of coordinated interactions that extends to the national, regional, intermunicipal and municipal levels, depending on the nature and territorial impact of the public interests pursued, such as:

- the adequacy of urban density levels, preventing the degradation of quality of life, as well as the imbalance of economic and social organization;
- the profitability of infrastructures, avoiding unnecessary extension of networks and urban perimeters and rationalizing the use of interstitial areas;
- the rehabilitation and revitalization of historical centers and classified cultural heritage monuments, as well as historic housing stock at the expense of new construction;
- the recovery and regeneration of degraded areas;
- the prevention and reduction of collective risks;

2) Law No. 80/2015 of 14 May, establishing the foundations of public land policy, land-use planning and urbanism, regulates the classification and qualification of soils to be established in territorial plans of municipal or intermunicipal scope, trying to reverse practices that occurred in the territory over the years, consisting on arbitrary urbanization of rural areas. It thus aims to combat land speculation and excessive urban growth. A new land classification system, distinguishing urban from rural soil, has eliminated the risk that large portions of territory could become urban and were earlier called urbanizable soils.

The reclassification of rural land to urban land has become an exceptional situation, being limited to cases where there are no available urban areas and its classification as urban land proven to be necessary for economic and social development reasons and its reclassification is indispensable.

As for soil sealing regulations, the territorial management instruments identify natural resources and values and all systems indispensable for the sustainable use of the territory, where building and sealing in rural soil is exceptionally permitted. In particular for urban areas, they set maximum soil sealing rates to ensure water infiltration, avoiding sudden flooding and recharge of aquifers.

National Ecological Reserve (REN) and National Rural Reserve (RAN) are public utility restrictions, to which a special territorial regime applies. They established a set of conditions for the occupation, use and transformation of the land, identifying the uses and actions compatible with the objectives of these regimes.

REN is a biophysical structure that integrates the set of areas that due to ecological sensitivity, function and value or exposure and susceptibility to natural hazards and thus are subject to special protection.

The RAN is the set of areas that in terms of agroclimatic, geomorphological and pedological terms present greater aptitude for agricultural activity.

In addition to these, there are a number of instruments, such as the Natura 2000 Network, which set restrictions on land use for building purposes.

The SEA Directive 2001/42 / EC was transposed into the national legislative framework by Decree-Law No. 232/2007 of 15/06. The current legal framework for environmental impact assessment (EIA) is established by Decree-Law No. 151-B / 2013 of October 31, amended and republished by Decree-Law No. 152-B / 2017, of 11 December transposing into national law Directive No 2014/52 / EU of the European Parliament and of the Council of 16 April 2014.

The main national SEA guidelines were developed by national experts and are contained in the Guide to Good Practice published by the APA in 2007<sup>20</sup>. The guide recommends the adoption of a strategic baseline methodology that

20 - Guia de boas práticas para Avaliação Ambiental Estratégica- orientações metodológicas (2007), Agência Portuguesa do Ambiente.

facilitates follow-up preparation cycles, execution and review that characterize the planning and programming processes to influence the formulation and discussion of action strategies and to support the decision on major development options while they are open.

The “Best Practice Guide for Strategic Environmental Assessment”, published in 2013, consists of a revised and updated version of the previous 2007 Methodological Guide. This guide clarifies the concepts and implementation of SEA as a strategic assessment, promotes technical most frequently used and gives examples of how SEA can be both a more strategic instrument and ensure compliance with European and Portuguese law.

## Spain

The assessment procedures related to limiting land take in Spain are all based on the SEA and EIA directives. They consist of different types of surveys and studies related to the effects of land take on landscapes, the acoustic quality, nature risk, sustainable urban mobility. It comprises also a Strategic Environmental and Territorial Study. These studies help in defining the less harmful option for the environment.

As for soil sealing, the procedures focus on considering the possibility to and the advantages of limiting soil sealing instead of using mitigation or compensation measures. In case of having to mitigate, take into account possibilities that employ permeable materials and supports the existing green infrastructure.

The application of methodologies and tools aimed at ensuring liveable compactness and environmental sustainability of cities rely fully on local governments.

The procedure related to limiting land take consist on the definition of several indexes related to different fields such as environmental impact and quality, land use and urban structure, mobility, waste and resources re-utilisation, etc. All of them are focused on ensuring the environmental sustainability of the city. Some of the most important indexes implemented are listed here:

- Environmental impact and quality:

- GHG Emissions per capita: Greenhouse gas (GHG) emissions of the city (tonnes), divided by city population (in annual tonnes of CO<sub>2</sub>e per capita).

- Urban heat island: difference in air temperature measurements of different stations within the city with (a) stations outside the city which functions as a reference station, and look for the largest temperature (degrees C<sup>0</sup>)

- Flood events: ratio between future floods projection and historic ones (ratios).

- Land use and urban structure:

- Built-up area: buildings and facilities areas (incl. Traffic, calculated in % of total city area).

- Brownfield use: Brownfield area redeveloped in the last year [km<sup>2</sup>] (%)

- Share of green space: Green area calculated according to the formula (km<sup>2</sup>)/Total land area (km<sup>2</sup>) x 100% (%)

Since the implementation of the measures employed for enhancing the quality of the environment, the sustainability measures and the “green and blue” infrastructure in many cities are still in progress. Concrete projects performed by cities comprise among others the creation of green themed corridors, the retention and management of rainwater, the promotion of the use of public and non-motorized transport, the implementation of an integrated solid waste management system, as is the case of the City of Castellón (according to the survey). The results that the defined indexes would provide nowadays would not show yet the positive impact and improvement in the environment that the outcomes of the proposed targets will achieve in the future.

In all the gathered examples and generally in most if not all European countries, land use is regulated at the national, sometimes regional levels through dedicated laws, but the governance level responsible for the implementation of these laws are mostly local governments (with exceptions for developments of regional or national importance), who act as decision makers and managers of the land resources at the local level.

There are different approaches to land take and soil sealing but they differ by the level to which they function as real barriers to land consumption and artificialisation of the surface.

Some countries impose strict measures due to the already high density of the built environment. These are the cases of Belgium, Germany, the Netherlands, the United Kingdom and Luxembourg. In other countries the mechanisms to limit land consumption are not yet fully developed, although a rapidly changing situation of the increase of the sealed



surface which result from urban sprawl and present an increasing threat to the environment which in turn threatens the quality of life of inhabitants. The information gathered through the survey provided some interesting country examples of SEA and EIA transposition and their impact on land take and soil sealing limitation.

Belgium is the country with the highest percentage of artificial land in Europe and thus sealed surface, and each of the regions of Belgium has different laws for spatial development.

Croatia has set concrete procedural frameworks for impact assessment plans and programmes based on SEA and EIA directives transposition. Due to the specific geography of the country, there are clear rules for limiting construction in the coastal areas of the country.

Denmark has also set clear rules at the national level, based on the assessment directives to avoid urban sprawl around large urban areas and promoting the development of medium-sized towns.

Luxembourg has set the amount of land that can be taken by all local governments through national laws. The amount of land taken by each municipality is considered in relation to an annual benchmark target.

Germany complies with European environmental assessment requirements through national laws which transpose SEA and EIA directives. Later they translate into regional laws. The implementation of both directives is supported by guidelines at national and regional levels. Germany is the country with the largest amount of sealed surface (due in a large measure to the size of the country) but has also numerous examples of transformation of derelict areas and reuse and regreen of soiled surfaces.

Italy sets environmental regulations at the national level to be followed by regional and local levels. Land take limitation laws are set at the regional level, but not all regions have adopted such regulations.

Portugal has established national level laws aimed at limiting land take, which also relate to SEA and EIA directives transposition. They have been instrumental in limiting the of rural land to urban land.

Spanish assessment procedures related to limiting land take are all based on the SEA and EIA directives and are based on studies related to the effects of land take.

## **2 - Counteracting land loss**

**Land take and soil sealing are problems that are tackled in diverse ways in different countries in Europe. Specific measures are elaborated to limit or counteract the loss of soil for urban development. These solutions comprise mainly land take control and prevention measures and diverse ways of the re-use of artificialised land.**

### **Specific solutions for re-use of land**

According to the surveys and research, several EU Member States or regions have already set quantitative objectives for land take limitation, with very different settings. Some have set limits that should not be exceeded (Austria, Germany and Luxembourg). Flanders (Belgium) and the United Kingdom have set a target of new houses that should be built up or regenerated on brownfield land at a level of 60% France has opted for protecting agricultural land, which should affect urban sprawl.

Germany, part of Austria, two Austrian provinces and two Italian provinces have inscribed soil quality into their planning regulations. When the question on location arises and the possibility to choose between different locations, this helps in choosing less valuable land.

In the case of Denmark, the Spatial Planning Act contains strict restrictions on shopping centres that would otherwise choose a location in the near vicinity of the city, building on greenfield. It prefers small retailers in the city core.

Brownfield regeneration projects can also be considered as good options for reducing land take. These can be done in different organisation settings, among which public- private partnerships or semi-private bodies are arguably the most effective. This is the case of the English Partnership, one of the most experienced re-developer in the United Kingdom. Over 20 public development agencies operate in France. In the case of Flanders (Belgium) brownfield regeneration is led through so called "Brownfield Covenants", partnerships between the government and private investors.

These forms of organisation guarantee a better management of the resources of land to recover. These diverse experiences are however the topic of other works.

### **Specific solutions for land take control and prevention**

Several European states have implemented regulations consisting on the limitation of artificialisation of soils, based either on reinforced control of building rights, or on the implementation of dedicated tax tools.

A specific form of this solution is the setting of quantified objectives addressing the reduction of land take. There are several countries in Europe with such targets at the national levels: Germany set a limit of maximum 30 hectares per day by 2020, 1 hectare per day in Luxembourg in 2020 and the same amount in Austria (although the time limit is long gone). The central governments were responsible for setting these targets and are still responsible for keeping the record. Afterwards, the target is translated into objectives at regional or local level for implementation by the responsible authority, who typically delivers the planning permission. Other countries delegate this responsibility to the regional level (Italy, Belgium).

Another type of solution for the limitation of excessive land take is the creation of green belts. This solution, introduced first in England should, according to the current rules on green belts, enable the control of urban sprawl, prevent merging between neighbouring cities, help to preserve the historical shape of historic cities and support urban regeneration by recycling derelict urban areas. On the other hand, as the examples in England have shown, its strong regulations provokes a pressure for higher density and vertical development on new developments (Fry 2016).

Another possible solution is the development of specific laws aimed at protecting soil functions. An exemplary case is the Salzburg soil protection law<sup>21</sup>. This goes well in line with Strategic Environmental Assessment procedures.

The final option in this short enumeration is the solution proposed by Germany, namely the creation of an eco-account, a system of trading eco-points This could also go well with the provisions of an SEA, since it encourage the local community to enter a local circular economy arrangement that can quickly expand to the whole local community. This in turn can motivate people to develop their own land-based green initiatives.

**This short sample of possible solutions can be extended with length. The question on their link to SEA and EIA directives or their national transpositions needs to be analysed further, since solutions might have been adopted in specific situations, outside of the context of transposition of EU Directives.**

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21 - Guide "Soil protection for planning projects in the land of Salzburg" (Leitfaden „Bodenschutzbeilplanungsvorhaben im Land Samzburg" - [https://www.salzburg.gv.at/agrarwald\\_/Documents/20121015\\_2032\\_evaluierung\\_bodenfunktionen\\_sbg\\_final\\_s3.pdf](https://www.salzburg.gv.at/agrarwald_/Documents/20121015_2032_evaluierung_bodenfunktionen_sbg_final_s3.pdf))

### 3 – Existing shortcomings

The Strategic Environmental Assessment and Environmental Impact Assessment directives have been transposed into national laws in Member States all over Europe. They have already proved to be important pieces of legislation for land use planning.

There are several important factors that play a role in the lesser effectiveness of the SEA and EIA Directives and their national transpositions when analysed from the standpoint of their potentialities. These are lack of political will to use their full potential, consultation practices that lack consistency and effectiveness, weak expertise of consultants and specific challenges with certain aspects of the SEA process such as alternatives to development proposals.

SEA and EIA procedure do not affect the content of plans and programmes as much as they could and should, in particular because of other (social, economic or political) prevailing interests, closed for the general public and pre-determined decision-making, poor integration of SEA into planning and decision-making processes, and challenges with the assessment of alternatives.

Other weaknesses of the assessment process are related to the fact that the procedure can, and sometimes are, initiated at a late stage of the planning process. This prevents the proper integration of the SEA with the prepared plan and reduces the effectiveness of the SEA to influence the choices made at an early, decisive stage of the plan or programme.

Approved for realisation SEA procedures may lack a proper monitoring during the whole life of the plan or programme because there's no legal obligation to do so. This impedes a proper understanding of the real environmental transformations taking place during the life time of the plan or programme.

It happens that 'higher' level policies and legislation are not subject to SEA, which otherwise they should (they might be considered to early a stage to be eligible for an assessment procedure). In some cases at least, there's a lack of clear definition of 'plans' and 'programmes' which should undergo SEA. This indicates to a challenge in understanding of the Directive's requirements.

In other cases the range of topics to assess are too numerous and a lack of focus on what really matters in the given plan or programme may causes the whole process to miss the goals.

Experience shows also that in some cases the assessment procedures are done so as to just get the plan approved. There's a lack of consideration of the long term consequences of the programme or plan on the environment. It may happen that short – term political interests prevail.

Finally, as stated in the description on land take at the European Environmental Agency "While many European and national policies address land and soil to some extent, binding targets, incentives and measures are largely missing at the European level<sup>22</sup>.

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22 <https://www.eea.europa.eu/data-and-maps/indicators/land-take-3>

## C – Draft conclusions and recommendations for the Urban Agenda Partnership

Since their official adoption by the European Commission in 2001 and 2004, the SEA and EIA Directives have been already transposed and well implemented in EU countries. Many reports have been elaborated and research projects performed to assess their influence on the EU environment.

The analysis of the responses to the survey conducted in several EU countries and the subsequent interviews with some of the local government representatives and experts responsible for their filling performed for the occasion of this report, enabled to understand better the direct practical implications of the implementation of these procedures on land use and more specifically on land take and soil sealing in some of the EU countries.

This analysis was further deepened through a comparison with the results of other research work performed in the EU on related or closely similar topics. This approach enabled to synthesise some general remarks that could help to improve the effectiveness of SEA and EIA procedures and their country transpositions as far as their capacity to limit land take and soil sealing are concerned.

### 1 - European Policy Action for a more sustainable land use

In autumn 2015, the United Nations adopted a plan of action, known as the 2030 Agenda for Sustainable Development<sup>23</sup> (UN, 2015). It reflects the broad recognition that the global status quo is untenable and that change is necessary to deal with the negative global trends affecting economic, social and ecological perspectives.

A year later the Commission in its work programme for 2016<sup>24</sup> has committed to take an initiative on the “Next steps for a sustainable European future”, to “set out a new approach to ensure Europe’s economic growth and social and environmental sustainability beyond the 2020 time frame, taking into account the Europe 2020 review and the internal and external implementation of the United Nations Sustainable Development Goals”.

The EU's Global Strategy, adopted in 2016, integrates the SDGs into coherent EU policies aiming to achieve sustainable development (European Commission, 2016). Further development of Europe requires a balanced approach towards social, economic and ecological objectives of which the latter seems more important, to avoid conflict between them.

According to the European Commission, land-related objectives are crucially important for protecting the environment and safeguarding the quality of life of EU citizens. Halting biodiversity loss by 2020 and restoring at least 15 % of degraded ecosystems are also targets to achieve that will require further efforts (European Commission, 2016). The SEA Directive was adopted on 27 June 2001 and came into force on 21 July 2004. SEA Directive has contributed to some extent to the high level of protection of the environment. Over the past decades, air, water and soil pollution have significantly decreased as a result of environmental legislation of the European Union.

As it became clear in recent year, land is a limited and fragile resource. The EU is taking action to set targets that will lead to more sustainable management of land as a resource. Many EU policies tackle diverse land-use problems, going from avoiding additional land-take to soil remediation, to land use optimisation and re-use to counteracting the degradation of ecosystem services.

An important step toward the harmonisation of these actions was the Commission Communication of 2011 on a Roadmap to a Resource Efficient Europe<sup>25</sup>. Its vision set a clear goal of no net land take by 2050 and indicates that in order to achieve this ambitious goal, all other EU policies need to take into account their direct and indirect impact on land use in the EU.

This effort is formulated the 7th Environmental Action Plan that guides European environment policy until 2020<sup>26</sup>. The land- and soil-related objectives set in this plan are contributing to preserving natural capital and contribute to the

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23 <https://sustainabledevelopment.un.org/post2015/transformingourworld>

24 [http://ec.europa.eu/atwork/key-documents/index\\_en.htm](http://ec.europa.eu/atwork/key-documents/index_en.htm)

25 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0571>

26 <https://eur-lex.europa.eu/eli/dec/2013/1386/oj>

implementation of nature based solutions for the benefit of all. Achieving this objective requires a long-term detailed assessments and an integrated approach at many levels, from diverse policy fields to different levels of governance at EU, national and local levels.

According to the data gathered by the European Environmental Agency, in 2018 the land take rate for urban development in member states was high and exceeded 1000 Km<sup>2</sup> per year, of which almost half was to the disadvantage of arable land, the rest accounting for all other types of natural or semi-natural land. Several drivers led toward this situation, among which are the social and demographic pressure, economic factors and not efficient enough, not well integrated legislation that could otherwise curb this trend.

There are several policies at EU level that already serve as leverages for better land-use management in member states. Among them the Cohesion Policy seems to be of primary importance for cities, although the agricultural, transport and energy policies can also play important roles. Infrastructure development, urban expansion, transport development are some of the effects of these policies from the perspective of land-use.

Above all, these policies can play a crucial role in the integration and dissemination of EU land targets and the transition to sustainability goals, rather than through the interaction of EU and Member States. A more in-depth assessment need to be done however, to identify the real possible impact of these policies to land-use change, since global and local economic drivers also play an important and hardly discernible from other factors pressure in this field.

Another important field of possible action on the side of the EU to set stronger limits to urban expansion or the effects of it is environmental protection. Among the several aspects of it can be identified the European Commission Green Infrastructure Strategy (European Commission, 2013)<sup>27</sup>, which aims to integrate environmental protection, restoration, creation and enhancement of green infrastructure actions and initiatives into spatial planning and territorial development. No less important is the fact that over 18% of Europe's territory is protected as Natura 2000 areas.

The enforcement of measures for soil sealing and land take limitation is discussed in Europe for many years already and many studies, reports and guidelines have been elaborated. These subjects have also been treated as principal or side topics in many EU founded projects. One of the most relevant works is the Commissions Staff Workig Document "Guidelines on best practice to limit, mitigate or compensate soil sealing" (EC SWD, 2012)<sup>28</sup>. As stated in this document, efforts to deal with these problems concentrate on three types of possible actions: limiting, mitigating and compensating land take and soil sealing. Since once lost, the organic qualities of natural land are difficult to restore, prevention is the best option to protect green land from artificialisation or complete sealing. Therefore priority should be given to the first type of actions.

These three types of possible actions translate further into specific types of implementation actions.

Limiting land take and soil sealing can be achieved through:

- planning systems more attuned to land take limiting,
- steering new developments to less valuable land,
- setting restrictive targets for new land sealing or stop land take all together. This means limiting the artificialisation of green-fields and arable land or other natural areas.
- using of land that is already artificialised or sealed instead of green-field building.

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27 <http://eurlex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0249>

28 [http://ec.europa.eu/environment/soil/sealing\\_guidelines.htm](http://ec.europa.eu/environment/soil/sealing_guidelines.htm)

Mitigating land take and soil sealing can be performed through:

- use permeable surfaces when possible, diminishing imperviousness
- integration of greenery in the urban landscape (green belts, pocket parks, green infrastructure, green rooftops),
- actions aimed at performing some of the ecosystem services, such as natural water harvesting and storing.

Compensating measures can be taken by:

- re-using top soil and restoring its biological functions,
- soil recovery / de- sealing of formerly sealed surfaces,
- creating a system of certificate trading to compensate the loss of surface.

*Source: SWD 2012 - 101*

As stated in the conclusions of the assessment on land take by the European Environmental Agency<sup>29</sup>, many national and European policies set targets for land-use and soil-sealing limitation but much stronger requirements and a more integrated approach at the EU level are missing and appear to be necessary to achieve the zero net land take goal of 2050.

Densification, brownfield regeneration and reuse as well as green recycling and green infrastructure development could play an important role in this process, financed by existing funding for land rehabilitation under the EU Cohesion Policy. Unfortunately there is no overall legal framework or incentive to recycle urban land. The advantages of land recycling and brownfield regeneration and re-use as urban land are clear, since it can compensate the ever growing demand for new urban land. This would however require a more integrated and complex approach, since the recycling of derelict urban land can be more complicated, time consuming, costly and in effect less attractive for private developers and municipalities. Numerous examples of good practices in EU countries could help to overcome initial doubts. The role of EU legislation could be improved significantly in this aspect, as its stronger emphasis on this aspect would influence land-use legislation in all Member States.

Research also shows (Geneletti et al. 2017) that while EIA procedures occur to be effective in choosing better planning options and avoiding excessive land take, they however are not always performed. The elaboration of full EIA assessments and reports can and is more often than never omitted at the initial screening phase, resulting in a significant number of greenfield developments. Although it is more difficult to omit in the case of large infrastructure projects, the cumulative effect of small projects, less compliant to local procedures can be significant, especially in areas where land take and soil sealing targets are not clearly defined.

## **2 - Assessment procedures, general indications for improvement**

The results of the survey analysis demonstrate that an enforcement of assessment regulations in Member States, specially at their initial, screening phase could translate in better results as far as land loss limitation is concerned. This could further be improved through the setting of clear goals to be achieved by each country, in accordance with the EU target of no net land take in 2050 and well adapted to the respective national situations. The effectiveness of assessment regulations aimed among others to limit land loss could further be improved through a more efficient use of mainly local resources, understood as both an appropriate capacity building of the local public sector and the use of financial mechanisms.

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29 <https://www.eea.europa.eu/data-and-maps/indicators/land-take-3>

## **Better enforcement of assessment regulations**

Impact Assessment directives have been incorporated into the legal systems of all EU countries and are part of their planning systems, from the national to the local level. After years of implementation, the institutions involved in their application have gathered a thorough knowledge on the potentials of these directives and their national transposition and implementation. Question remains on the extent and effectiveness to which these procedures are performed in specific cases and situations. As the analysis of the survey results has demonstrated, their execution in all countries is compulsory only after the screening phase of the procedure has demonstrated a clear need for the full procedure.

Moreover, depending on the situation and context, it might happen that its performance is initiated after the initial decisions on the type and location of the development have been taken, involving only one or two stakeholders, usually the municipality and a private investor. This might occur to be detrimental to the outcome of the development process, since its realisation may influence a larger number of spatial factors, environmental constraints and stakeholders than initially foreseen.

The analysis of the surveys and consequent interviews showed that although SEA and EIA directives have been transposed to national level legislation, their actual effectiveness specifically in the area of land loss prevention still requires further support. One of the conclusions resulting from these analysis and interviews (and in accordance with the 7th Environmental Action Plan), is that in order to avoid land loss and fully exploit the possibilities offered by the impact assessment procedures (both SEA and EIA), the municipality must apply an integrated approach. This means the involvement of all relevant public stakeholders at an early stage, not only the planning departments of municipalities. This would result in a more rigorous enforcement of assessment procedures and thus a lower level of developments that would not comply with the provisions of the Directives and their national transpositions. According to the opinion of several local representatives, a better monitoring of the whole process and critical assessment of the outputs would also increase their efficiency. This however requires an enforced capacity-building of local decision makers.

## **Clear goals for local governments**

As stated in the above mentioned “Roadmap to a Resource Efficient Europe” with its postulated no net land take by 2050 at the overall EU level, limiting land take is an important land policy target at various levels in Europe. According to the surveys and interviews, one way to achieve it would be to define specific milestones at which land use policies at national level (with predefined land take and soil sealing limitation targets) should be reconsidered and the initially established targets revised and adjusted. Although many countries have set clear targets to comply with national or European objectives concerning land take limitation, this is definitely not the case of all countries. In countries where these goals are set, the way of their achieving is not always clear, lacking proper guidelines and clear objective and suitable indicators, which are adapted to specific local situations.

The definition of specific sets of indicators and ensuring that the monitoring process does not require extra efforts and is done efficiently would improve the whole process. The definition of this targets should be flexible enough to include land take and soil sealing prevention, as well as re-use of already existing urbanised land or derelict brownfield areas re-cultivation. This requires an inventory of existing and unused resources at local level. It might also mean establishing of special mechanisms for acquisition and treatment of derelict areas.

## Resources needed

Achieving these goals will of course require a better preparation on the side of public actors and full recognition of the economic and financial resources and a revision of the financial regulations.

According to the survey results, interviews and thematic research, a better preparation on the side of public actors means on one hand that decision makers and professionals responsible for land use processes could make a better, more effective use of the existing national and local regulations, to achieve local level goals in line with country and EU targets for land loss limitation. As explained earlier, this also means a stronger application of public participation procedures, monitoring from an early stage on to the end of the development process, backed by efficient capacity building in the public sector, which enhances the applicability effectiveness of regulations.

This means on the other hand economic and financial mechanisms and incentives that would foster a better, less consuming use of land. Not only the use of existent (or more often non-existent) public and private funds, but also of the possible financial mechanisms that are part of the local government powers. This can comprise fiscal incentives, funding policies or innovative public procurement procedures.

On a wider European scale, instruments relying on cohesion funds could play an important role in this setting. The example of the Netherlands, where municipalities play an important role in the planning and investment process shows that local governments can and should play a more pro-active role in managing their local land resources, avoid haphazard developments, which are often the result of the strength of the market forces, the financial power of private investors and the weakness of the public sector.

None of the above measure would however be effective alone. Rather they need to function together to enable the achievement of the goals set at the local and European levels.

### 3 - Improvement of SEA regulations – composite recommendations

Strategic Environmental Assessment and Environmental Impact Assessment directives have been included in Member States regulations many years ago. According to the REFIT SEA study<sup>30</sup>, the SEA Directive has played an important role in implementing more environmental-friendly measures in planning at the local level. Its influence on spatial planning is not as strong as it could because of other important drivers, such as social/ demographic pressure, economic constraints or on the contrary 'baits' resulting f. ex. from potential income tax gain from big developers, but also from a weak integration in the planning procedures (possibility to omit at the screening phase) and not always efficient assessment of alternatives. The long experience of their application for national and local plans, programmes and projects have been demonstrated already, although their full potential is yet to demonstrate.

The strengthening of this potential in every Member State, for example in the perspective of achieving the 'no net land take by 2050' target depends on some improvements of these Directives, or rather in their application in each member state. Its much less the content rather they way they are used that matters. If the EU would like to improve its actions in the area of land take and soil sealing limitation, it could consider strengthening some of its implementation aspects.

The SEA and EIA Directives could represent a more effective mechanism towards restoring natural capital if its emphasis would to a greater be centred on delivering net gain for the environment instead than focusing on the procedural aspect of it. This is however a complicated point, since one of the reasons of the technical complexity is

30 - Study to support the REFIT evaluation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive) Final report, 2019.  
<https://ec.europa.eu/environment/eia/pdf/REFIT%20Study.pdf>



that it needs to adapt to very different scales of plans and programmes, in very diverse political settings across Europe. This could be remedied by competence building in the area of environmental preservation and in this case of land take and soil sealing limitation.

The results of the analysis of the surveys, interviews and research on land take and soil sealing limitation could be summarized into several points.

First, setting strong EU level environmental policy targets (as the no net land take in 2050) could translate into national targets to be met by Member States. In this situation, the SEA can be a very powerful tool, setting both for procedural and substantive requirements. These policy targets should also be reflected in local plans and later projects, with specific time bounds to achieve them. Short-term goals (often political – economic priorities) are to be avoided.

Second, the implementation of assessment procedures should be enhanced, especially at the local level.

As explained in the interviews and in the research, in order to fully benefit from the possibilities of the SEA (and EIA) procedures, they should start at least at the same time as the plan or programme. The assessment is supposed to help building the plan so its performance should be integrated to the plan preparation process. This implies that public sector representatives both at the decision level as well as the plan elaboration level should be well informed and prepared to react and change the plan when needed. This is directly related with a solid monitoring of the process and a solid analysis of the alternatives from an early stage, to better meet the targets and fulfill the long term vision.

According to the interview answers, in the implementation phase of the plan or project, coordination between the SEA assessment of the higher level and EIA assessments is critical. This could be achieved by linking the monitoring requirements of the SEA Directive to post-project analysis under the EIA Directive.

A possible way to make the SEA procedures more accessible to different actors could be to create exemplary solutions, based on good practices and with tools and methods adopted to local conditions, although given the different territorial and legal situation in Member States, no standard formula for all are possible.

### **Inclusion of land take and soil sealing limitation measures in the impact assessment procedures.**

As revealed through interviews and literature review (REFIT Study 2019), at a more local level, much can be done with impact assessment procedures in force. Local governments hold a number of possibilities in their hands to avoid expansion and unnecessary artificialisation of land:

A precise monitoring of land take and soil sealing at the local level.

EIA procedures monitoring should lead to the compilation of data at the local level and feed the national level, for a more accurate checking of the implementation of the assumptions. This in turn should translate into sound urban policies

At the 'alternative' analysis stage, support decision making with information on artificial spaces that are available to reuse. A long term monitoring of impact assessment procedures and the compilation of data will create ever more complete and precise data bases on artificial and sealed urban land.

Reduce artificialisation by proposing densification of existing sealed soils. This can be fostered through financial and tax incentives.

Better coherence of planning instruments with EIA procedures. This means the integration (eventually also at different governance levels) and strengthening of existing procedures in order to make them effective in reducing land take

Where other alternatives are not possible, condition the artificialisation to an equivalent renaturation or re-greening of artificial land.

**Environmental Impacts Assessments (EU, 2014) and Strategic Environmental Assessments (EU, 2001) directives have a non-negligible potential to impede the developments that could otherwise lead to land degradation. Sustainable land and soil management in Europe can benefit from their steady implementation and better application both at the national level as well as the local one. Their enforcement at European, national and local levels, specially with a focus on land take and soil sealing limitation can help the Member States in achieving the ambitious goal of net zero land take by 2050 and thus lead toward more compact and liveable cities and, at the same time, foster the introduction of NBS within the built environment.**

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