

ACTION B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions

Project	SOS4LIFE - Save Our Soil For Life
Action	B.3.2
Title	Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions
Date	September 2020
Deliverable	12

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1. INTRODUCTION

These Guidelines, prepared in the context of sub-action B3.2, are a guiding tool to help achieve the European target of “no net land take by 2050” and, in particular, to introduce in urban planning tools and building regulations, rules and implementing provisions functional to this objective.

The guidelines are structured in 2 parts:

1. the first part is dedicated to analyzing the issue of land take and identifying which strategies, rules and operating methods can be implemented to limit, mitigate and compensate for land take and soil sealing;
2. the second part is dedicated to the theme of urban regeneration, as a strategy to be favored to combat land take.

The Guidelines have been prepared taking into account and systematizing the knowledge acquired, the experiences made and the results achieved with the other sub-actions of the SOS4LIFE project:

- Sub-action A1.3 “European-wide survey of best practices for no net land take and improvement of urban resilience and visit to case studies”. The survey on European best practices has provided an overview of the different approaches to limiting land take. Further knowledge and evaluation elements were acquired with study visits to the cities of Dresden and Stuttgart which have already consolidated experiences;
- Sub-action B1.1 “Elaboration of the local knowledge framework of the dynamics of land take and soil sealing”. The construction of local maps of land take and the level of soil sealing, as well as the reconstruction of the historical evolution of these phenomena, has increased awareness of these issues and allowed for the sharing of definitions and indicators;
- Sub-action B1.2 “Costs and local impacts of the dynamics of land take”. The estimation of the economic and environmental impacts of land take, starting from the drafting of maps of ecosystem services, has increased knowledge on the functions of the soil and its diversity, stimulating the drafting of a summary map of the quality of soils that is functional both to support decisions in area of territorial planning and to manage a compensation system for land take;
- Sub-action B1.3 “Evaluation of ecosystem services of urban soils and guidelines for protection and improvement”. The Carpi case study provided a methodology for evaluating the ecosystem services of urban areas that are fundamental to counteract the effects of climate change and improve the resilience of our cities;
- Sub-actions B2.1, B2.2, B2.3 “Demonstrative interventions of de-sealing with soil restoration”. Even if these interventions have not yet been completed, their planning and partial implementation has provided useful elements for evaluating their technical-economic feasibility and has highlighted some problems to be taken into

account in compensatory interventions;

- Sub-action B2.4 "Definition of guidelines for the removal, management and reapplication of top-soil". It made it possible to develop operational guidelines to favor the reuse of the soil (and in particular the topsoil) deriving from excavations and urban transformations. This is functional both to the restoration of ecosystem services and to the circular economy;
- Sub-action B3.3 "Criteria and guidelines for improving urban resilience to climate change". The "Freeing the soil" guidelines are another guiding tool (which also contains useful operational indications) for planning urban regeneration interventions which, by making use of natural-based solutions, can improve urban resilience to climate change.

As regards the issue of urban regeneration, in addition to some intervention methods and approaches now widespread at international level, reference was also made to the innovations introduced in Italy by the most recent regional urban planning laws.

The guidelines are aimed primarily at public administration, policy makers, public officials and technical managers and professionals dealing with urban planning and urban regeneration.

2. FIRST PART - LIMIT, MITIGATE AND COMPENSATE LAND TAKE

2.1 Premise

To begin with, it is appropriate to define some terms that we will use in these guidelines. What do we mean when we refer to land take and soil sealing?

The SOS4LIFE project has taken on the following definitions:

- **land take** can be defined as the transition from agricultural and natural coverages to urban coverages (definition contained in the First Report 2009 of the National Observatory on land consumption). Similarly, ISPRA (Higher Institute for Environmental Protection and Research) defined, in the 2014 Report on Land take in Italy, land take as a variation from a non-artificial coverage (soil not consumed) to an artificial soil coverage (soil consumed). Therefore, the part of transformed soil that are located in rural areas also fall within this definition of land take. In the analysis (and subsequent mapping) of land take, carried out at local level within the SOS4LIFE project, public-private green areas in urban areas (even if largely not waterproofed) were also considered land take as these are surfaces resulting from the transformation / urbanization of previously agricultural or natural surfaces.
- **soil sealing** can be defined as permanent coverage of the soil with artificial material such as to eliminate or reduce its permeability (ISPRA)

The issue of soil protection and the need to counteract soil sealing was addressed at European level in the Thematic strategy for soil protection (2006) and reiterated in the Roadmap to a resource efficient Europe (2011) which proposed the goal of "no net land take" by 2050.

The European Commission with the Report "Guidelines on best practices to reduce, mitigate and compensate for soil sealing" [SWD (2012) 101], preceded by the Report "Overview of best practices for limiting soil sealing or mitigating its effects in EU-27 "(2011), described the approaches aimed at limiting, mitigating and compensating for soil sealing, implemented in the Member States.



European Commission Report and Guidelines (2011 e 2012)

These approaches are graded into three levels in order of priority.

The first level foresees the protection of the soil avoiding its transformation and the consequent loss of ecosystem services. This is possible by introducing limitations on land take (firstly at the regulatory level, secondly also at the local level through urban planning regulations and tools).

In cases where a transformation of the soil occurs, it is necessary to adopt mitigation measures to maintain some of the functions of the soil and reduce the negative effects of soil sealing on the environment and human health.

The last level, in the face of the transformation of the soil for urban use, provides for the activation of compensation measures aimed at restoring at least part of the ecosystem functions lost with soil sealing.

Before delving into the issue of land take compensation and the ways in which it can be implemented, it is useful to briefly address the other two levels (limitation and mitigation).

2.2 Limit

The principle of “no net land take” does not exclude land take (which cannot be reset in the medium term), but presupposes its compensation.

But, as the European Commission itself has made clear, the first level of soil protection is to limit its consumption (especially when the sealing of surfaces also corresponds to this). And in order to achieve this objective, it is necessary to act, first of all, at the regulatory level.

Despite the enunciation of the EU target of “no net land take by 2050” dates back to 2011, a specific European directive on soil has not yet been approved, which would be binding on member states.

In the absence of a directive, among the few European states that have adopted national legislation, is Germany which since 1999 has set a limit on land take (30ha/day in 2020 and 0 ha/day in 2050).

In Italy this issue has been debated in Parliament for some time, but, as has happened in Europe, a national framework law has not yet been approved. Recently the issue was taken up again as part of a bill to promote and support urban regeneration (which is the main strategy to contain land take).

In the meantime, several Italian regions, on the basis of the legislative power in matters of regional urban planning, have approved laws which, in various ways, have begun to introduce regulatory provisions to limit land take.

For example, the Emilia-Romagna Region with the Regional Urban Planning Law 21.12.2017 n. 24, has taken on the European target of “no net land take by 2050”. The law, which favors urban regeneration, has introduced a limitation on land take up to 2050 equal to 3% of the urbanized territory detectable at date of entry into force of the Law (1/1/2018). It has also established a roadmap for its implementation and a peremptory deadline for the adoption by all the municipalities of the region of a new general urban planning instrument (P.U.G. General Urban Plan) conformed to the new regulatory provisions.

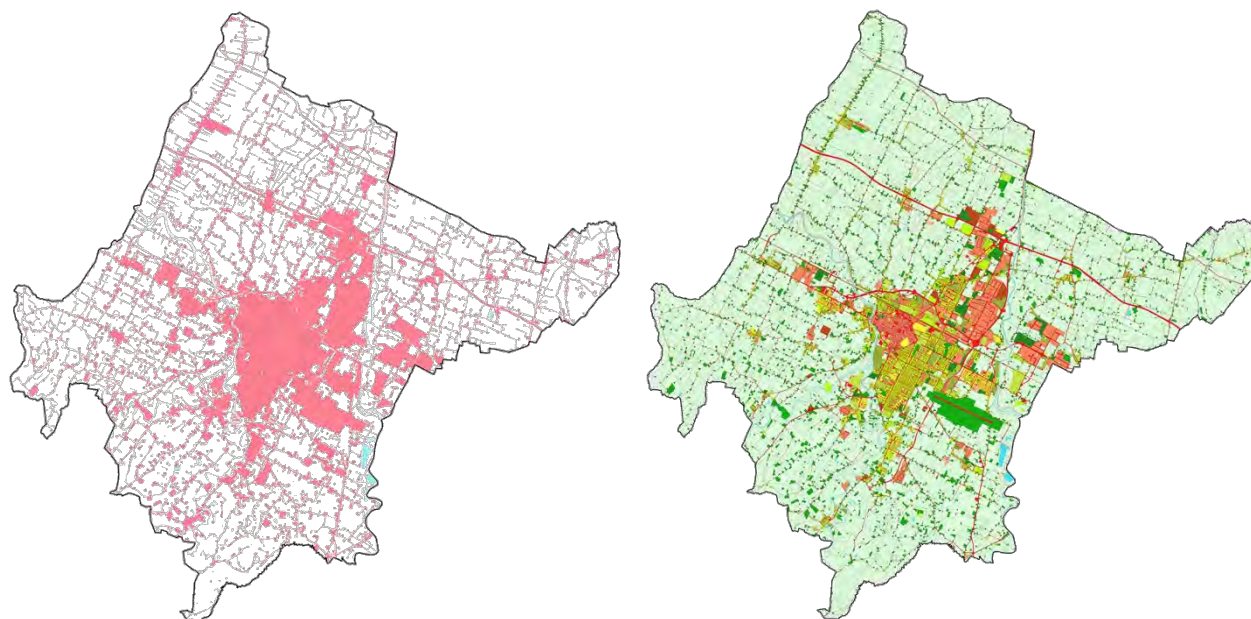
2.2.1 Know the dynamics of land take

If the **limitation of land take is to be established at the regulatory level** (European, state, regional) there are, however, some tools that can be used to increase the level of knowledge on land take and to raise awareness of its effects (to stimulate a legislative response to the problem). But, pending a law, it is already possible to act locally.

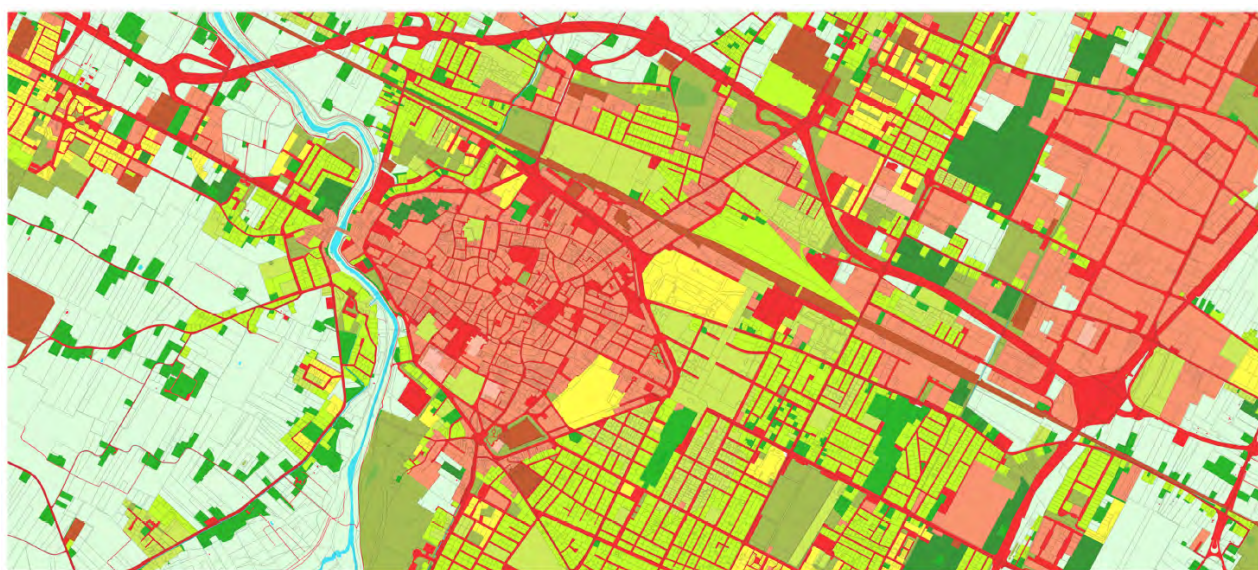
First you need to know the extent of land take in your area.

During the SOS4LIFE project, each of the 3 partner municipalities (Forlì, Carpi and San Lazzaro di Savena) produced a **map of land take** and a **map of soil sealing level** at the current state of the various parts of the municipal area.


This, at the local level, was possible starting from the very detailed analysis of the state of implementation of the general urban planning tool.



SOS4LIFE - Municipality of Forlì - Map of land take (on the left) and Map of the level of soil sealing (on the right)



MAPPA DEL LIVELLO DI IMPERMEABILIZZAZIONE DEL SUOLO

0 -10 %  90 -100 %

SOS4LIFE - Municipality of Forlì - Extract from the map of the soil sealing level (the red areas are the most sealed)

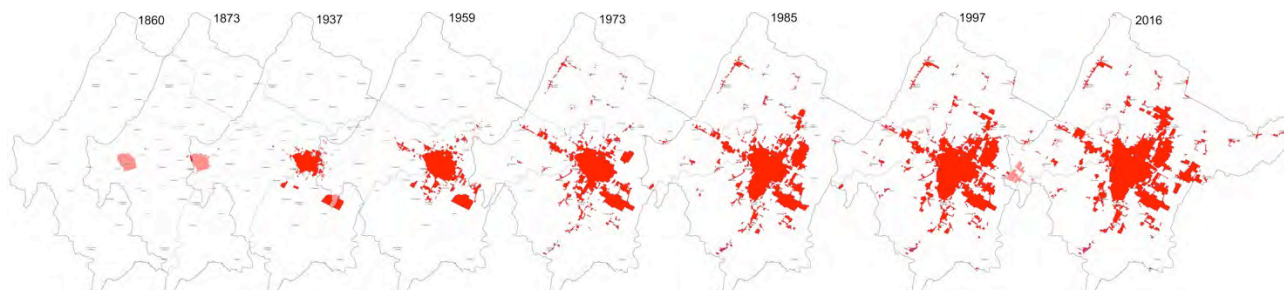
At the national level, ISPRA, in collaboration with the Regional Companies for the protection of the environment, produces an updated map and a very detailed report on land take every year.

In order to understand the phenomenon, in addition to a map of land take at present, it may also be useful to reconstruct its **historical evolution**, to study its genesis and dynamics.

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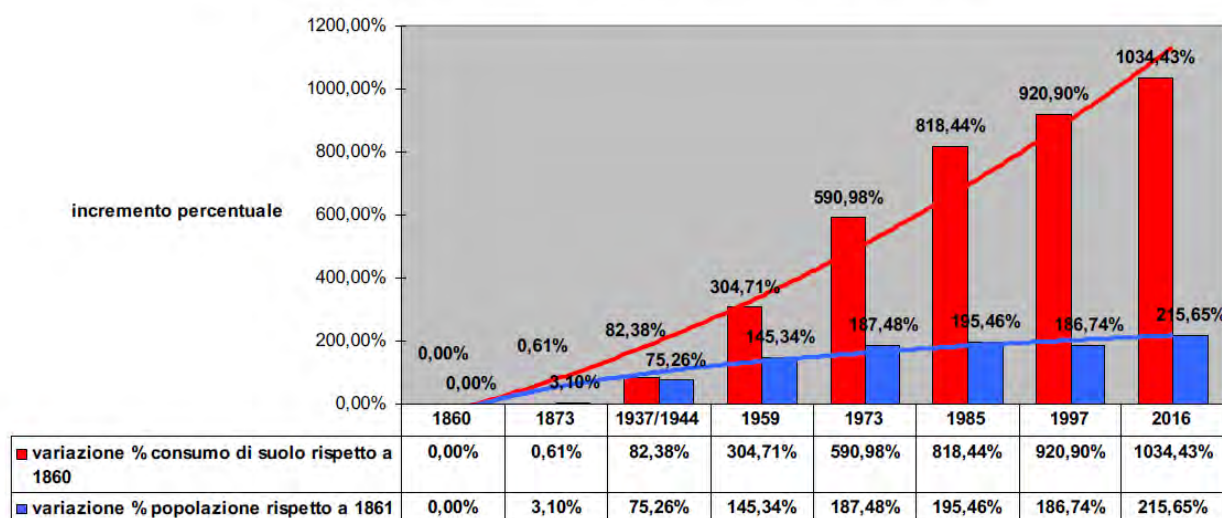
Each of the 3 partner Municipalities in SOS4LIFE has produced maps representing land take over several years from the end of the 19th century to today.



SOS4LIFE – Forlì – Historical evolution of land take (1860-2016)

The data on the growth of land take compared with those of population growth have shown that there is often no correlation. Therefore, the growth in land take in the time phase considered is not attributable only to housing needs, but also to industrial development and certainly depended on the more or less expansive policies implemented at the level of territorial planning (and partly deriving from urban planning laws then in force).

FORLÌ - Confronto variazione % consumo di suolo-popolazione 1860-2016



SOS4LIFE – Forlì - Comparison between land take growth - in red - and population growth - in blue (1860-2016)

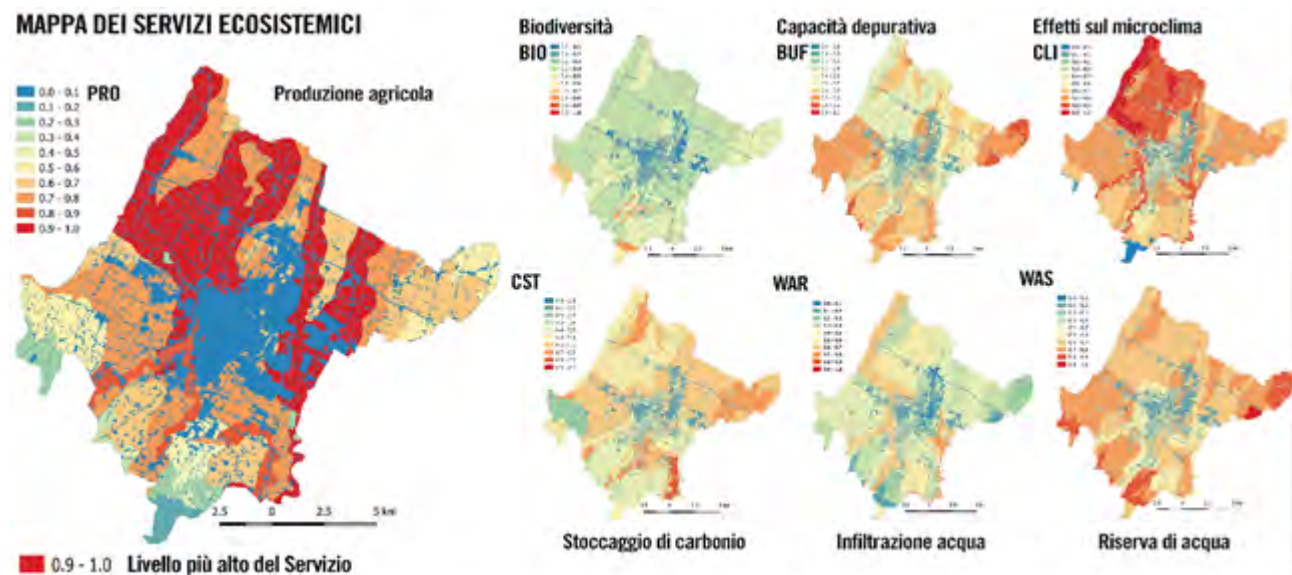
All local analyzes and processing are described in the B1.1 Action Report which is available (in Italian) in the documents section of the website www.sos4life.it.

2.2.2 Know the soil

Knowing the extent of the “land take” phenomenon is not enough. As already mentioned, it is important to provide policy makers (as well as technicians and citizens) with elements of knowledge on the characteristics of the soil and the impact of land take on one's own territory.

In this regard, the **maps of ecosystem services** (PRO agricultural production, BIO

Biodiversity, BUF purification capacity, CLI Effects on the microclimate, CST Carbon storage, WAR Water infiltration, WAS Water reserve) that were produced by the CNR-IBE (Institute of Bioeconomy of the National Research Council) starting from the large database on soil made available by the Emilia-Romagna Region, have proved useful.



SOS4LIFE – Forlì, Maps of ecosystem services (CNR-IBE)

By superimposing the urbanized land area on the maps of each individual ecosystem service (in blue in the image above) it was possible to estimate the impact of land take. This impact was estimated by considering the ecosystem services that have been lost with soil sealing. Although not essential, an economic quantification of the damage caused by the loss of ecosystem services was also made (in terms of lack of agricultural production, rather than lack of water infiltration, etc.). The representation, including economic, of the impact of land take is effective in raising awareness among policy makers and citizens. For further information, please refer to the Report of action B1.2 which is available in the documents section of the website www.sos4life.it.

2.2.3 Monitor

The measurement and mapping of land take / soil sealing cannot be a one-off activity. It is advisable to periodically monitor the trend of land take as this is functional, as well as at a cognitive level, also to verify the effectiveness of local laws and / or regulations that limit it.

The annual monitoring activity that is carried out nationally by ISPRA has already been mentioned above.

The SOS4LIFE project has prepared a specific **information system for monitoring land take** at the local level in which it is possible to upload periodic updates not only of the 3 partner municipalities but also of the remaining part of the regional territory. The data on land take and soil sealing initially loaded into the information system were provided by the 3 partner municipalities at the end of the aforementioned mapping activity. For the remaining municipalities in the region, the data was obtained from the regional land use database. The

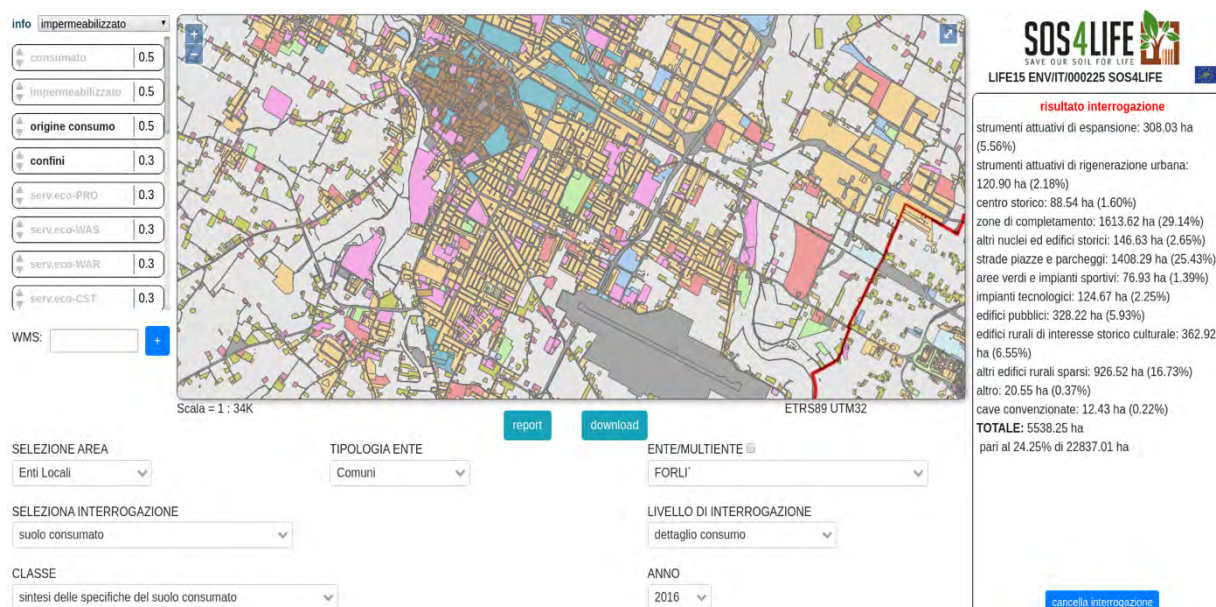
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partner Municipalities update their data yearly. The Region has scheduled periodic updates of the land use database.

To facilitate consultation of the information system, a specific WebGIS interface has been set up which allows to perform various queries and to extract data.

This information system was created not only with the aim of knowing the evolution of the phenomenon, but also as a decision support tool. Therefore it makes available for consultation not only the land take / soil sealing maps but also the maps of ecosystem services.



SOS4LIFE WebGIS – Example of a query based on the type of land take

<https://sos4life.regione.emilia-romagna.it>

SUMMARY

- promote urban regeneration and introduce restrictions on land take mainly through a national framework standard and any regional regulations;
- know the local dimension of the phenomenon by preparing an updated map of land take and soil sealing;
- understand the causes and dynamics of land take and any relationships with demographic growth;
- know the characteristics of the soil at the local level by preparing maps of ecosystem services;
- periodically monitor land take and soil sealing using a territorial information system.

2.3 Mitigate

Knowing the value of the soil in each part of its territory, using the maps of ecosystem services, is not only important to understand how much has been lost, or what is the damage already caused by land take, but also to quantify the potential damage that it can result from further land take.

The maps of ecosystem services represent the variety of soils that can characterize a territory: some of these soils are more suitable for performing a productive function, others are better for the infiltration and storage of water or carbon.

Some of these soil functions are more important (and therefore to be protected) in peri-urban and rural areas, others must be preserved (or restored) within the urban core because they help to increase the ability to adapt to climate change.

2.3.1 Soil quality

From this awareness, during the development of the SOS4LIFE project, the will of the 3 partner municipalities has matured to adopt a **Soil quality synthesis index map**. In the preparation of this map, similar experiences of some German municipalities (eg Stuttgart, Berlin and Dresden) were taken as a reference.



Dresden – Soil quality map

Source: Landeshauptstadt Dresden Umweltamt (2015) Umweltbericht 2011 bis 2014

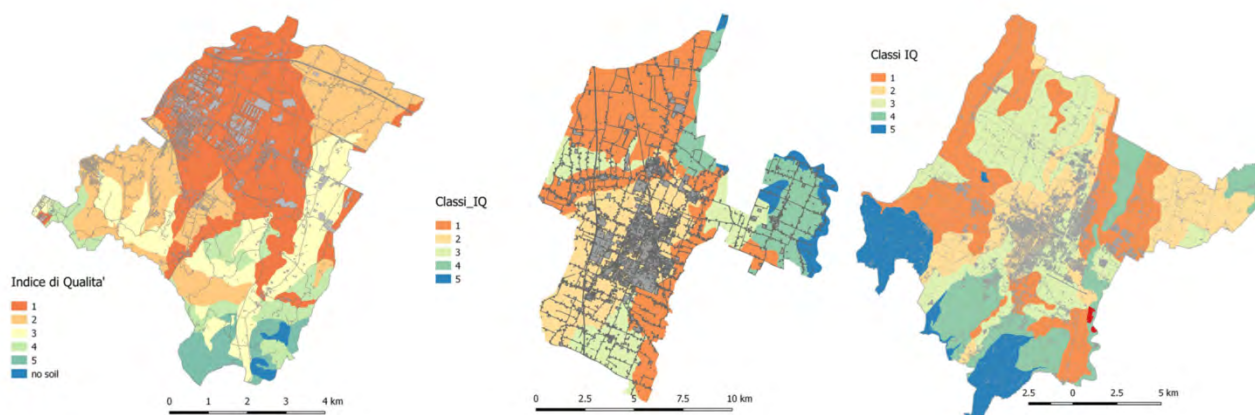
For example, the Dresden Soil quality map provides for 7 quality levels (from low quality soil to extremely high quality soil). This map has been inserted by the Municipality of Dresden together with many other data and thematic maps in an information system accessible (in WebGIS mode) and implementable by all public offices as well as usable by citizens.

The Soil quality synthesis index map of the SOS4LIFE project was produced by CNR researchers in collaboration with the Emilia-Romagna Region.

It was built starting from the maps of the single ecosystem services. For each part of the territory it provides a synthetic index of the quality of the soil (divided into 5 levels) which takes into account the quality and quantity of the ecosystem services present.

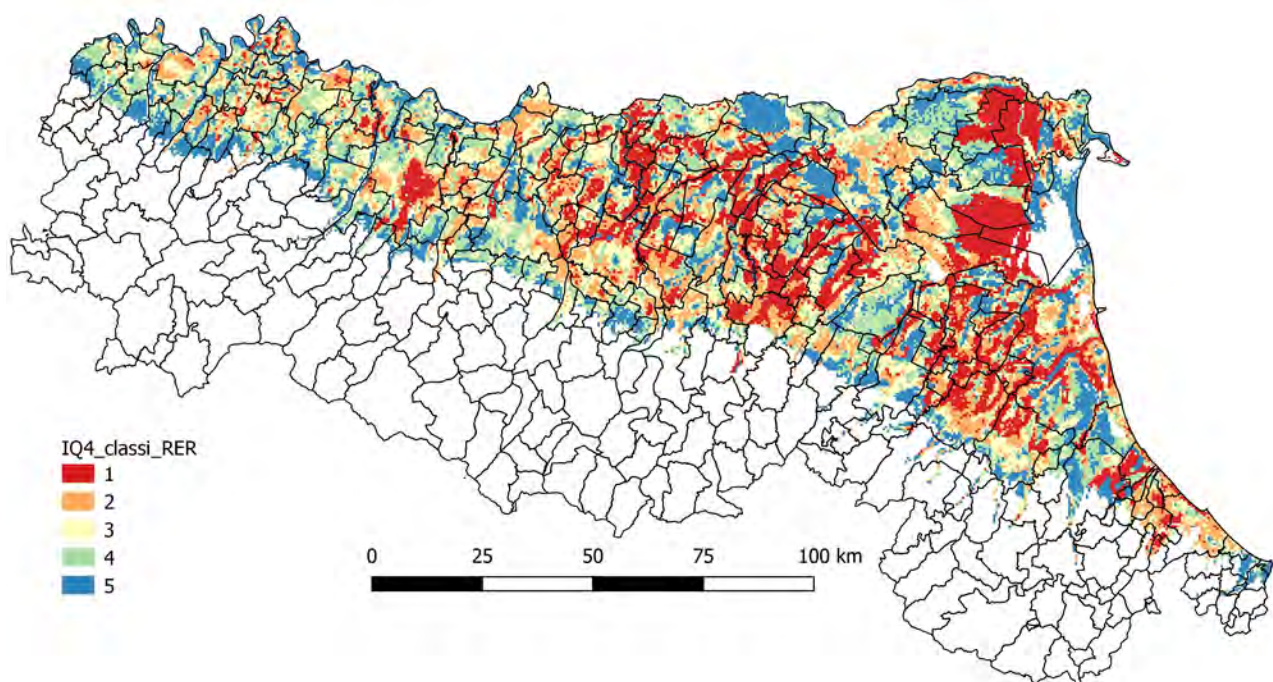
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SOS4LIFE - Carpi, San Lazzaro di Savena, Forlì - Soil quality synthesis index map (first version)

This map, initially prepared only for the territories of the 3 partner Municipalities, was then extended to all the plain and foothills areas of the Emilia-Romagna Region (the one for which the necessary data was available in the regional database).



SOS4LIFE – Emilia-Romagna Region- Soil quality synthesis index map (final version)

The Soil quality synthesis index map has been added to the themes available in the WebGIS created by the SOS4LIFE project precisely because, together with the maps of ecosystem services, it is a useful support for urban planning decisions.

This map can contribute to strategies for limiting land take if the information on the value of the land it provides is taken into account when drafting municipal planning regulations and if this leads, for example, to imposing a restriction on the transformation of the soils that are

of better quality.

At the same time, the map has a mitigation function because it can help to address land take towards less valuable areas, reducing their impact.

2.3.2 Urban soils

The SOS4LIFE project has not limited itself to preparing the maps of ecosystem services and, from these, to drafting a soil quality synthesis index map, but has also deepened the **assessment of ecosystem services of urban soils**.

These soils, strongly influenced by human activities, are unable to provide ecosystem services if sealed. But where they remain permeable, they can play an important mitigation function in the urban context, which is more exposed to the effects of climate change.

The study (described in the Report of action B1.3 available in the documents section on the website www.sos4life.it) carried out by the CNR-IBE and the Emilia-Romagna Region on the city of Carpi, with a campaign of sampling and ad hoc analysis of various types of permeable urban and peri-urban areas, has made it possible to develop a procedure for evaluating the ecosystem services that can be provided by urban soils and has highlighted how they can also be of high quality, therefore to be preserved.

2.3.3 Ecological quality index

If at the urban scale of territorial planning it is important to direct the forecasts of urban transformations towards the worst quality soils, while preserving the best soils, at the more detailed scale of the urban / building project it is necessary to foresee and implement all the possible technical measures to make sustainable the urban transformation, to mitigate land take.

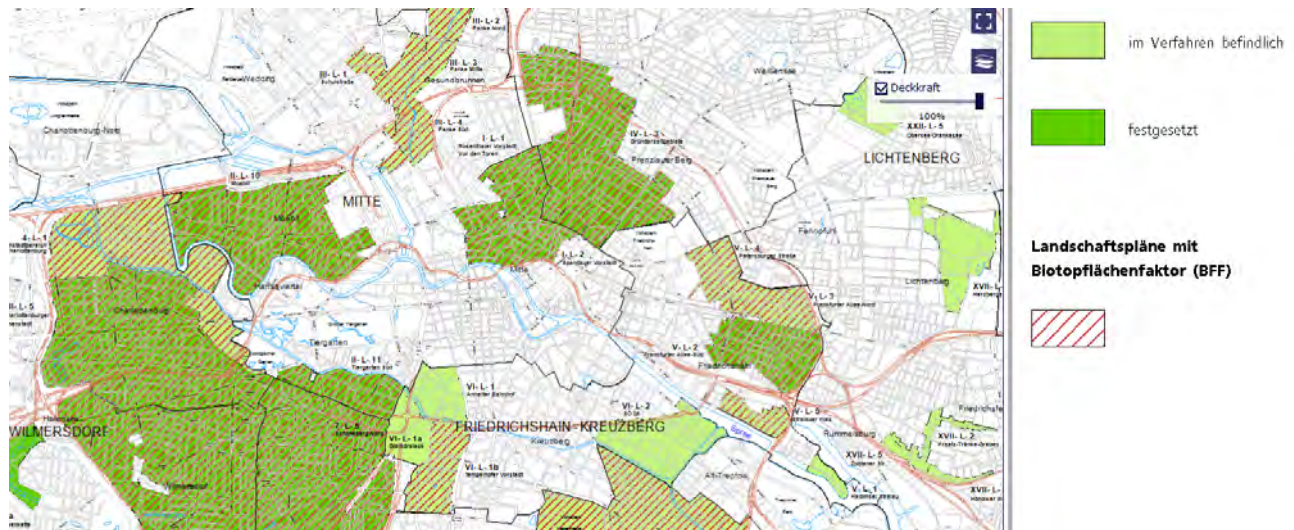
In the urbanized context where, often, spaces are narrower and anthropogenic pressure is greater, it is important to guarantee (or restore) a certain level of soil permeability to favor water infiltration and implement green infrastructure to improve the microclimate and counteract urban heat island.

One way to mitigate the effect of a new urban transformation that involves land take is to establish and apply an **ecological quality index** such as the one that was created in 1990 by the city of Berlin: the "Biotope Area Factor" (BAF).

The BAF is an urban planning index to guarantee minimum ecological standards to be applied to urban transformation or regeneration interventions that expresses the quantity of permeable soil that is necessary to respect the ecosystem, taking into account environmental quality, protection and improvement of the microclimate and atmospheric hygiene, protection and development of the functions of the soil and water balance, creation and improvement of the quality of the animal and vegetable habitat and finally the improvement of the residential environment.

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Berlin – BAF-subject areas location map










<https://fbinter.stadt-berlin.de/fb/index.jsp?loginkey=showMap&mapId=lplan@senstadt>

The BAF is an urban planning parameter in all respects like the land index and the building index and expresses the relationship between the ecologically effective surface (areas of a site that have a positive effect on the ecosystem) and the surface total covered by the intervention.

$$\text{BAF} = \frac{\text{ecologically effective areas}}{\text{total land area}}$$

The BAF is applied to all the different types of interventions (residential, commercial, industrial, infrastructural) and in fact constitutes an ecological standard, with minimum values to be respected depending on whether it is a new intervention or an intervention of urban regeneration.

The ecologically effective surface considered for the BAF not only takes into account the permeable areas covered by vegetation, but also considers the partial permeability of some types of paved surfaces and the surfaces of green walls and roofs. The various surfaces taken into consideration in the calculation of the BAF are weighted in different ways according to the degree of evapo-transpiration, permeability, ability to store rainwater, etc. as shown in the table below.

Type of surface		Faktor
Impervious surfaces impermeable to water and air, no plant establishment. (concrete, asphalt, impenetrable surface)		0,0
Partially impervious surface permeable to water and air, without plant establishment. (paving stones, sand, gravel)		0,3
Half open surfaces permeable to water and air, some plant establishment. (gravel with grass, wooden deck, grass reinforcement)		0,5
Plant surfaces without contact with the underlying ground upper decks (over underground cellars or garages) with less than an 80 cm earth layer		0,5
Plant surfaces without contact with the underlying ground no contact with the ground, more than 80 cm earth layer		0,7
Plant surfaces with ground contact vegetation with ground contact, accessible for development of flora and fauna		1,0
Rainwater infiltration per m² roof area precipitation that infiltrates and regenerates groundwater, infiltration over surfaces with existing vegetation		0,2
Vertical greenery up to 10 m high greenery that covers inner and outer walls without windows, the actual height, up to 10 m, is taken into consideration		0,5
Green roofs extensive and dense plant cover on a roof surface		0,7

*BAF Berlin - Definition of the different types of surfaces and the relative weighting factor
Source: Stadtentwicklung Berlin*

The BAF index, created by the city of Berlin, has inspired similar indices in various parts of the world.

The R.I.E. (Reduction of the Building Impact) which the Municipality of Bolzano has adopted since 2004 is an environmental quality index that serves to certify the quality of the building intervention with respect to the permeability of the soil and greenery.

A different RIE index has been attributed to each type of urban, residential, tertiary or production area.

The Building Regulations made it mandatory to adopt the RIE procedure for all new construction work and for work on existing buildings, as well as for work of any kind - on existing grounds and / or buildings - that affect the external surfaces exposed to rainwater (roofs, terraces, external arrangements, courtyards, green areas, paved areas, etc.).

The objective of this index is to limit soil sealing as much as possible and to mitigate the negative effects of sealed surfaces, especially in large projects.




As in the case of the BAF also for the RIE, the green roof contributes to the compensation of the soil sealing, to the increase of environmental well-being and to the improvement of the microclimate.

The essential elements for calculating the RIE and verifying compliance are:

- type and finishing materials of external surfaces exposed to rainwater;
- management and eventual recovery / reuse of rainwater;
- level of planting and green roof.

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N.rif.	Categoria di superficie	Sezione indicativa o immagine tipo	Specifiche o varianti	Norme di riferimento, valori limite o indicazioni	Ψ
N1	Superfici a verde su suolo profondo, prati, orti, superfici forestali ed agricole				0,10
N2	Corsi d'acqua in alveo naturale				0,10
N3	Spese di acqua, stagni o laghi di accumulo e istituzioni con fondo naturale				0,10
N4	Inerzie, cernie, superfici naturali degradate				0,20
N5	Pavimentazione in lastre porose a opera incerta con fuga inevitabile		Percentuale di superficie inerte >40% del totale	Con coefficiente di permeabilità del sottinteso: M in mm: $10^0 - 10^{-2}$	0,40
			Qualità idrologica	Con coefficiente di permeabilità del sottinteso: M in mm: $< 10^{-3}$	1,00
N6	Area di impianto sportivo con sistemi drenanti e superfici a porosità			Con coefficiente di permeabilità del sottinteso: M in mm: $10^0 - 10^{-2}$	0,30
N7	Pavimentazione in lastre porose in cui il materiale poroso, integrato di substrato e rivestiti posati su apposita strutturazione di supporto (Grass pavers)		Percentuale di superficie inerte >40% del totale	Con coefficiente di permeabilità del sottinteso: M in mm: $10^0 - 10^{-2}$	0,40
			Percentuale di superficie inerte >40% del totale	Con coefficiente di permeabilità del sottinteso: M in mm: $10^0 - 10^{-2}$	Valore da assegnare, ponderando la permeabilità e la vegetazione
			Qualità idrologica	Con coefficiente di permeabilità del sottinteso: M in mm: $< 10^{-3}$	1,00

RIE Bolzano - Extract from the table with runoff coefficients for the various types of surfaces

Even the city of Seattle (USA), with its Seattle Green Factor (since 2006) took inspiration from the experience of the BAF in Berlin.

The Seattle Green Factor is a minimum level of endowment of green areas that must be respected for all new residential interventions with more than four housing units, for tertiary-commercial interventions with an area greater than 4,000 square feet (371 square meters) or with more than 20 new parking spaces. Its main purpose is to:

- reduce the runoff of rainwater;
- contribute to urban cooling during summer heat waves;
- provide support for biodiversity
- improve the look and feel of a neighborhood (helping to enhance the properties).

Each project subject to the Seattle Green Factor must guarantee the achievement of the minimum score established for that type of intervention. To reach this minimum score it is possible to choose between various design solutions: green roofs, rain gardens, green walls, insertion of trees and shrubs.

SEATTLE / *green factor*



**Pre-Settlement
Conditions**



**Historical Urban
Development**



Urban Greening

Another example is that of the city of Malmö (Sweden). For Malmö, the main climatic challenges concern not so much heat waves as, rather, extreme weather events and the risk of flooding. The Green Plan is an integral part of the Urban General Plan and the Climate Adaptation Plan, since it is through the implementation of the green infrastructure and the increase (maintenance) of soil permeability that the hydraulic risk can be reduced. The city of Malmö has introduced, also in urban regeneration interventions (such as the Bo01 district in Western Harbor), the Green Space Factor (GSF) which involves the implementation of nature-based solutions such as rain gardens, green roofs and walls and other sustainable urban drainage system. The goal of the Green Space Factor is to ensure a share of green coverage in each building lot and to minimize the amount of sealed surfaces.

As in the case of the BAF in Berlin and other examples mentioned above, the Green Space Factor also assigns a permeability coefficient to different types of surfaces.

In urban areas where the GSF is to be applied, a minimum level to be respected is established.

In some areas (for example in the Bo01 district), in addition to the need to comply with the GSF assigned, the obligation to guarantee at least 10 Green Points chosen from a list of 35 has been added.

The Green Points system aims to promote greater sustainability of urban regeneration interventions through the recovery of some of the ecosystem services, including water

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infiltration (or regulation of rainwater runoff) but also biodiversity.

Green Space Factor	
Surface type	Factor
Vegetation on ground	1
Vegetation on trellis or facade	0.7
Green roofs	0.6
Vegetation on beams, soil depth between 200 millimetres and 800 millimetres	0.7
Vegetation on beams, soil depth more than 800 millimetres	0.9
Water surfaces	1
Collection and retention of stormwater	0.2
Draining of sealed surfaces to surrounding vegetation	0.2
Sealed areas	0
Paved areas with joints	0.2
Areas covered with gravel or sand	0.4
Tree, stem girth 16-20 centimetres (20 square metres for each tree)	20
Tree, stem girth 20-30 centimetres (15 square metres for each tree)	15
Tree, stem girth more than 30 centimetres (10 square metres for each tree)	10
Solitary bush higher than 3 metres (2 square metres for each bush)	2

Malmö – Green Space Factor

Fonte: GRaBS Expert Paper 6 the green space factor and the green points system By Annika Kruuse
<https://nextcity.nl/wp-content/uploads/2017/01/1701256-Malmoe-Tools-c-Annika-Kruuse.pdf>

2.3.4 Nature-based solutions

The SOS4LIFE project also dealt with the issue of climate adaptation and how it is possible to mitigate its effects (amplified by soil sealing) by resorting to nature-based solutions.

The Guidelines "Freeing the soil" to improve urban resilience in regeneration interventions (vol. I and II) are a guiding tool to support the planning of urban regeneration interventions that pay particular attention to the issues of resilience to climate change.

Volume 1 addresses the issues of resilience at the urban scale, at that project scale and from a regulatory point of view, with a particular focus on nature-based solutions that can be implemented in the built environment, to free the soil and implement adaptation measures, through green and blue infrastructures and the use of vegetation in hostile environments.

Volume 2 collects, analyzes and describes in its various components a selection of 20 case studies relating to projects and processes of climate adaptation, at different scales, carried out in the Italian and international context, concerning redevelopment and regeneration interventions.



"Freeing the soil" guidelines are available on the project website www.sos4life.it in Italian and English version

SUMMARY

- manage and plan soil transformations with greater awareness of the value of the soil through the use of a soil quality synthesis index map;
- evaluate the ecosystem services of urban soils to more correctly plan the climate adaptation of the urbanized territory;
- adopt a minimum ecological quality index (such as the Biotope Area Factor) to limit sealed surfaces in urban transformation or regeneration interventions and increase green infrastructures, with consequent maintenance or restoration of part of the ecosystem services essential to ensure climate adaptation;
- apply nature-based solutions to improve the urban resilience of urban regeneration interventions.

2.4 Compensate

Soil is a precious resource, not renewable if we consider the timing of pedogenesis in relation to the duration of human life.

While supporting the need to safeguard the soil and also putting in place legal provisions to limit it, we cannot exclude that there is still land take.

The European goal of "no net land take by 2050" seeks to reconcile the need for growth and evolution of the city with the need to bring this growth back into a more sustainable development model.

Limited land take is permitted, but compensation must be provided for.

A balance must be guaranteed between land take and de-sealing of surfaces currently waterproofed with subsequent renaturalization, restoration to greenery or for agricultural use (depending on the context in which the de-sealing intervention is carried out).

Land take involves the total or partial loss of the ecosystem services that the soil itself provides us (e.g. agricultural production, water infiltration and storage, carbon storage, microclimate regulation, etc.).

Therefore, compensatory de-sealing, even where possible, does not guarantee the total restoration of ecosystem services.

In summary, the balance between land taken and recovered soil, necessary to implement the principle of "no net land take", can be realized in the possibility of consuming new soil only in the face of:

- the execution of a compensatory intervention of de-sealing and renaturalization, restoration to greenery or agricultural use;
- the acquisition / availability of "surface credits" deriving from previous compensatory interventions of de-sealing and renaturalization or restoration to greenery or agricultural use; in order to be able to manage / transfer these "surface credits" it is necessary to keep track of them (register them) from their generation to their use for compensatory purposes (this aspect will be discussed in detail below).

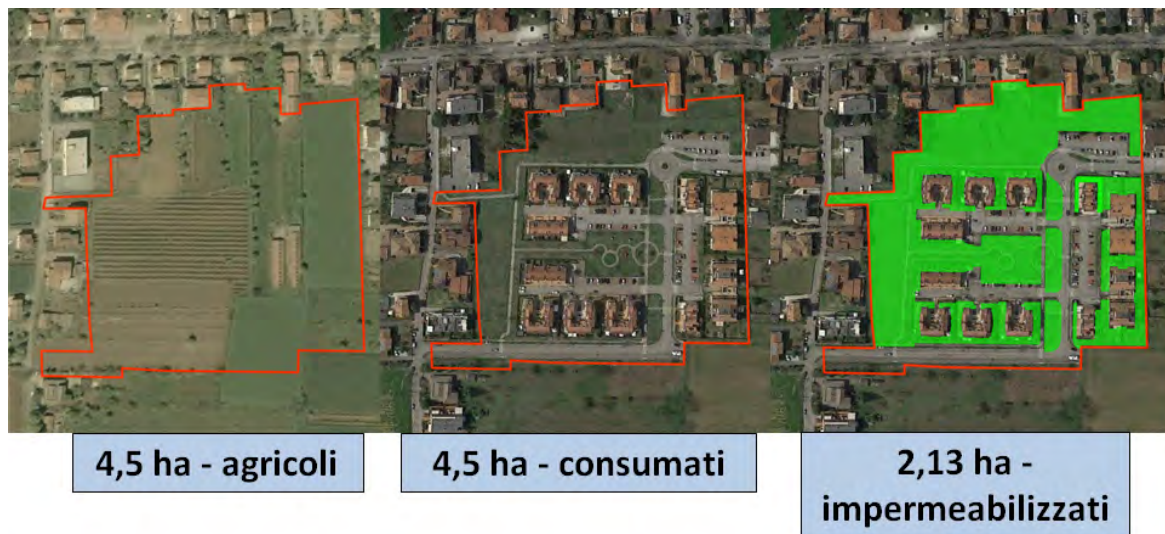
2.4.1 Quantitative compensation

The balance between new "transformed" soils and "de-sealed" soils whose functions are partially restored requires the availability of areas for compensatory interventions to be found among the areas already urbanized and sealed.

A compensatory system for land take must, therefore, address a first problem given by finding the quantity of areas necessary for compensation.

It is a problem that can also take on significant dimensions as each new urbanization can "consume" several hectares of land and can involve the sealing of a significant part of this surface.

A land take compensation system strongly depends, for its operation, on the availability of a stock of areas to be de-sealed which must be continuously fed. To manage such a compensation system, it is necessary to prepare a map of the potential areas to be allocated to de-sealing interventions and to keep this map and its database updated.



Forlì – Example of new urbanization for residential use involving 4.5 hectares of agricultural land take and 2.13 hectares of sealed surfaces.

It is necessary to identify those parts of the urbanized territory in which it is possible to totally or even partially remove the sealed surface to restore some of the ecosystem services of the soil and implement the urban green infrastructure (i.e. what contributes to the improvement of urban resilience to climate change).

The experiences of some German cities (Berlin, Dresden) teaches that in order to identify suitable areas for de-sealing interventions, a precise and constant recognition is necessary. The map of potential desealing areas should be accompanied by sheets containing information on their characteristics (soil sealing level, type of surface to be de-sealed, any presence of buildings, risk of pollution, possible destination of the area based on the municipal strategy).

The database will be made available to private operators called to carry out compensatory interventions.

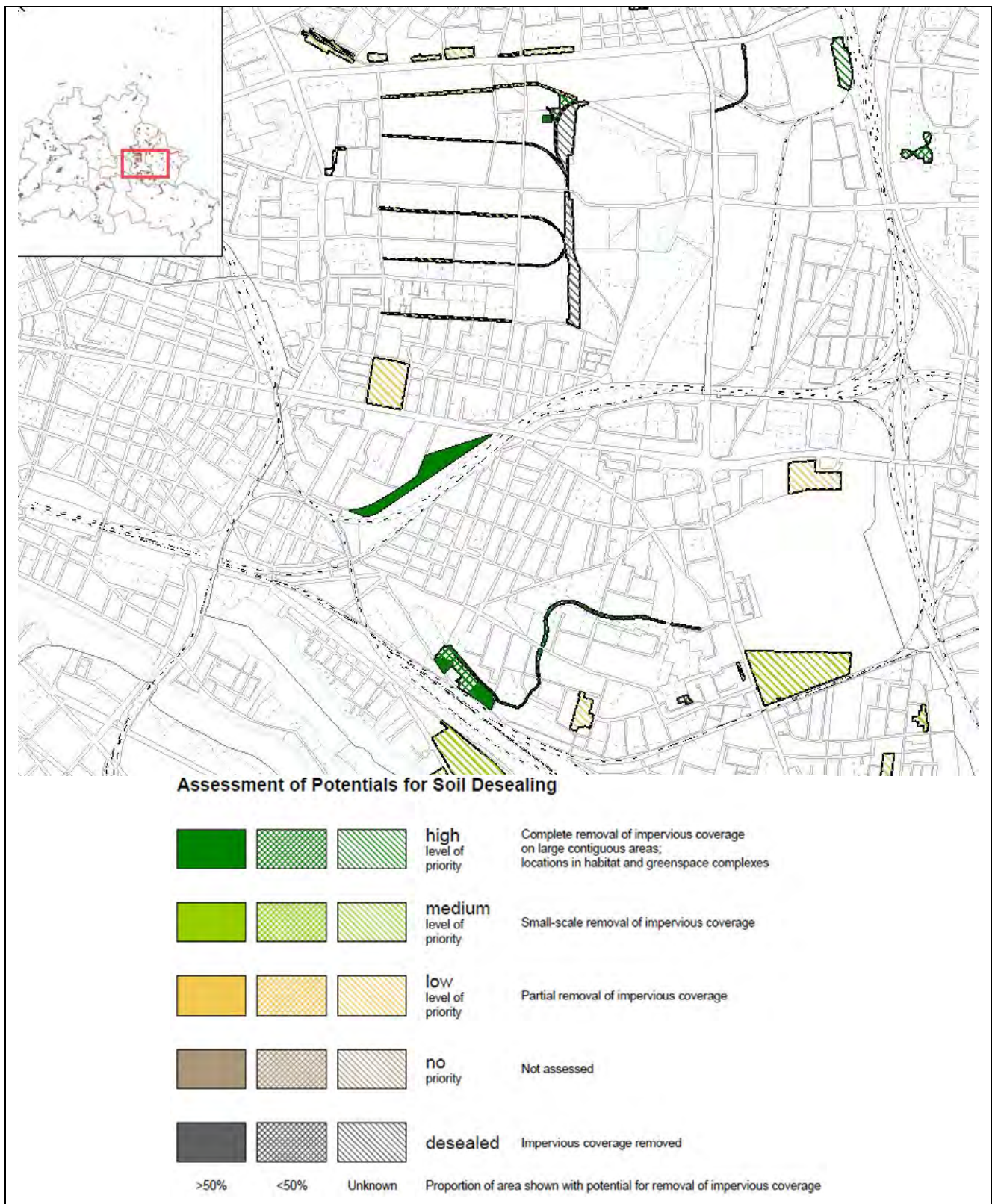
The type of areas that can be totally or partially de-sealed can include public and private areas in the city or in extra-urban areas: car parks, squares, road areas but also parts of abandoned industrial areas or disused rural buildings.

The municipal strategy, also according to the climate adaptation objectives, will have to establish a priority of intervention among the different areas to be de-sealed included in the database.

In some cases it will be more urgent to intervene on those areas which, once de-sealed, can help compensate for the drainage capacity of the sewerage networks or the surface water network, favoring the infiltration of water into the soil. In other cases, the need to counteract the effects of the urban heat island will be privileged, mitigating them with the creation of more green areas and with the inclusion of new trees in the de-sealed areas. Or the de-sealing could favor the completion of ecological corridors (for example by removing the manholes of some ditches to give continuity to the network of green and blue infrastructures).

AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions



Berlin – Map of potentially de-sealable areas

Considering that it is not easy to find areas for compensatory interventions and that the damage in terms of loss of ecosystem services cannot, however, be fully compensated, we

must always try to avoid land take.

Where there is a need to compensate, it is possible to consider compensating for the part of the surface that is subject to effective soil sealing, excluding the one that is left permeable. The preventive application of an index such as the Biotope Area Factor (BAF) can make it possible to reduce the amount of sealed surface to be compensated.

Emilia-Romagna Region

The Law of the Emilia-Romagna Region n. 24/2017 in art. 1 lists, among its objectives, *the containment of land take as a common good and a not renewable resource that performs functions and produces ecosystem services, also in terms of the prevention and mitigation of hydrogeological events and of mitigation and adaptation strategies to climate change.*

In art. 5 paragraph 1 it is specified that the Emilia-Romagna Region *assumes the objective of “non net land take by 2050”. For this purpose, the territorial and urban planning tools pursue the limitation of land take, through the reuse and the regeneration of the urbanized territory.*

The L.R. 24/2017 in art. 5 paragraph 5 introduces the reference to compensatory de-sealing: *land take is given by the balance between the areas for which the implementation urban planning provides for settlement transformation outside the perimeter of the urbanized territory and those for which the same urban planning establishes a destination that requires, within the same perimeter, de-sealing interventions, by removing the soil sealing.*

2.4.2 Qualitative compensation

A quantitative compensation, in the face of the consumption of new land, will inevitably be only a partial response.

Some of the ecosystem functions that were provided by the transformed soil will not be restored by the de-sealing intervention and the restoration with other soil.

Furthermore, the restored ecosystem functions may be of worst quality.

We must, therefore, consider that the damage which is created with the urbanization of a soil is not only quantitative but also qualitative and depends on the quality of the transformed soil, since soils are not all the same.

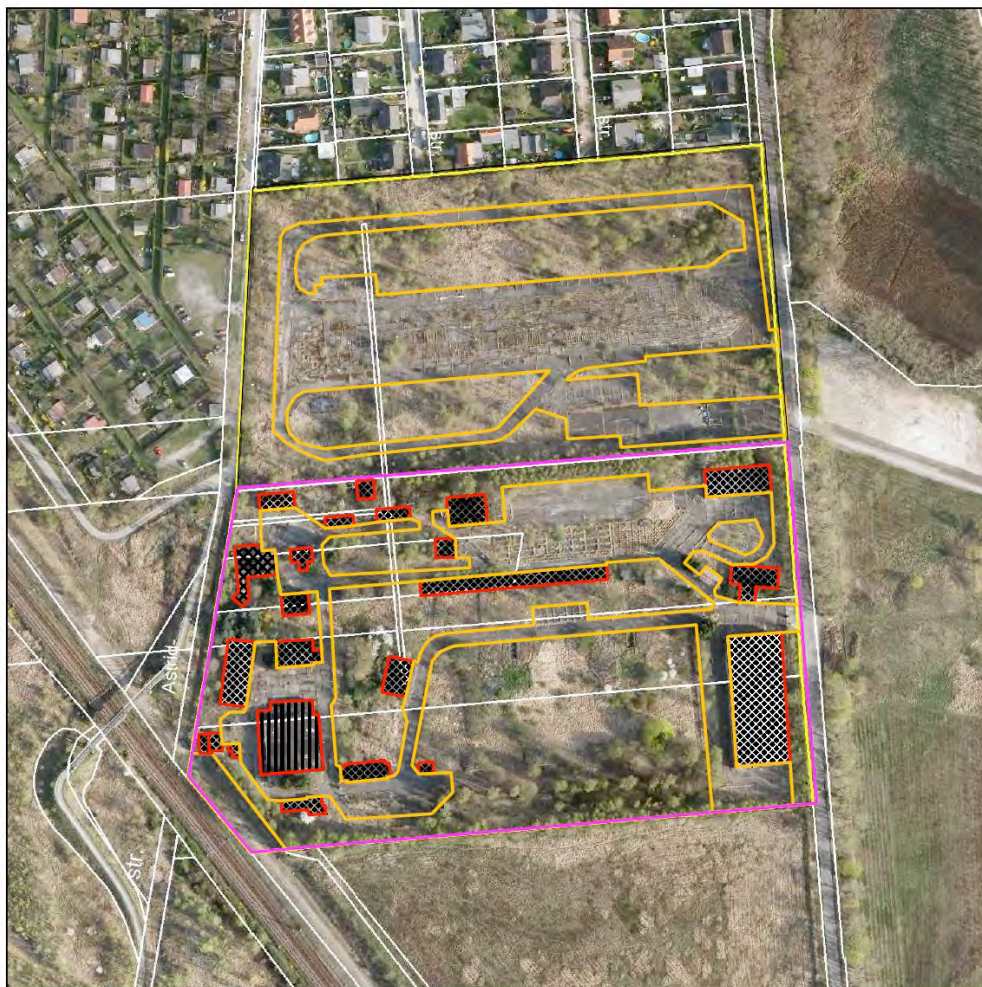
The mapping of the ecosystem services of a territory, which classifies the soils according to the quality/quantity of ecosystem services they provide, mentioned in the previous chapters, is an important tool for understanding the quality of the soil.











The Soil quality synthesis index map (which derives from the maps of ecosystem services) can offer us useful information for quantifying a correct compensation in the face of a transformation intervention that involved land take.

Compensation, in fact, should not only be quantitative but should also take into account a qualitative component which varies according to the quality of the soil being transformed (which can be deduced from the relative map).

AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions



Legende	Flächen (digitalisiert)
 Typ 1 - ungebundene Befestigungen	- 0 m ² (nicht vorh.)
 Typ 2 - Nebenflächen	- 29.500 m ²
 Typ 3 - Straßen	- 0 m ² (nicht vorh.)
 Typ 4 - Gleise	- 0 m ² (nicht vorh.)
 Typ 5 - Mauern, Einfassungen	- 2.184 m ²
 Typ 6 - Gräben	- 0 m ² (nicht vorh.)
 Typ 7 - Garagen	- 4.950 m ²
 Typ 8 - eingeschossige Gebäude	- 920 m ²
 Typ 9 - mehrgeschossige Gebäude	- 325 m ²
 Typ 10 - Sonderbauten	- 0 m ² (nicht vorh.)

Berlin - Example of an area to be subjected to de-sealing - with details of the various types of surfaces
https://www.berlin.de/sen/uvk/_assets/umwelt/bodenschutz-und-altlasten/arbeitshilfe-kostenansaetze.pdf

A compensation system should establish variable corrective coefficients of the surfaces to be compensated according to the quality of the soil consumed.

The corrective coefficients should also take into account the context in which the de-sealing

and restoration of the green or agricultural land is carried out.

De-sealing in an agricultural area (for example of a disused farm or other buildings no longer functional for agricultural use) must preferably be aimed at restoring the agricultural functionality of the soil, its production capacity.



Forlì – Example of disused agricultural property whose area can be recovered with demolition and de-sealing

A de-sealing intervention in contexts of greater environmental value must be aimed at the re-naturalization of the recovered spaces to create or reconnect ecological corridors and strengthen the network of green and blue infrastructures.

Urban de-sealing must primarily be aimed at improving the ability to adapt to climate change in that part of the city.

In particular, it must lead to an increase in permeable surfaces, to increase the infiltration capacity of rainwater and allow for better resistance to intense meteoric events and the related risk of flooding.

Just as it must, through the green arrangement and the planting of trees, help to combat heat waves and the phenomenon of the urban heat island by improving the microclimate and well-being of citizens and creating the conditions to better safeguard the health of the weakest part of the population.



Forlì – Car park in G.da Montefeltro Square which has been de-sealed

AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions



Forlì – De-sealing intervention in G. da Montefeltro Square

Finally, when evaluating an intervention that involves land take, planning to compensate it with an intervention of de-sealing and restoration of greenery, it must be considered that every de-sealing intervention involves the removal of materials (asphalt, concrete, flooring of various types and in some cases the demolition of buildings above) the quantity of which is proportional to the size of the sealed area.

From an environmental point of view, even the compensatory de-sealing intervention has a partially negative impact, because it produces material that can only be partially reused and that in part will inevitably end up in landfills (occupying other soil).



Forlì – Museum Gardens, G. da Montefeltro Square - Rendering

2.4.3 Roles and subjects involved in compensatory interventions

For the implementation of a compensatory intervention it is necessary to define the roles and subjects involved.

Compensatory interventions can be carried out:

- by private entity interested in building / urbanizing by consuming new soil;
- by the owner of an area identified by the Municipality among those of potential de-sealing;
- by the Municipality instead of the private entity (required to compensate) after monetizing them;
- by the Municipality to compensate for public interventions when foreseen.

Interventions carried out by private operators

The direct implementation by the private entity of the compensatory interventions requires the prior identification, by the Municipality, of the area on which to perform the intervention. The area to be de-sealed will be chosen by the Municipality on the basis of predefined priorities and will be functional to a more comprehensive municipal strategy.

In this case, it is advisable to prepare operational guidelines on how the de-sealing and, above all, restoration works must be carried out so that the quality of the intervention can be guaranteed (in particular when it concerns areas of public use).

Interventions carried out by the Municipality

The direct implementation by the Municipality, after monetizing the compensatory intervention, guarantees direct control in the execution of the works but presupposes the estimate of the costs of the works including any demolition of existing buildings, any reclamation costs (e.g. asbestos roofing or other), removal of sealed surfaces and restoration of soils with green arrangement.

The estimate allows you to quantify the amount that must be requested from the private operator for monetization.

The estimate of the costs of some more recurrent types of compensatory intervention can be a useful reference to allow private operators to evaluate the economic and financial sustainability of their interventions.

2.4.4 Agreement for the implementation of compensatory interventions

The implementation of compensatory interventions requires a prior agreement between the Municipality, the private entity who must implement the compensatory intervention and the owner of the area to be de-sealed (if different from the implementing entity).

The agreement must regulate the methods and timing of the compensatory intervention, the obligations of the implementing body and the owner of the area, the methods of control of the activity by the Municipality, must establish the guarantees and penalties in case of failure, incomplete or incorrect execution, any indemnity due to the owner of the area on the basis of rates predetermined by the Municipality, quantify any de-sealed surface credit that accrues from the intervention.

The private implementing entity is responsible for carrying out the compensatory intervention, the execution of which in a workmanlike manner is a prerequisite for the issue of the building permit relating to the intervention that involves land take.

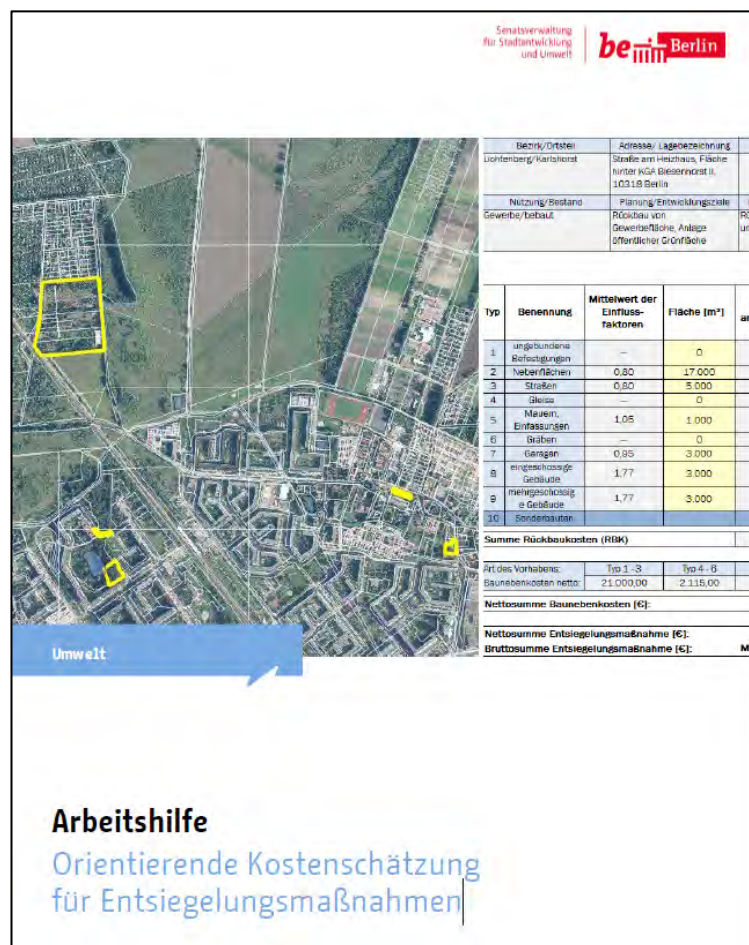
AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions

The owner of the intervention area (if different from the implementing entity) must make available and ensure access to the area/property owned for the execution of the de-sealing works (including possible demolition) and restoration of the soil.

The Municipality is responsible for the approval of the intervention project (which must comply with the established requirements), the control and verification of the compliance of the intervention as well as the recognition/registration of any "surface credits" deriving from de-sealing.

The agreement may be necessary not only for interventions by the implementing body or the owner of the intervention area, but also for regulating replacement interventions by the Municipality in the face of monetization.



Berlin – Estimating the costs of de-sealing interventions

https://www.berlin.de/sen/uvk/_assets/umwelt/bodenschutz-und-altlasten/arbeitshilfe-kostenansatze.pdf

2.4.5 Availability of the area to be de-sealed and "surface credits"

Even in the case of intervention by the Municipality, whether it is a substitute for a private entity or the need to compensate for a public work, the availability of an adequate area (or a stock of areas) to be de-sealed and restored cannot be ignored.

In the case of the monetization of the compensatory intervention, the responsibility for the compensation passes from the private entity to the Municipality which undertakes to carry it

out even at the same time as the intervention of the private who consumes soil.
The Municipality could defer the implementation of the intervention only in the absence of immediately available areas where the compensatory intervention can be carried out.
In the event of a temporarily depleted stock of potential de-sealing areas, the Municipality could also decide not to authorize any intervention that involves land take as it would not be able to guarantee its preventive or simultaneous balancing.
Compensation, however, could also be possible by making use of the so-called “surface credits” accrued from de-sealing interventions.

How to proceed depending on the availability of potential de-sealing areas	
<p><u>Stock of areas of potential de-sealing available</u></p> <p>The private implementing entity:</p> <p>A) Compensate by performing the de-sealing intervention directly and following the operational instructions provided by the Municipality</p> <p>B) Monetizes the compensatory intervention that is carried out by the Municipality</p>	<p><u>Stock of areas of potential de-sealing depleted or insufficient</u></p> <p>The private implementing entity:</p> <p>A) Compensate by making use of all or part of the surface credits registered against previous de-sealing interventions (by purchasing the credits necessary)</p> <p>B) Monetize the compensatory intervention. The amount paid to the Municipality is bound for this purpose. The Municipality carries out the compensatory intervention as soon as the area is found.</p> <p>The Municipality may not authorize land take until an area is available for compensatory de-sealing intervention</p>
<p>The choice of the areas on which to intervene primarily with compensatory de-sealing interventions is defined by the municipal strategy.</p>	

Notary study – Notary Alessandro Torroni (Forlì)

Surface credit

The surface credit is the active position of those who have carried out an intervention to de-seal an impermeable area to be regenerated which is returned to green or agricultural use, resulting in the right for the credit holder to consume a certain amount of permeable soil .

The surface credit does not accrue if the person carrying out the de-sealing intervention simultaneously requests a building permit that implies the consumption of soil.

Nature of the surface credit

The surface credit originates from a "facere", consisting in the de-sealing of an area in agreement with the Municipality and gives its holder the right towards the Municipality to "consume soil".

The connection with the area is only initial and consists in identifying the area to be de-sealed but the right of those who de-seal is of a personal nature as it gives the holder an express right, that of consuming soil, based on the rules and prescriptions contained in the municipal urban plan.

Since this is a faculty that can be exercised at the outcome of an administrative procedure, within which the public administration assesses the existence of various conditions, the aforementioned faculty falls into the category of legitimate pretensive interest.

2.4.6 Types of compensatory interventions

The extent and type of the compensatory intervention must be established by the Municipality on the basis of a predefined compensation system that can take into account, as described above, both the quantitative impact and a corrective to it according to the quality of the soil consumed.

In the following cases that analyze different types of intervention, a purely quantitative compensation is considered for simplification.

The cases vary according to the ownership of the area subject to the compensatory intervention and the person performing this type of intervention.

In some cases, the "surface credits" are used immediately in the face of interventions that consume soil ("land" therefore on an area other than the one from which they were generated).

In other cases, the "surface credits", not immediately used, must be registered for later use and to track any transfer of the same by subjects other than those who accrued them.

The registered "surface credits" remain frozen until the area in which they will "land" and will be used is identified.

The availability of appropriately registered "surface credits" makes it possible to remedy the lack of areas to be de-sealed for compensatory interventions.

- A. **Compensatory intervention carried out by the private entrepreneur on its own land** identified as an area of potential de-sealing on the map prepared by the Municipality. If this de-sealing and compensatory restoration is followed by the implementation of an equivalent intervention that consumes soil, the "surface credits" are immediately spent and do not require registration;
- B. **Compensatory intervention carried out by private entrepreneur X on land owned by Y** identified as an area of potential de-sealing on the map prepared by the municipality. In this case, entrepreneur X performs the compensatory intervention on property Y at his own expense and accrues the related "surface credits". The municipality, in the definition of its compensation system, could also consider that the entrepreneur X pays to owner Y a modest fee per square meter, with the amount being fixed in advance. This fee could constitute an incentive for owner Y (and other owners of suitable disused buildings) to make the area available for the compensatory intervention, thus feeding the stock of areas to be de-sealed. In any case, owner Y would have the advantage of not having to bear the costs of demolition,

de-sealing and restoration directly, and would end up with a redeveloped green or agricultural area (and, presumably, an increase in property value);

- C. **Compensatory intervention carried out by private entrepreneur X on land owned by the municipality (or other public body)** identified as a potential de-sealing area on the map prepared by the municipality. In this case, entrepreneur X carries out the de-sealing intervention in the municipal property or other public body at his own expense and does not pay any additional fee.
- D. **Intervention of de-sealing and restoration of the soil carried out by the Municipality or other public body on areas it owns in the absence of the need for compensation.** This type of intervention, which does not constitute direct compensation for land take, can generate "surface credits" which, after being registered, can be subsequently made available to private subjects who must implement compensation measures (typically in the case of unavailable or insufficient de-sealing areas) or can be used by the same Municipality (or other public body) that accrued them in case of need for compensation;
- E. **De-sealing intervention carried out by owner Y on an area inserted among those of potential de-sealing on the map prepared by the Municipality in the absence of the need for compensation.** In this case the owner Y carries out a de-sealing and restoration of soil on an area of his property at his own expense. The area, despite being among those mapped, has not yet been de-sealed and the owner don't want/cannot wait and decides to proceed independently. This type of intervention can generate "surface credits" which, after being registered, can be made available to other private entity who must implement compensation measures (typically in the case of unavailable or insufficient de-sealing areas);
- F. **Urban regeneration intervention carried out by private entrepreneur Z on areas of his property which determines a positive balance in terms of permeable surfaces restored to green compared to the pre-intervention situation.** This type of intervention can generate "surface credits" which, after being registered, can be made available to other private entity who must implement compensation measures (typically in the case of unavailable or insufficient de-sealing areas);
- G. **Compensation intervention carried out by the Municipality, after estimating the cost and monetization of the same by the entrepreneur X** who was responsible for carrying out the intervention itself. This is the case in which the Municipality prefers not only to control the execution of the intervention but to carry it out directly to ensure the highest quality (the Municipality of Dresden, for example, has taken the path of monetization and direct execution as a standard method since it has verified that the de-sealing interventions performed by the private entity did not always lead to a qualitatively satisfactory final result). It could also be the case where there are no more, public or private, areas of potential de-sealing available (depleted stock) and there are no "surface credits" available either. But in this case there would be an imbalance (temporary) as the compensation carried out by the Municipality would be implemented only when a suitable area was available but after the private intervention that involved land take has been carried out.

Similarly to case “F”, other interventions attributable to some previous cases could lead to an excess of “surface credits” compared to what is required by the Municipality for compensation. Also in such cases the excess “surface credits” could be registered and subsequently used directly by those who accrued them or by another person who acquired them.

All direct compensatory interventions or which allow the accrual of “surface credits” to be used subsequently must refer (in particular if they also include demolition of buildings) to legitimate properties.

Therefore, the verification / certification of the legitimacy of the area/property subject to intervention is a necessary pre-requisite.

2.4.7 Register and transfer “surface credits”

It is believed that the “surface credits” accrued and appropriately registered, similarly to what has been happening for some time for “building credits” (building potential), can be transferred onerously to private entrepreneurs who must implement compensation measures in the case of unavailable or insufficient areas of potential de-sealing.

The registration of the “surface credits” on a special Register, kept and updated by the Municipality, is therefore essential to keep track of the genesis of the same, the initial membership, subsequent transfers and finally their use for compensatory purposes.

In a compensatory system regulated by the Municipality, it is also appropriate that the value of these credits for the purposes of their transfer (not only their quantification in terms of square meters or other units of measurement) is predetermined by the Municipality.

The value of the credits could be established with reference to the costs of some types of standard compensatory interventions.

But in the presence of costs of carrying out the interventions exceeding the standard due to the presence of complex demolitions or remediation costs, the value of the credits could be determined specifically.

Notary study – Notary Alessandro Torroni (Forlì)

Transfer of surface credit

The transfer of surface credit is fully admissible (see Article 1470 of the Italian Civil Code “The sale is the contract which has as its object the transfer of ownership of a thing or the transfer of another right towards the consideration of a price”).

The legitimate claim interest, like a credit right simply hoped for or an expectation of law, can freely circulate, like a legal situation complete in itself.

Surface credit register

It is the register kept by the Municipality in which to note:

- the de-sealed area from which the credit originated;
- the surface of the de-sealed area;
- the value of the credit;
- the credit holder;

- the total or partial extinction of the credit for having been used, the qualification issued by the Municipality with which the credit was consumed;
- details (date, notary, repertory number) of any credit transfer deeds. The notary who authenticates the deed of transfer of the surface credit notifies the Municipality of the assignment for the purpose of recording in the appropriate register. The Municipality issues, at the request of the interested party, an extract from the register documenting the applicant's surface credit.

Taxation of the transfer of surface credit (in Italy)

- Transferor subject to VAT who performed the de-sealing activity. Where the sale is subject to VAT, the registration tax will be discounted at a fixed rate, in application of the principle of alternation between VAT and registration tax;
- If the transfer is outside the VAT range, the same will discount the registration tax pursuant to art. 9 of the tariff, first part, attached to the d.p.r. 26 April 1986, n. 131 (single text of registration tax) with the residual rate of 3%;

It is possible to consider the application, to the transfer of surface credits, of a favorable tax treatment initially envisaged for the transfer of the economic and social housing areas and extended to the deeds preordained for the transformation of the territory put in place on the basis of an agreement between the private sector and the public body (see article 32, paragraph 2, Presidential Decree 601 of 1973, article 20 of law no.10 of 28 January 1977, modified by article 1, paragraph 88 of law no.205 / 2017).

2.4.8 The reuse of topsoil in compensatory interventions

One of the objectives of the compensation intervention is the restoration, however partial, of the soil functions. The de-sealing of an area, in order to restore its permeability in the first place, is followed by the filling of soil functional to the creation of a green area or for agricultural use.

The soil necessary for the restoration of a de-sealed area, in a circular economy perspective, should come from an area that is urbanized: in which digging produces soil that, if not reused, risks ending up in landfills.

The topsoil is the most superficial horizon and the richest in organic matter in the soil. When an area is excavated, for a new urban transformation intervention, it risks being mixed with the underlying soil, being stored incorrectly and losing part of its characteristics.

As part of the SOS4LIFE project, guidelines have been drawn up for the removal, management and reapplication of the topsoil which want to provide operational support for the restoration of de-sealed areas.

These Guidelines are also available (in Italian and English version) in the documents section on the project website www.sos4life.it.

SUMMARY

- for a land take compensation system it is necessary to have a stock of potentially de-sealable areas;
- the areas of potential de-sealing must be mapped and filed, the database must be continuously updated;
- the compensation should not only be quantitative but should also take into account the quality of the soils consumed (for this purpose the Soil quality synthesis index map and the knowledge of quantity and quality of the ecosystem services provided by the various parts of the territory are useful);
- it is important to define operating procedures for compensatory interventions, specifying the roles of the parties involved and regulating them with an agreement;
- to support and facilitate the compensation system it is useful to provide for an exchange mechanism of "surface credits" accrued with compensatory interventions; for this purpose it is necessary to have a municipal register in which to note the accrued "surface credits" and to record their origin, transfers and uses;
- in compensatory interventions it is appropriate to adopt correct methods of recovery and reuse of the topsoil and the soil from urbanization construction sites (it is possible, even in the local area, to combine the demand and supply of soil).

3. SECOND PART - MEASURES TO PROMOTE URBAN REGENERATION

3.1 Premise

A paradigm shift is needed to stem land take. The growth model of our cities is no longer sustainable, neither economically nor environmentally. For a long time it was easier and it seemed cheaper to build new buildings on vacant areas than to work on abandoned areas and recover the existing building stock. The long-term costs, not only economic but also social, deriving from urban fragmentation, sprawl, and urban decay resulting from the abandonment of often central and strategic areas have not been considered.

Now that awareness of these costs and impacts is greater, we need to accompany and support the transition from a growth model based on expansion, on land take and consumption of other resources to a more sustainable growth model based on recovery, on reuse, on the circular economy.

Urban regeneration is an important opportunity to rethink and redesign our cities, to make them more usable, more accessible, safer, more resilient to climate change (and therefore also greener). The goal that we must and can pursue through urban regeneration is to improve the quality of life, well-being and health of the inhabitants.



Forlì – Urban regeneration “Ex Mangelli” area

3.2 Urban regeneration: the need for regulatory support

In addition to acting on the legislative side by introducing provisions at national and regional level to limit land take, the same laws must also impose urban regeneration as a priority and introduce rules to promote it.

As for land take, therefore, an initial intervention by the legislator is necessary, so that more favorable conditions are created to support this paradigm shift.

Let's take the Italian situation for example. In Italy, just as there is still no national law that establishes limitations on land take, there is no law on urban regeneration. There are several bills under discussion but the path to approving a shared text may still be long.

In the meantime, some Italian regions, as part of their competences, have adopted new urban planning laws which introduced limitations on land take and provisions to promote urban regeneration. The regulatory landscape, of course, is quite varied and lacks that uniformity of approach that could have derived from a national framework law.

However, these regional laws provide us with useful elements to understand how the issue of urban regeneration has been tackled and what tools and incentives have been put in place.

Let's take into consideration the recent legislation of Emilia-Romagna, which provides some examples of measures to promote urban regeneration.

The Emilia-Romagna Region, which had already introduced regulatory provisions on urban regeneration with the L.R. 19/1998, has adopted a new urban planning law, the L.R. 21.12.2017 n. 24 "Regional regulations on the protection and use of the territory".

This law has various objectives, including:

*a) **contain land take as a common good and non-renewable resource** that performs functions and produces ecosystem services, also as a function of the prevention and mitigation of hydrogeological events and of mitigation and adaptation strategies to climate change;*

*b) **promote the regeneration of urbanized territories and the improvement of urban and building quality**, with particular reference to the efficiency in the use of energy and physical resources, the environmental performance of artifacts and materials, the healthiness and comfort of buildings, compliance with anti-seismic and safety regulations, the quality and livability of urban spaces and neighborhoods, the promotion of social housing interventions and further actions for the satisfaction of the right to housing referred to in the regional law 8 August 2001, n. 24 (General discipline of public intervention in the housing sector).*

If the first chapter of the law is dedicated to "Zero balance land take", the second chapter is entitled "Promotion of urban reuse and regeneration" and presents a series of **measures to**

promote urban regeneration.

The law, in art. 7 establishes that the **tools of territorial and urban planning must favor the reuse of urban soils and their regeneration.**

The interventions of reuse and urban regeneration concern spaces and buildings, both public and private, to be qualified also through demolition and reconstruction, new construction and densification, and provide for the inclusion of new diversified functions, of social housing, of spaces and public service facilities. The interventions of reuse and urban regeneration are aimed at raising the standards of environmental and architectural quality

... ..

... .. In order to ensure a progressively increasing quality of urban settlements also in the framework of urban regeneration projects, the law promotes the adoption of national or international energy-environmental protocols (rating system), in support of the greater diffusion of sustainability in the construction and urban planning sector.

The law identifies as interventions of urban reuse and regeneration the following types of building and urban transformations of existing urban settlements:

- a) *the interventions of **"building qualification"**, aimed at carrying out the demolition and reconstruction of one or more buildings with the goal of raising the requirements of energy efficiency, seismic safety, sanitation and safety of facilities, and the goal of break down architectural barriers to promote accessibility. They are except for buildings in the historic center or of historical-testimonial interest for which there is a specific discipline of intervention; these are implemented with **direct intervention**;*
- b) *the **"urban renewal interventions"** that are implemented with **building permission with agreement**;*
- c) ***"urban densification or replacement"** interventions, or urban redevelopment processes, even incremental, referring to strategic areas of the city or degraded, marginal, abandoned, poorly built; these interventions are implemented through **operational agreements** (urban development plans of private initiative) or implementing **public urban plans**.*

The regional law to promote urban regeneration grades the type of implementation tool according to the complexity (and size) of the intervention itself.

But what most supports this type of intervention is provided for in the following art. 8 "Urban planning incentives for urban reuse and regeneration interventions".

The law distinguishes between what can be done inside or outside the perimeter of the urbanized territory, reserving the following incentives only for interventions inside the existing urban core:

- a) *the **extraordinary contribution**, referred to in article 16, paragraph 4, letter d-ter), of the decree of the President of the Republic no. 380 of 2001 (the extra-urbanization*

*charge due in the event of a variant that changes the urban parameters and / or the intended use) **does not apply within the urbanized territory**;*

- b) for urban renewal, building renovation ,densification or urban replacement within the urbanized territory, **the construction contribution is reduced** by no less than 35% compared to that envisaged by the regional parametric tables. Municipalities have the right to resolve further reductions in the construction contribution, up to the complete exemption from it, in particular for urban densification or replacement interventions that require the reclamation of polluted soils or the removal of asbestos and other materials dangerous for health or significant shares of desealing;*
- c) the PUG (General Urban Planning Plan) may provide that, in the operational agreement and implementation plan of public initiative, **building rights and other additional bonuses** are recognized for urban densification or replacement interventions, subject to verification of the sustainability of the related urban load and in coherence with the forecasts of the strategy for urban and ecological environmental quality;*
- d) for direct building qualification and urban renewal interventions, the PUG may also provide for the **recognition, at the time of issuing the building permit, of building rights parameterised to the rating obtained in the context of an energy-environmental certification protocol** and the degree of improvement in energy efficiency, anti-seismic safety and sustainability of the building compared to its original condition;*
- e) in order to favor the implementation of public housing and social promotion policies established by the strategy for urban and ecological environmental quality, operational agreements and public initiative implementation plans may **recognize additional building quotas, to compensate hired by the private operator to create, as part of the urban reuse and regeneration intervention, a share of social residential housing or public works with a social purpose;***
- f) the PUG may provide for **other forms of incentive for urban reuse and regeneration interventions linked to the design quality of the interventions**, such as, by way of example: compliance with the technical requirements of the building works higher than the minimum levels required by the regulations in force; the creation and management of ecologically equipped areas; the observance of the bio-architecture criteria; the construction of cohousing settlements and other innovative residential interventions to respond to the housing problems of weak social categories.*

Furthermore, the PUG may regulate the transfer and contextual relocation of the building quantities referred to in points c), d) and e) above, to be implemented exclusively through an operational agreement or implementation plan of public initiative and on areas located in the urbanized territory for which the PUG admits this possibility.

Paragraph 1 letter c) of art. 9 establishes that: *without prejudice to compliance with the*

*provisions of indirect protection established by Legislative Decree 42/2004 (Code of cultural heritage and landscape) and the provisions of the PUG on buildings of historical-architectural, cultural and testimonial interest, the **building agreements relating to urban renewal interventions, operational agreements and public initiative implementation plans that regulate urban densification or replacement interventions are not required to comply with the building density limits and building heights** referred to in articles 7 and 8 of ministerial decree 2 April 1968, n. 1444 (Mandatory limits of building density, height, distance between buildings and maximum ratios between spaces intended for residential and productive settlements and public spaces).*

Further cases of exceptions to respect for the **distance from other buildings, in urban reuse and regeneration interventions**, are provided for in art. 10.

Article 11 provides for some **procedural simplifications** for urban reuse and regeneration interventions.

Art. 12 provides for the possibility that the Region grants **contributions for urban reuse and regeneration interventions**.

Art. 15 introduces the obligation for the Municipality to equip itself with a **register of properties made available for reuse and urban regeneration** and to prepare graphical drawings to facilitate their identification. The register may include properties owned by the municipality or other public bodies, but also owned by private individuals.

With art. 16 provides for the possibility for the Municipality to allow the **temporary use of buildings and urban spaces that are abandoned** or in the process of being disposed of for uses other than those permitted. This faculty has the purpose of activating processes of recovery and enhancement of the existing building stock and to favor the development of economic, social and cultural initiatives.

Laws of other regions contains explicit references to urban regeneration as a strategy to combat land take and encourage the recovery of existing buildings.

In many cases these incentives consist of volumetric bonuses or disincentives are provided for interventions that take soil by applying increased construction contributions.

The presence of a national or regional law is therefore a pre-requisite to provide a regulatory framework for urban regeneration interventions and to implement the main incentives.

Taking as an example the L.R. 24/2017 of the Emilia-Romagna Region we can summarize some of the incentives or tools that a law can provide to promote urban regeneration:

INCENTIVES OR TOOLS THAT MAY BE DETERMINED BY LAW

- procedural simplifications (in particular with respect to other interventions involving land take);
- reduction of contributions that the private operator must pay to the Municipality (eg extraordinary contribution due in case of urban changes and reduction of the construction contribution);
- granting of additional building rights and other bonuses;
- exceptions to some building parameters (density, heights, distances)
- granting of public funding / grants as part of urban regeneration plans and programs
- register of properties available for reuse and urban regeneration
- temporary uses.



Forlì – Area to be regenerated ex Eridania

These more stable tools / incentives, if codified by law, can be accompanied by other temporary ones having the nature of tax concessions aimed at favoring the energy and seismic recovery and requalification of the existing building heritage. These tax concessions

(tax deductions, reduced VAT) concerned building renovations, anti-seismic interventions (sismabonus), the 110% bonus (set of interventions aimed at improving the energy performance of existing buildings) in Italy, also playing an important role in relaunching the building sector, orienting it more towards urban regeneration.

In addition to favoring the recovery of the existing building stock through tax concessions and providing volumetric bonuses and other incentives, it is necessary to support the urban regeneration strategy and the connected strategy to combat land take with **a multi-year plan of public investments**.

From this point of view, the planning of state financial resources for urban regeneration in the long term (500 million euros per year for 20 years) which is contained in the Bill "Measures for urban regeneration" in discussion in the Senate.

If this were confirmed, sufficient resources would be available to implement urban regeneration plans, which mainly will be the responsibility of the Municipalities.

As regards the debate in Italy relating to urban regeneration, and also to the related evolution of national and regional legislation, it is possible to refer to both the National Institute of Urban Planning (INU) - <https://www.inu.it> - which deals with this theme repeatedly (in its own periodical magazine and in the numerous events organized such as Urban Promo) both at the Disused Urban Areas Association (AUDIS) - <http://audis.it/home> - which for over 25 years has been active with the objective of supporting public and private operators engaged in urban regeneration processes (and has produced various studies and researches including the "Urban Quality Matrix", the "Urban Regeneration Charter").

3.3 Remediation

When it comes to urban regeneration, since, in many cases, it coincides with the recovery of abandoned industrial areas, it is inevitable to address the issue of environmental remediation.

The impact of remediation (in terms of time, procedures and costs) on urban regeneration processes is often very significant and constitutes a disincentive to intervene in brownfields. The AUDIS Association has addressed this issue on various occasions, comparing private operators and public technicians (<http://audis.it/dall-associazione/-il-suolo-circolare-i-materiali-del-convegno/>).

To encourage urban regeneration, to make it feasible even in the case of contaminated sites, it is important to coordinate urban planning regulations with environmental ones, with particular reference to the procedures of program agreements.

Just as, by law, it is useful to give the municipalities the tools to intervene (even with the possibility of expropriation for public utility) in the event of inaction by the owners of contaminated areas.

In the presence of large areas that would require high recovery costs, it is preferable to

promote slower remediation technologies (eg bio-remediation), allowing compatible temporary uses and providing for state and regional contributions to support the interventions implemented by local authorities.

Remediation should be designed and implemented following criteria of greater sustainability, using risk analysis and promoting "in situ" remediation to limit excavation and disposal (with consequent displacement of the polluted soil to another area).

To support the remediation activities and, therefore, favor the regeneration of contaminated areas, tax reliefs can be effective (always suggests AUDIS), as well as deductions of part of the remediation costs from the urbanization costs due to the Municipalities, procedural simplifications by unifying authorization and control competences up to the recognition of the public interest of the remediation for the most strategic areas.

3.4 Map of urban regeneration areas

Law 24/2017 of the Emilia-Romagna Region provides for the establishment of a Register of properties available for urban reuse and regeneration interventions.

This Register includes municipal buildings but also buildings that other public bodies and private entities make available.

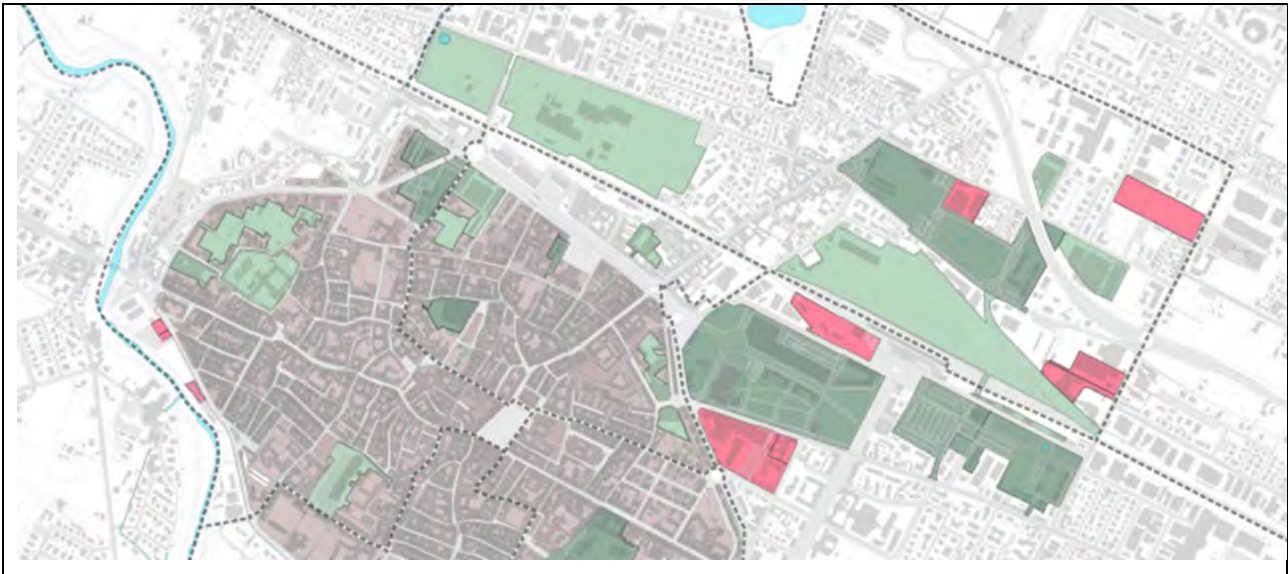
The Register must be accompanied by cartographic drawings that facilitate the identification of the properties.

Mapping the areas to be regenerated and preparing the relevant information sheets is very useful because it allows, for each of them, to know the characteristics, the potential, to estimate any remediation risks.

Maps and information sheets are useful in the planning phase to establish what is the contribution that the regeneration of these areas can make to the overall urban strategy (which functions they can host, which territorial facilities they can offer) and to define intervention priorities.

When implementing the provisions of the general urban plan, the location and description of the characteristics of these areas can facilitate private operators in identifying those most suitable for residential, tertiary-commercial or production functions and facilitate their recovery.

The mapping, in particular of unused and abandoned spaces, is also useful for stimulating temporary reuse.



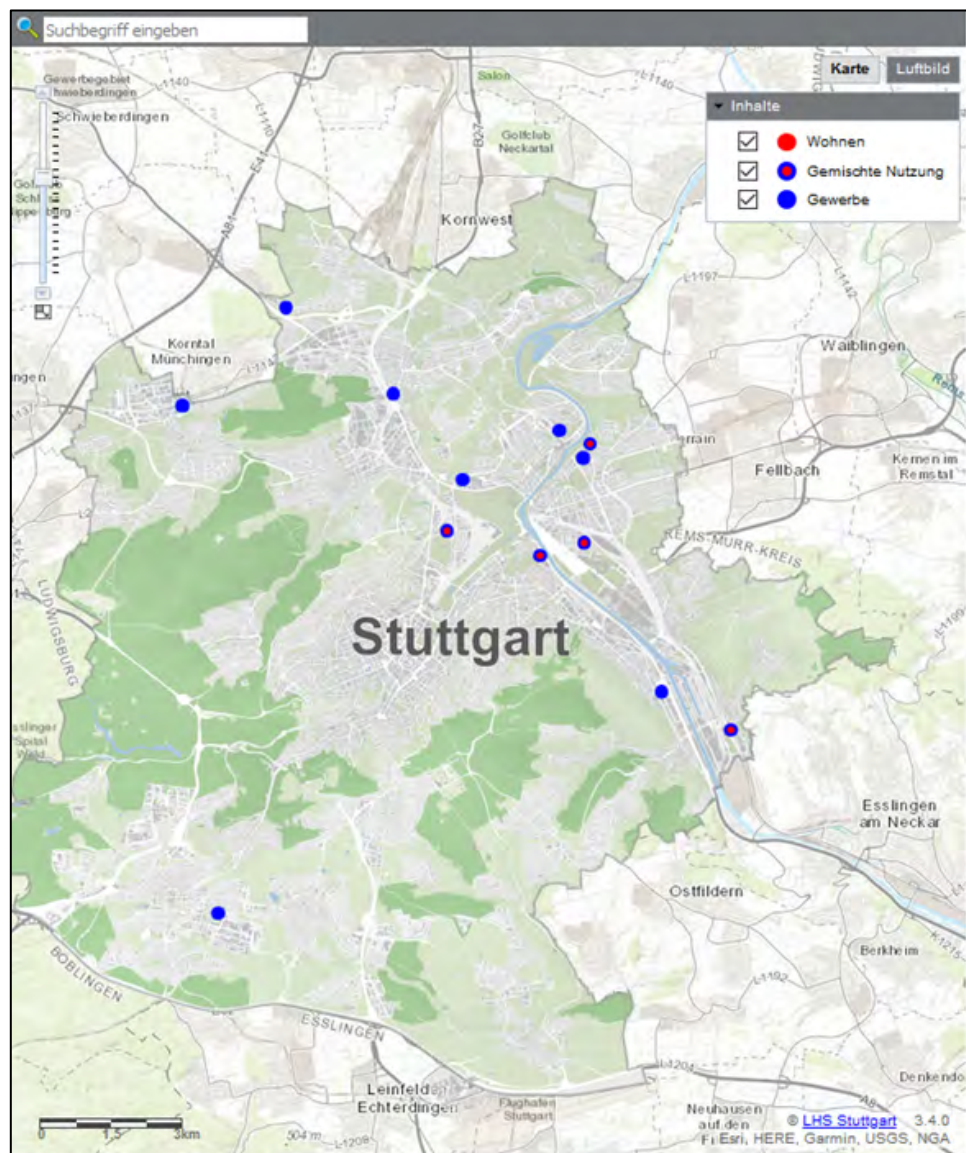
Forlì - Extract of the map of the areas to be used for urban regeneration interventions

An interesting example is that of the Municipality of Stuttgart (Germany) which, in order to support its strategy of reconversion of abandoned urban areas, has prepared a mapping of these areas. The map of the urban regeneration areas is available on the municipal website and is periodically updated. An information sheet has been prepared for each area: land area, building potential, description of the area, location, accessibility for vehicles and via local public transport. A general destination (residential, mixed, commercial) is also indicated with further details on possible uses. The sheet also highlights whether the area is potentially contaminated and environmental remediation is likely.

In the map below, for example, the blue dots indicate the sites to be redeveloped for commercial use, the red dots indicate the residential sites, and the red and blue ones indicate the mixed destination.

AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions



Database of the areas to be regenerated in Stuttgart (Germany)

**NBS-
Stuttgart 21 - Teilgebiet C1 (Innerer Nordbahnhof/Wagenhallen)Nr. 625**



Stadtplan



Luftbild



Standort

Am nördlichen Cityrand im Gebiet des Entwicklungsprojekts Rosenstein (Umnutzung ehem. Bahnflächen). Fußwegverbindung zu innerstädtischen Grünflächen (Rosensteinpark, Unterer Schlossgarten, Grünes U). Durch Citynähe alle örtlichen und überörtlichen Infrastruktureinrichtungen vorhanden. Die berufliche Schule für Gesundheit, Pflege, Ernährung und Sozialwesen an der Heilbronner Straße, in direkter Nachbarschaft zum Kulturzentrum Wagenhallen ist fertig gestellt. Die Renovierung der Wagenhallen wurde im Herbst 2016 durch den Gemeinderat beschlossen. Bürgerbeteiligung Rosenstein gestartet. Die Fläche wird nach Fertigstellung des Verkehrsprojekts Stuttgart 21 frei. Bis dahin wird sie als Fläche für Baustellenlogistik genutzt. Infos zum Stadtbezirk: [S-Nord im Internet](#)
Infos: [Bürgerbeteiligung Rosenstein](#)

Verkehrliche Situation

Über Nordbahnhofstraße Anschluss an das überörtliche Verkehrsnetz (B10 / B27), Direktanschluss an B10/Rosensteintunnel geplant.
S-Bahn- und Stadtbahnanschluss in ca. 300 m Entfernung (1 bzw. 4 Stationen bis Hauptbahnhof).

Grundstück

Ca. 11,5 ha

Realisierbare Geschossfläche

Ca. 200.000 qm insgesamt

Eigentümer

LH Stuttgart

Derzeitige Nutzung

Baulogistik S21, Künstlercontainer, Urban Gardening als Zwischennutzungen.

Planungsrechtliche Situation

FNP Stuttgart: Gemischte Baufläche (M). Sanierungsgebiet (Altlastenverdacht). B-Plan erforderlich

Example of sheet of an area to be regenerated - Stuttgart (Germany)

<https://gis6.stuttgart.de/nbs/stpInbs.html>

3.5 Incentives and local contributions

On the one hand, the municipalities can, hopefully, make use of the provisions of the law (state or regional) that promote urban regeneration, on the other hand, to strengthen and support their strategy at the local level, they can implement other tools or incentives.

What a municipality can do is mainly dependent on local taxation and the possibility of allocating resources in its budget.

- increase in the reduction of the construction contribution to be paid to the Municipality for certain types of interventions for the recovery of existing buildings and for urban regeneration;
- reduction / exemption from payment of the public land occupation fee for all construction sites in the historic center and / or relating to the recovery of existing buildings or urban regeneration;
- reduction of other local taxes (eg municipal property tax, waste tax, etc.) for interventions on existing building stock;
- non-repayable municipal contribution (or interest rate contribution for mortgages) for the restoration of the facades and common parts of the buildings.

In addition to facilitating and supporting the interventions of citizens and private operators through tax relief or granting of contributions, the Municipality can participate directly by carrying out public works and redeveloping public spaces and buildings. These interventions can improve the quality of the urban context, reduce any existing degradation, lead to an increase in spaces and public services, stimulating urban regeneration interventions by private individuals.



Forlì – Historic center - University Campus created by the conversion of the former hospital area

3.6 The importance of citizen involvement

Urban regeneration must be planned, first of all, by public administrations, must be a priority and must have a central role in urban development strategies, but must also make use of all the contributions that may derive from private operators and technicians and citizens.

Urban regeneration is an often complicated process that can take a long time. The areas that can be the subject of urban regeneration interventions are, by now, many in all cities (but there are also in extra-urban areas). These areas have different characteristics and potentials, determined by the previous use, by the location, by the accessibility, by the context in which they are inserted, by environmental problems.

For some areas, regeneration is activated and materialized because the vocation is clearer and a public or private interest in their recovery is manifested.

For other areas, the regeneration process can be longer, and often, the spontaneous initiative of more structured associations or simple groups of citizens with a common interest makes the difference and acts as a trigger.

3.6.1 Temporary reuse

Temporary reuse can be provided for by law (see the example of Law 24/2017 of the Emilia-Romagna Region) but more often it is a way of approaching the recovery and reuse of existing buildings that is not codified and, as evidenced by numerous experiences, comes from below.

Temporary reuse can concern both private buildings and public buildings, disused, unused, abandoned.

Temporary reuse eliminates situations of degradation and helps to develop economic, social and cultural initiatives.

Temporary use can facilitate the triggering of an urban regeneration process that leads to the recovery of the property. The effects of this reuse can reverberate in the surrounding urban context, bringing a benefit in terms of overall enhancement.

The regeneration process can confirm the temporary use, which is consolidated and becomes definitive, but it can also lead to a different final destination which, however, has been made possible by the interest (including economic) for that area / property that the temporary reuse has generated.

At a regulatory level (regional or state) it is appropriate to encourage temporary reuse precisely because of its ability to bring out unexpressed potential and draw attention to abandoned areas / buildings showing a possible use.

Regulating temporary reuse is useful.

Law 24/2017 of the Emilia-Romagna Region provides that the Municipality may allow the

temporary use of disused buildings, for uses other than those permitted. Temporary use, for the implementation of initiatives of significant public interest, does not change the intended use of the property units concerned. In the absence of building works, it is implemented without a qualifying title. The criteria and methods of use are governed by a specific agreement between the private manager and the Municipality.

Certainly, the activation of temporary uses does not exempt from compliance with some regulations (e.g. safety, sanitation, monumental protection) that apply in the construction sector.

But it is advisable, in order not to inhibit possible recovery initiatives, that the Municipality agrees internally (among the various offices) and with some external bodies (Local Health Authority, Fire Brigade, etc.) that may be called upon to express themselves on the use temporary property, operating methods that can facilitate the reactivation of abandoned spaces and buildings.

There are now many experiences of temporary reuse all over the world.

In Italy, various associations and professionals are involved in the design, promotion and implementation of temporary reuse interventions.

Temporiuso (www.temporiuso.org), an association of Milan, active for some time on these issues, has also published a "Manual for the temporary reuse of abandoned spaces in Italy" in which it presents a series of European case studies (Milan, Brussels, Amsterdam, Zaragoza) and provides, on the basis of its experience, instructions and useful suggestions to activate temporary reuse projects.



www.temporiuso.org

Officina Meme Architetti (in Ravenna) is an architecture studio and innovative Start-Up specialized in process strategies and urban regeneration design, in particular for the management of territorial transformations.

An example of their activity in this field is the Darsena Pop Up project in Ravenna.

The Darsena Pop project

Up is a redevelopment and social activation intervention, strongly linked to the harbor identity of Ravenna driven by the desire to continue the redevelopment process of the city dock, promoted by the Naviga in Darsena Association. It is a pilot project for temporary reuse aimed at creating a new sports-recreational sector at the service of the community and is based on three fundamental principles: sociality, innovation and sustainability.

Thanks to the shared path between private investments and local authorities, the city dock of Ravenna is re-appropriating a new life by linking the old establishments conceived for the harbor to new aggregative needs linked to free time, everyday life and culture, becoming a new attractive pole for the city and for the citizens.

(Source <https://officinameme.com/portfolio/darsena-pop-up/>)



<https://officinameme.com/portfolio/darsena-pop-up/>

Another interesting experience is that of the “Spazi Indecisi” Association (in Forlì)

<https://www.spaziindecisi.it/>

Spazi Indecisi, as they define themselves, are a multidisciplinary research reality on the urban regeneration of abandoned places, on their management and on their relationship with the landscape, the city and its communities.

Spazi Indecisi facilitates, promotes and creates, in collaboration with public institutions, private properties and communities, social innovation projects in the following areas:

- cultural regeneration
- temporary and urban regeneration

AZIONE B.3.2

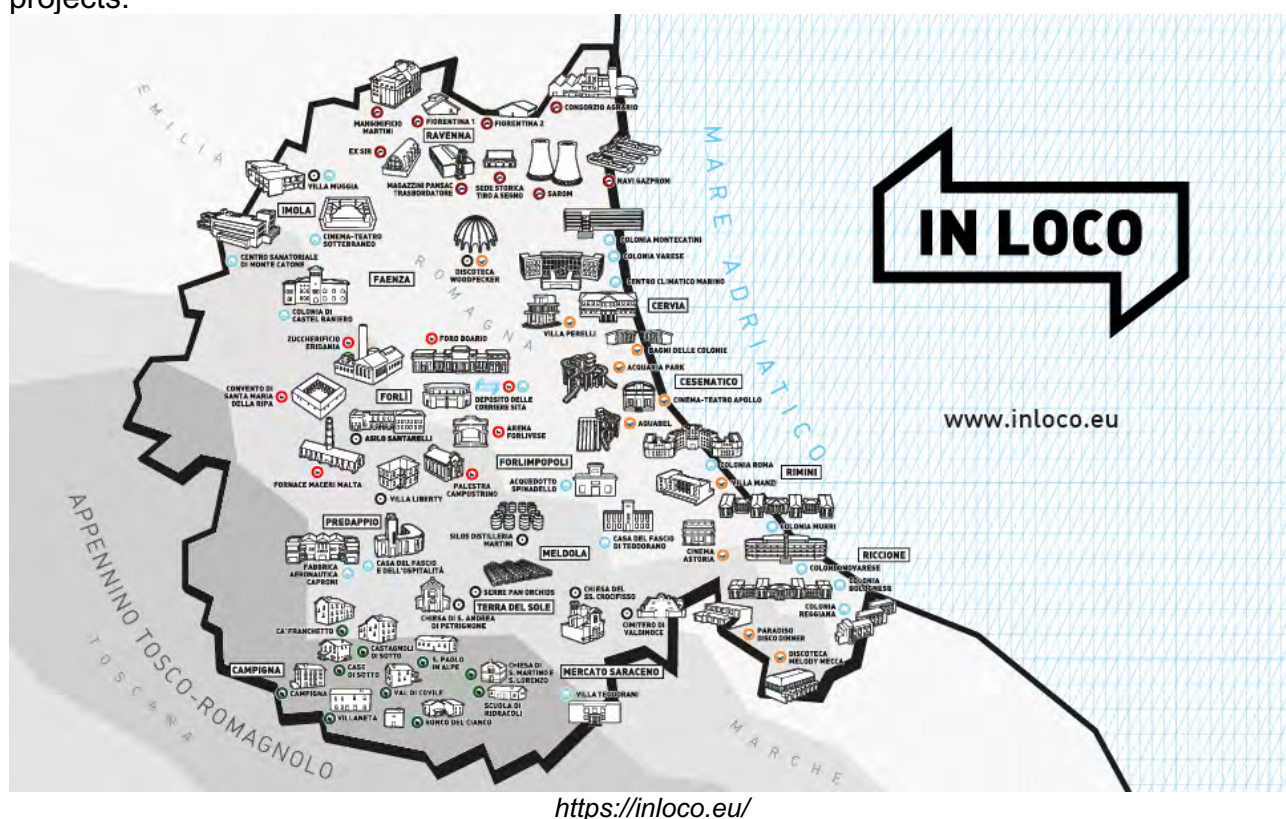
Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions

- network and system projects.

An ongoing project is "In loco - Diffuse museum of abandonment" which, starting from the initial mapping of abandoned places in Forlì and its surroundings, has progressively extended to the entire area of Romagna.

The goal is to make known this heritage of public and private places that is in danger of being forgotten and that, instead, can and must be valued.

The Museum becomes a platform that stimulates temporary and permanent reactivation projects.



In terms of temporary reuse, the Spazi Indecisi Association, together with the City of Ebla Association in collaboration with the Municipality of Forlì and ATR, the Romagna public transport agency, have given life to the "EXATR" urban regeneration project to transform the old Forlì bus depot in a cultural hub.

The temporary reuse of the EX ATR premises began in 2010 and continues, while structural consolidation works are being carried out and others are being planned that will lead to a definitive recovery.

EXATR is a hub that connects arts, universities, creative industries and business, an artistic and cultural workshop, an urban regeneration laboratory, a space for art and creativity and a place for social innovation.



<http://exatr.it/>

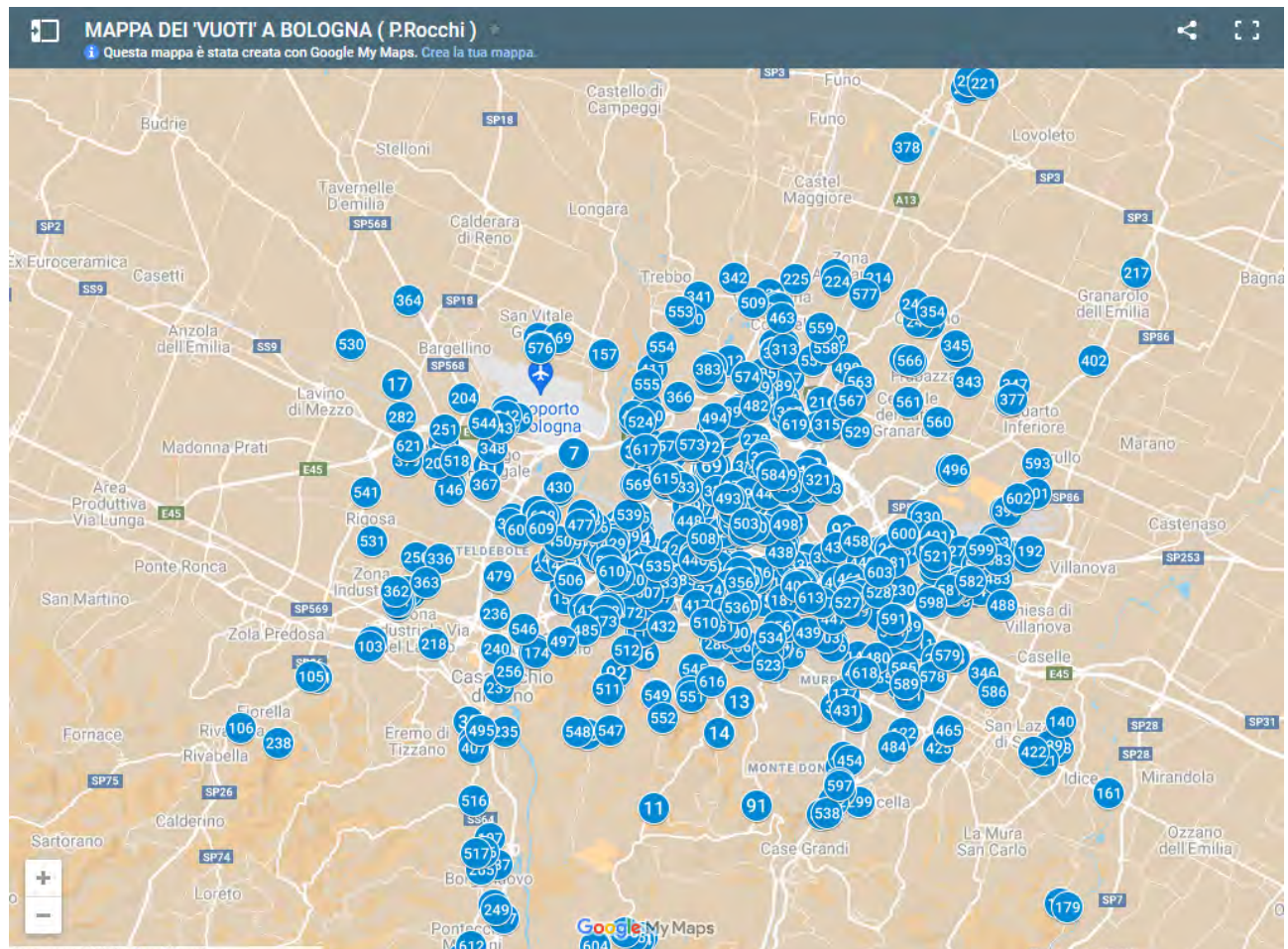
Another very active association in the field of urban reactivation and regeneration projects with temporary use contracts is Planimetrie Culturali (in Bologna).

AZIONE B.3.2

Guidelines for a land take compensation system (de-sealing and surface credits exchange) and measures to promote urban regeneration interventions

<https://planimetrieculturali-aps.org/>

Even the "Planimetrie Culturali" association on its website highlights how the first step for a regeneration project is the mapping of spaces (disused, abandoned, transformed spaces). A mapping of these spaces in the Bologna area is available on the association's website



Map of urban voids (areas and buildings, private and public unused or abandoned)
<https://planimetrieculturali-aps.org/vuoti-urbani-2/>

The Association designs and implements what it calls "Cultural remediation".

With the "Cultural remediation" project, a dozen innovative paths for the rehabilitation and temporary management of abandoned spaces have been launched, with the aim of keeping the buildings running, avoiding areas of petty crime, creating opportunities for socializing and working. The "Cultural remediations" are part of that period of time that elapses from the disuse of a property until the moment in which the "work begins" for its new destination (reconversion, dismantling, transformation, etc). The Association starts from a careful analysis of each area or building (taking into account the geographical position that these spaces have in the city), the structural peculiarities and the potential that each place expresses. One of the most interesting projects of the Association was that relating to the Ex Samputensili of Bologna, a disused metalworking workshop of 12,000 square meters, reactivated for a few years as a cultural space (called "Senza Filtro") thanks to the collaboration with various Associations that have appropriated of the space returning it in

the form of areas for Sport, Art, Culture, Video Production, Carpentry, Hostel, Dance School, Personal Service Offices (children's area, teaching Italian to foreigners, integration paths with people tested, etc.) open to citizenship.

In 2019 the "Planimetrie Culturali" Association was awarded (as leader of a team extended to some professionals) a public tender promoted by the Emilia-Romagna Region and IBC (Institute for Cultural and Natural Heritage) for the presentation of multidisciplinary projects for the mapping and cultural regeneration of the nine municipalities of the province of Modena affected by the 2012 earthquake.

The "Craters" project was born. With this project, a mapping of 30 spaces and buildings was created, training workshops on the themes of temporary reuse and workshops with schools in preparation for participatory courses open to all citizens were organized.

The importance of the role of the territorial activator (a specialist in guiding and triggering these processes) has matured from the Association's innovative experiences.

These experiences return an important consideration: if innovation is to keep up with the times, the city must be a test and experimentation ground. And above all, many of the successful experiences did not require large initial economic investments, but activation and mobilization by the people.

The Emilia-Romagna Region, starting from the L.R. 24/2017 which promotes temporary uses in order to promote urban regeneration processes, has activated "Hub - Temporary Uses", an online space in which to share experiences and best practices, which is also a physical space to promote information and training, to facilitate through participatory methods the networking of projects and the construction of moments of co-planning on these issues.

(<https://territorio.regione.emilia-romagna.it/qualita-urbana/rigenerazione-urbana/usi-temporanei/hub>)

3.6.2 Active participation of citizens

If in a first phase the urban regeneration coincided only with the recovery of large brownfield sites by private operators or with redevelopment interventions by public entities, for some time now has been established a different mode that sees citizens as active players in interventions of micro-regeneration aimed at the reappropriation of public goods and spaces. In Italy, Article 118 of the Constitution (as amended in 2001) provides that: "State, Regions, Metropolitan Cities, Provinces and Municipalities favor the autonomous initiative of citizens, single and associated, for the performance of activities of general interest, based on the principle of subsidiarity".

Without prejudice to the role of public bodies, the amendment to the Constitution recognizes the possibility for citizens (not necessarily associated but also individually) to act independently in the general interest and to take care of public affairs, providing that public institutions support the initiative.

This possibility has materialized in a tool that today, in Italy, is beginning to be quite widespread among public administrations: the regulation on collaboration between citizens and the administration for the care and regeneration of urban commons.

The first Italian municipality to adopt this type of regulation in 2014 was the Municipality of

Bologna, followed by Siena and many other local administrations (including Forlì).

Bologna had started the promotion of active citizenship and civic participation projects through a public notice already in 2012.

According to the monitoring by the "Labsus laboratory of subsidiarity" Association (<https://www.labsus.org/>), which for some years has been involved in active participation, and which collaborated in the preparation of the Bologna regulation, are already 247 the regulations adopted by public administrations (mostly Municipalities or Unions of Municipalities).

The 2019 Report by Labsus found 830 collaboration agreements. The most active cities were Genoa (232 agreements), Bologna (135 agreements) and Pistoia (71 agreements).

The Labsus laboratory aims to disseminate knowledge of the subsidiarity principle and promote its implementation by developing ideas, collecting and sharing experiences, promoting events and training on this topic.

In local public administrations, awareness has grown of how precious the involvement of the community can be in the management of common goods, even more in a context of scarcity of economic resources. But the contribution of citizens in maintenance and management activities is also essential to increase their responsibility in the care of common goods, their feeling of being part of a community.

The "regulation" governs the forms of collaboration of citizens with the administration for the care and regeneration of urban commons.

From the "Regulation" of the Municipality of Bologna:

Collaboration with active citizens can provide for different levels of intensity of shared intervention on public spaces and buildings, and in particular occasional care, constant and continuous care, shared management and regeneration.

Citizens can carry out interventions aimed at:

- *integrate or improve the maintenance standards guaranteed by the Municipality or improve the liveability and quality of the spaces;*
- *ensure the collective usability of public spaces or buildings not included in the municipal maintenance programs;*
- *carry out interventions, technical or financial, for the regeneration of public spaces and buildings.*

Citizens, individually or in association, can formulate, pursuant to this regulation, collaboration proposals to implement interventions with the aforementioned purposes.

Collaboration proposals are evaluated to verify their feasibility and also their compliance with the Municipality's programs.

If the requisites are met, the proposals take the form of "collaboration agreements" that define objectives, duration, implementation methods, methods of use of the common goods affected by the intervention, insurance and liability coverage, any guarantees, forms of support made available by the Municipality, monitoring, coaching of municipal staff and supervision of the progress of the collaboration.

The collaboration agreement may have as its object regeneration interventions of public or private spaces for public use, to be carried out thanks to a total or prevalent economic contribution from active citizens.

The Municipality is responsible for the periodic identification, within the municipal real estate assets, of buildings in a state of partial or total disuse and deterioration which, due to their location, structural characteristics and functional destination, lend themselves to care and

regeneration interventions to be carried out through collaboration between citizens and the Municipality.

In Emilia-Romagna, Regional Law 24/2017 provides for the aforementioned Register of properties made available for urban regeneration which can also be used for collaboration proposals as well as for temporary uses.

3.6.3 Tactical urbanism

Another approach that can favor urban regeneration is the so-called "Tactical Urbanism". This term refers to temporary interventions at low cost, but with high impact and potential scalability and replicability.

The "Tactical Urbanism" term has spread since the publication in 2011 of "Tactical Urbanism: Short-term Action, Long-term Change" by architects Mike Lydon & Anthony Garcia, which collected several examples of temporary interventions to improve the public space in the United States.

Tactical Urbanism projects have the advantage of demonstrating the potential for long-term transformation of urban space with a low cost and a reduced time of realization. The effects of these interventions can stimulate more substantial investments and inspire permanent transformations of the public space.

Planners and public administrations have grasped the potential of these temporary and low-cost projects as a way of experimenting and rapidly changing the functions of a public space. These projects are often implemented through the use of paints or recycled materials and provide for the involvement of citizens in decoration or self-construction of furniture elements.



Laura Pfeifer - The Planner's Guide to Tactical Urbanism (2013)

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The practice of Tactical Urbanism has spread all over the world and there are numerous examples.

In some cases these are bottom-up initiatives, in others they are participatory projects promoted and led by public administrations, always characterized by very low budgets.

An interesting example is that of the strategy called "Estenonesunsolar" (this is not a vacant lot) with which the city of Zaragoza (Spain) tried to stop the degradation resulting from the state of abandonment and inactivity of some building lots in the city center.

The project, coordinated by architects Gravalos & Di Monte flanked by the municipal technical office, led to the progressive recovery as public spaces (small squares, play areas, urban gardens) of some private lots in a state of abandonment, after the demolition of walls and fences to make them accessible.

The interventions were carried out in a very short time, with low costs and with the participation of the citizens of the neighborhood supported by the technical office.

The interventions and the consequent public reuse of these spaces are born as temporary (until the construction of the lot), but in some cases they can become permanent.





San José District– Zaragoza (Spain) – “Estonesunsolar” project (Gravalos & Di Monte architects)
<https://urbannext.net/long-term-strategies-based-on-temporary-interventions/>

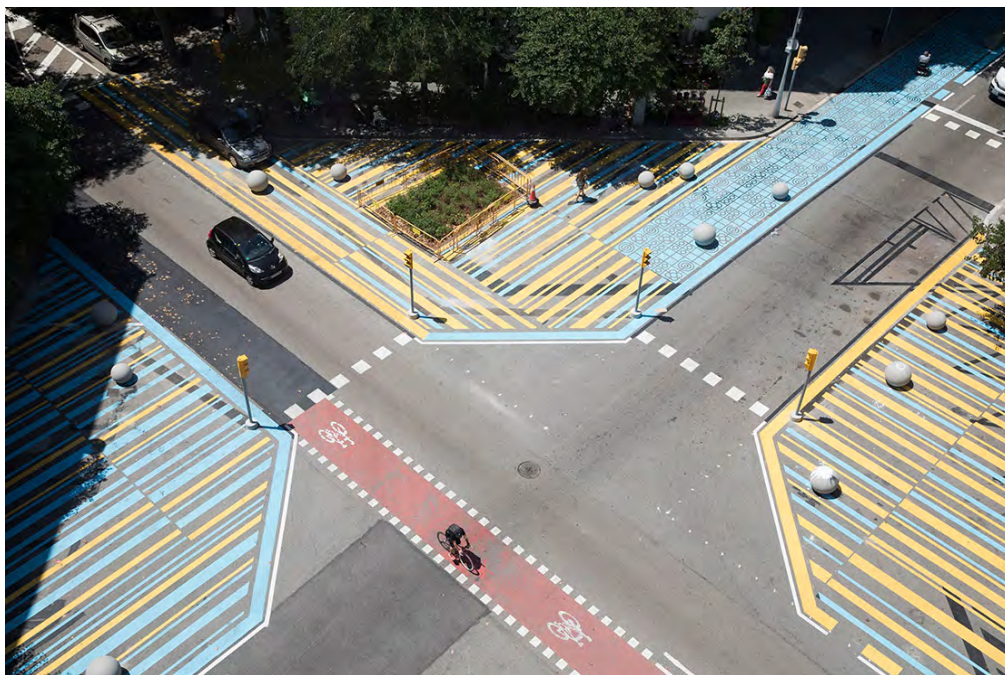
Other examples come from the city of Barcelona which has applied the Tactical Urbanism approach in various contexts, including the recent need to expand pedestrian spaces to temporarily deal with the emergency measures resulting from the Covid-19 pandemic. Many of these interventions will become permanent because they have made it possible to redefine the spatial hierarchies in the road sector, reserving more space for bicycle and pedestrian mobility.

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<https://www.barcelona.cat/urbanismetactic/en>



<https://www.barcelona.cat/urbanismetactic/en> - Spain

In other cases, also in Barcelona, the intervention was necessary to protect schools and ensure a safe space around the access area.



<https://www.barcelona.cat/urbanismetactic/en> - Spain

The Municipality of Milan has created in collaboration with Bloomberg Associates, National Association of City Transportation Official (NACTO) and Global Designing Cities Initiatives the "Open Squares" project, a program of interventions based on the idea of public space as a place for meeting and socializing.

The goal of the project is the creation of new meeting places, pedestrian areas, play areas and for events that will enrich the existing public spaces, with furnishing elements, insertion of trees, favoring cycle-pedestrian mobility over the carriage way.



Angilberto Square Milano (Italy)

<https://artslife.com/2021/02/13/urbanistica-tattica-a-milano-larte-entra-nelle-piazze-e-lascia-la-sua-impronta-colorata-a-pois/>

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In Forlì, the Spazi Indecisi association applied tactical urbanism as part of the participatory project "Lines of regeneration" which saw the involvement of citizens, university students, designers and artists. The aim of the project is the co-design and implementation of widespread urban regeneration micro interventions that connect EX ATR (former Bus Depot now at the center of a regeneration project that is transforming it into a cultural hub) to nearby neighborhoods, to favor the establishment of relationships between places and communities.



Spazi Indecisi – “Lines of regeneration” project (Forlì – Italy)
<https://www.spaziindecisi.it/linee-di-rigenerazione/>

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This project has received funding from the European Union's programme "LIFE Environment and Resource Efficiency" under Grant Agreement n. LIFE15 ENV/IT/000225



LIFE15 ENV/IT/000225

This project has received funding from the European Union's programme "LIFE Environment and Resource Efficiency"
Questo progetto ha ricevuto il finanziamento del programma dell'Unione Europea "LIFE -Ambiente ed Efficienza delle Risorse"



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