Interventions and instruments to promote sustainable land use in Europe

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Umberto Janin Rivolin,
Giancarlo Cotella

L'urbanistica italiana e il contesto europeo. Convergenza, identità, eccellenze

Impact of EU policies on land-use

Mailin Gaupp-Berghausen and Erich Dallhammer***

Introduction

The ESPON Sustainable Urbanization and land use Practices in European Regions (SUPER) project aim to provide evidence and recommendations on how sustainable land use can be promoted. In this regard also the impact of EU policies on urbanisation and land-use was assessed in more detail. Even if the EU has no explicit competences in promoting sustainable land use, the SUPER project team revealed and analysed a comprehensive collection of EU policies showing concrete evidence of impact. Other studies, particularly the report *The direct and indirect impact of EU policies on land* (EEA, 2016) or the report on *Spatial planning and governance within EU policies and legislation and their relevance to the New Urban Agenda* (CoR, 2018) have also examined this issue and found evidence of EU policies' impact on land and spatial planning in Europe. Relying on these documents, the project team contributed its knowledge of specific sectoral policies, agreements and other EU activities that either directly or indirectly affect urbanisation and land use in their own countries or in Europe as a whole.

Material and Methods

To explore the impact of various EU policies on urbanisation and land-use, the ESPON SUPER project team started with a detailed literature search on EU policies across relevant sectors. Based on this collection, a selection of EU policies was classified into European legislations (directives and regulations), funding instruments, as well as binding and non-binding intergovernmental agreements. The information collected where further transferred into a comprehensive data matrix that allows entering a uniform set of information per policy. The overall approach to organise the relevant information has been to extract the general description of each policy and its objectives, to categorise it by policy area and its status (i.e. legislation, funding instrument, binding or non-binding document). The classification of policy area had been taken initially as it is adopted on the official EC website, which include 34 categories. As many of these has not been presented in the matrix, due to their weak relevance on the topic of land take, 10 thematic areas were discerned covering all policy areas touched upon by the selected EU policies (such as sustainable land use / soil protection, urban or regional development, environment and climate actions). Furthermore, quotes from the documents were analysed to detect potential direct and indirect impacts they might have on sustainable urbanisation and related land use practice. Further, to estimate whether the detected impact is negative or positive, i.e. promoting or impeding sustainable urbanisation, experts were asked to provide judgement. To provide additional information, which help to contextualise the policies effects within country-specific contexts, the matrix also featured an additional table for case study examples to support the analysis with concrete evidences of impact.

To further elaborate each identified EU policy in more detail, factsheets were created for each one of them. Beside basic descriptive information (such as title, status, area), they also contain a section on 'impact on urbanisation and related land-use practices' – summarising and evaluating various direct and/or indirect impacts. A section of the factsheets addresses

Table 1 – Overview of collected EU Policies by legal status and by different policy areas

Legislation (directives, regulations)	Funding Instruments and Corresponding Programmes	Binding Strategies, Documents and Policy Guidelines	Non-binding Agreements, Agenda and Discourse
Environment / Climate Action	***Transport***	***Regional Development / Sustainability***	***Regional Development / Sustainability***
Water Framework Directive	TEN-T Guidelines	Roadmap to a Resource Efficient Europe	European Spatial Development Perspective (ESDP)
EIA Directive		EUROPE 2020	Territorial Agenda of the European Union 2020 (TA2020)
SEA Directive	***Cohesion Policy / Funding***		
Natura 2000	ESI-Fund	***Transport***	***Urban Development***
Birds Directive	ERDF	WHITE PAPER – Roadmap to a Single European Transport Area	Urban Agenda for the EU
Floods Directive	Cohesion Fund (CF)		SUL_NBS Partnership
Landfill Directive	ESF	***Energy***	Toledo Declaration
Waste Framework Directive	URBACT III	Energy 2020	Basque Declaration
Environmental Noise Directive	INTERREG (A)		Aalborg Charter
Air Quality Directive	INTERREG (B)	***Environment***	Aalborg Commitments
	INTERREG (C)	EU Biodiversity strategy to 2020	The European Sustainable Cities and Towns conferences (ESCT)
Agriculture and Rural Development	Macro-regional strategies		
Rural Development Plans	Integrated territorial investment		***Sustainable Land Use / Soil Protection***
	ESPON		The Soil Thematic Strategy
Energy			European Landscape Convention
Renewable Energy Directive	**Agriculture / Rural Development**		
Energy Efficiency Directive	EAFRD		***Environment / Climate Action***
TEN-E strategy	CAP		A new EU Forest Strategy
			Environment Action Programme to 2020
Procurement	***Urban Development***		Soil Sealing Guidelines
Public procurement for a better environment	Urban Innovative Actions Initiative		EU Adaptation Strategy
Public Procurement Directive			Convent of Mayors
Directive on procurement by entities operating in the water, energy, transport and postal service sectors	***Maritime***		
	European Maritime and Fisheries Fund (EMFF)		**Cohesion Policy**
Maritime			Seventh Cohesion Report
Marine Spatial Planning Directive			
Marine strategy framework Directive			

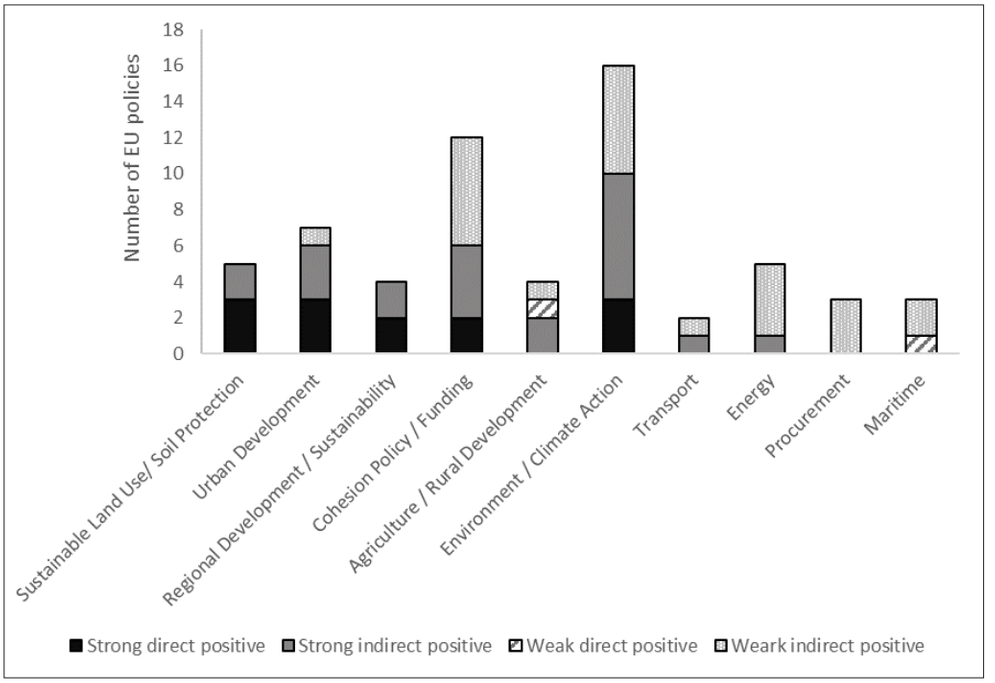

Figure 1 – Strength and direction of positive EU policy's impacts on sustainable urban development by different policy areas (N = 59) (source: ESPON SUPER consortium)

further potential omissions, gaps, lack of regulations, etc., which leads to potential unintended *negative* effects for sustainable urban development as a result of the EU policy.

Results

In total, 59 EU policies of varying legal status, area and levels of impact were identified and analysed. The vast majority of European legislation identified belong to environmental policies, followed by energy policies and procurement policies. The most commonly identified funding instruments are summarised under cohesion policies. Binding strategies and policy guidelines are represented in the areas of regional development, transport, energy, and environment policies. The identified non-binding agreements are covered by areas referring to regional development, urban development, sustainable land use and soil protection, and environment or climate action policies.

The table below provides an overview of all identified policy measures at European level by different policy areas:

Various experts working in the field of urban development and planning, regional development, spatial planning, and European regional policies were asked to judge whether the different EU policies have either a strong direct/indirect or weak direct/indirect impact on sustainable urban development. As can be seen from the Figure 1 policies in the area of sustainable land use / soil protection, urban and regional development were judged as having a strong (direct or indirect) positive impact on sustainable urban development. Whereas two-thirds of policies within the area of environment and/or climate action are also judged as having a strong impact, this is only the case in half of the policies within the area of cohesion funding and agriculture / rural development. EU policies under the area of energy, procurement and maritime are judged as having a weak positive impact.

Positive direct and indirect impacts on sustainable urbanisations from EU policies

European legislations

In total, 21 different **legislations** at European level were identified that impact urbanisation and related land-use practice. As was illustrated by the table above they cover the areas of agriculture and rural development, environment, energy, procurement, and maritime. The impact of these legislations on urbanisation and land use is presented by the following examples. The **Environment Impact Assessment (EIA)** directive lists a number of projects for which an EIA procedure is obligatory. All of the listed projects, especially those for infrastructure development, affects urbanisation, as they include not only direct land take, but also boost further urbanisation along newly constructed infrastructure lines. Due to the EIA environmentally sustainable land use, as well as actions toward compensation of adverse effects are promoted. The Strategic **Environmental Assessment (SEA)** directive, which is required for plans and programmes for industry, transport, waste treatment, energy, telecommunication, and tourism, sets a number of criteria related to the characteristics of potentially affected areas (such as irreversibility of effects, intensive land-use, the effects on areas of landscapes with protection status). All of these aspects have implications for urbanisation processes. The **Natura 2000** directive affects urbanisation by prohibiting development in protected areas. It further calls to recognise environmental consideration with regards to fauna and flora habitats in land use planning and development policies. The **Birds Directive** prohibits building developments within certain areas for bird habitat protection, thus imposing restrictions on urban development in certain areas. The **Floods Directive** calls for the implementation of flood risk considerations into planning and land-use policies, as well as for the promotion of soil management and sustainable land-use practices. It also stresses that due to various human activities, such as settlements, soil sealing, intensive land use or land cover, increasing flood risks are caused. Flood risk prevention, especially in flood-prone areas, such as restricting soil sealing, result therefore in more sustainable land use. The **Water Framework Directive** oblige Member States, inter alia, to set measures that restores wetlands, resulting in land use restriction. The **Landfill Directive** determines the allocation of land for landfills. It further sets strict requirements and measures to protect groundwater and soil, minimises negative environmental impacts, and promotes more sustainable land management of these sites. All these measures impact urban planning decision, as well as land competition at certain sites.

Funding Instruments and Corresponding Programmes

With regard to sustainable urbanisation and land use especially the **European Structural Investments Funds (ESI Funds),** which comprise 5 funds, play an important role. The **Cohesion Fund (CF)** that aim to reduce economic and social disparities and to promote sustainable development, applies also to urban areas and thus also impacts land use practices involved in urban development. Within the **European Regional Development Fund (ERDF)** sustainable urban development is an explicit objective. Both, the CF and the ERDF, support efficient urban land use through related issues, such as regeneration of brownfield or revitalisation of cities. They also support urban-rural linkages and the development of peripheral areas, thus lower pressure on central areas. The **European Agricultural Fund for Rural Development (EAFRD)** stipulates urbanisation impacts mainly through actions in the field of rural development, e.g. by fostering the competitiveness of agriculture. Through payments and subsidies for farmers to sustain certain land uses increases their profitability and thus lowers the pressure derived from other land-use interests (i.e. settlements, industry and roads). **Interreg** (funded by the ERDF) that supports an overall sustainable development in the EU is in line with the EU's strategy objectives for a smart, sustainable and inclusive growth. All Interreg programmes (i.e. Interreg A, Interreg B and Interreg C) have an indirect impact on urbanisation and addresses challenges in the context of sustainable development (e.g. environmental protection). The **URBACT** programme (part of Interreg C) aims to promote sustainable integrated urban development in cities, such as polycentric urban structures, small and medium-sized cities, and urban-rural linkages.

Binding and non-binding strategic documents and agreements

An important document that impacts sustainable urbanisation and land use is the **Europe 2020 strategy** with its three priorities 'smart, sustainable and inclusive growth'. The very broad framework of the Europe 2020 strategy, which is translated into numerous sectoral policies, is characterised by indirect positive, broad and long-term impacts by setting the overall direction for smart sustainable growth. The **Roadmap to a Resource Efficient Europe**, which is part of the Europe 2020 strategy, sets the target of no net land take by 2050 and a limit of 800 km² per year in 2000-2020. It further calls for a number of measures for environmental protection, reduction of greenhouse gas emission, energy efficiency, renewable energy, etc., which could restrain land take for urban development. Within the **LEIPZIG Charter on Sustainable European** Member States agreed on common principles and strategies for urban development policies. The **European Spatial Development Perspective (ESDP),** which provide guidance for a sustainable, comprehensive, multisectoral and directional strategy for spatial development within the EU, is structured around issues that affect various territorial dimensions (such as better rural-urban linkages or the protection of open countryside from uncontrolled development processes). One of the priority themes of the **Urban Agenda (UA)** focus on sustainable use of land and nature-based solutions. It further calls for an integrated sustainable urban development approach, a better governance and urban and regional planning, as well as a well-balanced territorial development across the EU. The **European Landscape Convention**, which concerns all types of landscapes, promotes landscape protection, management and planning, and further calls for a European co-operation with regard to landscape issues.

Potential unintended negative impacts on sustainable urbanisations from EU policies

Beside potential positive impacts, especially some of the legislations and funding instruments were judged as having also negative

consequences on sustainable urban development. The **EIA** as well as the **SEA** directive outlines only general requirements, while the detailed procedures are left to the Member States. A similar situation applies to the **Environmental Noise Directive** that does not define common target values or measures. Legislations addressing protected areas (such as the **Natura 2000**, the **Birds Directive** or the **Floods Directive**) may stimulate so-called leapfrog development by impeding compact developments. As projects funded by the **ESI Fund** are very broad in nature, it is often difficult to trace its impact on sustainable land use. Hurdles derived von **Interreg** are often based on linguistic, cultural and administrative differences that also affects the implementation of projects addressing efficient land use. Further, funds that support extensive transport infrastructure and enhancement of connectivity might spur sprawl as a consequence of better accessibility. The main Achilles' heel of many strategic documents is the non-binding character of these agreements. As their positive impacts highly depends on Member States and their willingness to adopt their own national strategies, weakens their overall effect on sustainable urban development.

Conclusion

This study provides an analysis of a comprehensive collection of different EU policies. The selected EU policies that impact urbanisation and land-use can be classified into European legislation (which either restrict or promote certain developments), funding instruments (which incentivise certain actions), binding strategies (which defined objectives might affect urbanisation) and non-binding agreements (which can provide guidance). Based on the expert judgement the strength and direction of each identified policy was assessed. Especially policy areas that address core fields of urbanisation, i.e. binding strategies and policy guidelines and non-binding agreements, are defined as having a strong direct or indirect impact on urban development and land use. This holds particularly true for the areas sustainable land use/soil protection, and urban and regional development. In contrast, funding instruments were judged as affecting urban developments either weakly or strongly positive. Sometimes they are even leading to potential negative effects (e.g. in terms of land fragmentation, soil sealing or land take). This mirrors the concept of funding policies, where some are supporting quite positive urbanisation developments, whereas other funds (e.g. those that invest in transport infrastructure), might boost the demand for land as a consequence of better transport accessibility. Even if good solutions are rooted in non-binding agreements, many issues cannot be solved through the voluntariness of individual Member States. Since the EU does not have direct competences to address land use directly, European wide binding commitments might be one solution to guarantee sustainable land use in the long term.

Notes

* Austrian Institute for Regional Studies, gaupp@oir.at
** Austrian Institute for Regional Studies, dallhammer@oir.at

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Imagining post-COVID-19 urbanization

David Evers*

Uncertainty breeds speculation

The adage 'never waste a good crisis' is being taken to heart in the planning field. The COVID-19 pandemic has obliged us to rethink the fundamentals of what makes a good urban environment and whether that environment is sustainable or not. This, in turn, has spawned myriad speculations about future urban development and the desirability thereof. Some have cynically observed that these speculations rehash pre-existing standpoints in the sprawl debate (Walker, 2020). Indeed, opinions of many parties seem unsurprising or predictable, and thus even opportunistic and self-serving.

Be this as it may, this does not diminish the necessity to tackle the issue of what the pandemic means for how we shape our built environment. Urban development is ultimately a social construct in the sense that it is the product of decisions made by humans, sometimes collectively, sometimes individually (ESPON, 2020). The ways in which we think and talk about liveability, profitability and sustainability of urban development in the wake of major social upheavals such as the current pandemic, therefore matter profoundly: the 'imaginaries' of today will become the urban landscape of tomorrow. At present, however, there are widely competing views on how the pandemic will affect the built environment: which imaginary will win out?

By means of a non-traditional literature review, this paper will recall opinions being expressed with respect to how the pandemic can, will or should affect urban development. This exercise reveals a strong affinity with three long-standing conceptualizations of urban form: (1) dense, compact development, (2) polycentric/transit-oriented development, and (3) diffuse/sprawling development. I therefore argue that the debate on COVID-19 is anything but novel, even though present circumstances might make it feel that way. One proven method to manage high levels of uncertainty is by creating scenarios which are plausible, but distinct and divergent enough to capture the contours of the debate. The paper ends with a reflection on the utility of scenarios for structuring social debates.

Divergent opinions

In the wake of the pandemic, the long-held planning doctrine of urban concentration and mass transit is being fundamentally questioned, but no new paradigm has yet emerged to replace it. At present, there is a wide divergence among professional opinionmakers as well as in the tangible urban policy responses regarding the direction urban development should take. Proponents of walkable cities and cycling laud the efficiency, thrift, and salubriousness of these transport modes and cities like Paris and Milan have fast-tracked policies to promote them. Conversely, the lockdown has heightened demand for personal living space, generally a private garden or a second home in the countryside, and personal transport, generally a car. Given the urgency and rapid development of the pandemic, this debate among academics and professionals is not occurring in peer-reviewed journals or edited volumes, but in ephemeral formats such as working papers, op-ed pieces, pop-up video seminars, and – especially – blogs. In the cacophony of ideas and formats, it is difficult if not impossible to conduct a proper and comprehensive scientific literature review. The field is too broad, the voices too many, and the topic so volatile that traditional searching tools (Scopus, web of science, etc.) are useless. At most, an imperfect snapshot can be provided of some of the main perspectives on the impact of the pandemic on urban development. This was produced at the onset of the dreaded 'second wave' in Europe.

As a prelude, some authors have pointed out that this is not the first time that pandemics have shaped the urban environment. Indeed, modern planning – and solutions like open public spaces, sewage infrastructure, separation of functions – can trace its origins back to concerns about unhygienic conditions in the industrial city (Hall, 2014; Klaus, 2020; Lubell, 2020; Roesler, 2020; R. Van den Berg, 2020). The debate now is highly divergent: for all three modes of development – i.e. dense/compact, polycentric/transit-oriented, and diffuse/sprawling – a case could be made that this is a logical outcome of reactions to the current pandemic. Scenarios are an appropriate way to deal with such divergent views.

Divergent scenarios

As a future-oriented discipline, planning has a long tradition of working with scenarios. Scenarios allow planners to explore possible future pathways where, like the current pandemic, the level of uncertainty is too high to warrant a prognosis, but high enough to avoid mere speculation (Dammers et al., 2013). Scenarios in strategic decision-making has private-sector origins and are often *exploratory* in nature, varying external variables such as geopolitical, demographic or economic developments in order to identify actions that work well in multiple scenarios (Avin & Goodspeed, 2020; Dammers & Evers, 2008; Evers & Vogelij, 2021; Kahan, 2020). Planners also employ *normative* scenarios, describing a desired future (e.g. a plan or vision) vis-à-vis alternative futures such as a 'business-as-usual' scenario or by describing the implications of diverging policy options (Avin & Goodspeed, 2020; Dassen et al., 2013; Kahan, 2020)research strategy, and findings: Despite growing interest by practitioners in using exploratory scenarios within urban planning practice, there are few detailed guidelines for how to do this. Through the discussion of five case examples, we illustrate different approaches to linking exploratory scenarios to different planning contexts. We conclude by observing that to directly inform a plan, regardless of the specific approach taken, exploratory scenarios in urban planning must incorporate stakeholder values and not only rely on expert judgment and analysis. Takeaway for practice: Exploratory scenarios are effective for analyzing uncertainty within a planning process. However, exploratory scenarios can be incorporated into planning practice in different ways, ranging from workshops among experts that aim to cultivate general learning to complex projects that result in highly detailed scenarios and recommendations for plans. Practitioners can draw on the cases we present to inspire planning methods for particular projects, taking into account specific contexts and goals.","container-title":"Journal of the American Planning Association","DOI":"10.1080/01944363.2020.1746688","ISSN":"0194-4363, 1939-0130","issue":"4","journalAbbreviation":"Journal of the American Planning Association","language":"en","page":"403-416","source":"DOI.org (Crossref.

To explore the implications of divergent urbanization pathways, the ESPON Sustainable Urbanization and land use Practices in European Regions (SUPER) project drew up three scenarios of possible urban development up to 2050: compact, polycentric and diffuse (ESPON, 2020). The compact scenario has an affinity with the EU's ambition to achieve 'zero net land take' and compact-city discourse that extols the virtues of large metropolises (Glaeser, 2011; Jacobs, 1961). The polycentric scenario has an affinity with literature that seeks an optimal balance between urban and rural areas by clustering development into mid-size liveable communities, such as garden cities or 'new urbanist' transit-oriented neighbourhoods (Howard, 1902;

Park et al., 2020). The diffuse scenario is associated with the primacy of individual choice, affordable spacious surroundings and right to privacy, articulated in the works of Frank Lloyd Wright (Bruegmann, 2006) and decried by many planners (e.g. Kunstler, 1994).

As will be demonstrated, a case can be made for each scenario that it represents the logical planning paradigm emerging from the COVID-19 pandemic. The next subsection will recount the 'imaginaries' of the current debate and then display an abridged version of the accompanying SUPER scenario storyline. The next section will then present the input and output of the land-allocation model LUISET-TA which simulates the spatial ramifications of the scenarios.

Diffuse urban development

The discussion on COVID-19 and urban form revolves hinges on density. Conventional wisdom suggests that higher densities produce higher rates of infection, hospitalization and death. The single case of New York City has bolstered this view (Osaka, 2020; Rosenthal, 2020). So far, there is no scientific proof of such a relationship, but this perspective has gained traction in the media and popular culture. Some, for example, argue that low-density suburban lifestyles and car use is a form of social distancing (Olsen, 2020). Moreover, it can be argued that experiences with lockdowns will increase demand for private gardens and private modes of transport. Star architect Rem Koolhaas concurs, proclaiming an imminent exodus to the countryside (Van der Beek, 2019).

These imaginaries may soon take concrete form. The Dutch SPRYG Real Estate Academy expects the market to shift to rural areas (H. Van den Berg, 2020), and there is anecdotal evidence of a flight to the suburbs in New York (Hughes, 2020). Developers have already sensed the opportunity and have pressured the Dutch government to speed-up home building and relax planning rules on greenfield development (van Buren, 2020).

Diffuse scenario storyline

Starting in 2020, a bold policy of urban diffusion was embarked upon to allow and encourage Europeans to enjoy the pleasures of countryside living. It was felt that citizens should have more control over where and how they wanted to live. Why should hard-working people be forced by government bureaucrats to live in crowded cities when there was ample space outside to enjoy the fruits of their labour? The demand for housing in a natural environment was facilitated by planners. Urban design concentrated on granting as much privacy and green space to individuals as possible through large-lot zoning and long driveways. Given the low densities, public services and infrastructure were minimal: new developments – mostly as detached family homes or second homes – were built on existing roadways and were often self-sufficient. By 2050, low-density urban functions had displaced agriculture in high-growth regions and most families in Europe revelled in the comforts of a spacious home with an even more spacious yard and vacationing in a second home.

Looking back, there were various reasons behind this course of action. Attitudes regarding where and how to live had become increasingly individualistic rather than collective. Since 2020 a countermovement of 'unplugging' gained in popularity as tranquillity and privacy became luxuries; ideally this should occur in a somewhat remote setting, where the hum of delivery drones was less intrusive. After the COVID-19 pandemic of 2020, the prospect of being quarantined to a large house with a garden was seen as far preferable to being confined to a tiny apartment, to say nothing of the enhanced risk of contagion in dense urban areas.

The millennials reinvented urban areas to suit their needs. Government policy was called on to make it feasible to claim a stake in the good life in the countryside. Diffuse development is, after all, not unplanned but originates from local planning and development practices that facilitate it (Burriel de Orueta, 2009; Pagliarin, 2018). To achieve diffusion, planning departments were made leaner, and land-use decisions streamlined and simplified. Self-empowerment was stimulated by generous fiscal arrangements for homebuilding, private transport and energy independence. More importantly, restrictive measures at higher governmental tiers regarding conservation of landscapes, natural areas and the like were abolished or relaxed. A number of policies enacted in the 2000-2020 period provided inspiration for policy packages throughout Europe. These were territorially differentiated for maximum impact. Needless to say, no densification objective was set.

Polycentric urban development

Reality has proven more complex than a linear relationship between density and COVID-19 (Boterman, 2020; Fang & Wahba, 2020). The first peer-reviewed large-scale empirical study (according to the authors) found no significant link between infections per capita and population density at the county level (Hamidi et al., 2020)research strategy, and findings: The impact of density on emerging highly contagious infectious diseases has rarely been studied. In theory, dense areas lead to more face-to-face interaction among residents, which makes them potential hotspots for the rapid spread of pandemics. On the other hand, dense areas may have better access to health care facilities and greater implementation of social distancing policies and practices. The current COVID-19 pandemic is a perfect case study to investigate these relationships. Our study uses structural equation modeling to account for both direct and indirect impacts of density on the COVID-19 infection and mortality rates for 913 U.S. metropolitan counties, controlling for key confounding factors. We find metropolitan population to be one of the most significant predictors of infection rates; larger metropolitan areas have higher infection and higher mortality rates. We also find that after controlling for metropolitan population, county density is not significantly related to the infection rate, possibly due to more adherence to social distancing guidelines. However, counties with higher densities have significantly lower virus-related mortality rates than do counties with lower densities, possibly due to superior health care systems. Takeaway for practice: These findings suggest that connectivity matters more than density in the spread of the COVID-19 pandemic. Large metropolitan areas with a higher number of counties tightly linked together through economic, social, and commuting relationships are the most vulnerable to the pandemic outbreaks. They are more likely to exchange tourists and businesspeople within themselves and with other parts, thus increasing the risk of cross-border infections. Our study concludes with a key recommendation that planners continue to advocate dense development for a host of reasons, including lower death rates due to infectious diseases like COVID-19.","container-title":"Journal of the American Planning Ass ociation","DOI":"10.1080/01944363.2020.177 7891","ISSN":"0194-4363, 1939-0130","issue":" 4","journalAbbreviation":"Journal of the American Planning Association","language":"en", "page":"495-509","source":"DOI.org (Crossref. The authors also found that the size of the metropolitan area was significant, suggesting that global connectivity is significant. In this context, we can recall that the first contact with the virus occurred at a large market at the edge of Wuhan and the first contact in Europe was at a peri-urban car factory in Germany (Keil et al., 2020). In addition, the most significant points of contagion were mass-

events (a football match in northern Italy, a megachurch in Korea and carnival in North-Brabant) rather than urban centres per se.
This could suggest a reorientation to the immediate community rather than large-scale events: *gesellschaft* over *gemeinschaft*. Some authors have already proclaimed the demise of the global city, and argue that the winners will be rural regions, towns and villages that take advantage of the crisis because they possess the new locational qualities of the post-pandemic era (Dettling, 2020). Other authors expect enhanced traditional values and the direct environment, local solidarity and local products (Schneidewind et al., 2020).

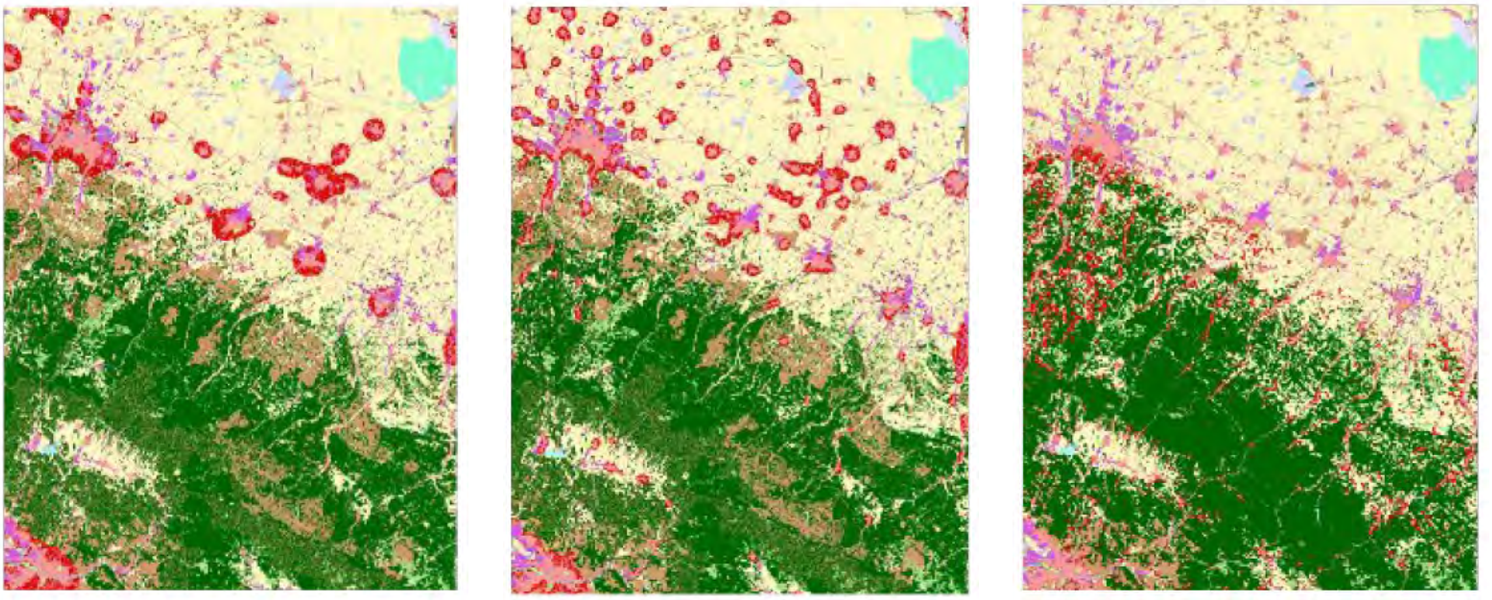
Polycentric scenario storyline

Starting in 2020, a policy of urban clustering had been promoted throughout Europe to avoid both the disadvantages of haphazard urbanization, which deplete natural resources and undermine of the vitality of cities, and the disadvantages of urban containment which can run counter to the housing preferences of many citizens. A careful selection was made from sustainable urban development policies that had proved successful in the past plus some innovations. The result was to encourage urbanization in and around midsize towns, preferably near rail stations. By 2050, a more polycentric pattern of development began to emerge.
Looking back, there were various reasons behind this course of action. Attitudes regarding where and how to live had consistently shown that people appreciated urban lifestyles with amenities nearby, but also wished to live somewhere where the open countryside was within arm's reach and avoided big-city problems like traffic congestion and noise and air pollution. In the wake of faceless globalization, pandemics, climate change and other external threats, the security and human scale of a healthy midsize community was appealing to many. So, despite bold predictions of grand revolutions in urban development heralded by new technologies and rapid societal change, the desired city structure in 2050 followed the ancient polycentric pattern of towns in Europe (Servillo et al., 2017).
The millennials decided to reinvent urban areas to suit their needs. A policy package was devised to promote 'smart' polycentric growth that struck a balance between economic, environmental, and social aspects of planning and development while making efficient land-use decisions (Daniels & Lapping, 2005). New compact neighbourhoods with excellent public transport infrastructure were well-regarded, as was intensifying development in existing medium-sized towns. A number of interventions introduced in the 2000-2020 period provided inspiration for policy packages throughout Europe. These were territorially differentiated for maximum impact and an overall objective was set that one-third of all demand for urban land use be accommodated within the existing urban fabric.

Compact urban development
Finally, one can argue that density itself is an advantage. Density should not be misconstrued with crowding, where people are forced into close quarters (Pafka, 2020). Moreover, it expedites the implementation of 'smart city' solutions like track-and-trace technology, home deliveries, etc. but also low-tech solutions like running errands for sick neighbours (Lembke & Ochs, 2020; Roesler, 2020). Density also reduces average distances to healthcare facilities (van Buren, 2020; R. Van den Berg, 2020). The peer reviewed article referenced above supports this view, finding a significant negative relationship between density and death rates (Hamidi et al., 2020) research strategy, and findings: The impact of density on emerging highly contagious infectious diseases has rarely been studied. In theory, dense areas lead to more face-to-face interaction among residents, which makes them potential hotspots for the rapid spread of pandemics. On the other hand, dense areas may have better access to health care facilities and greater implementation of social distancing policies and practices. The current COVID-19 pandemic is a perfect case study to investigate these relationships. Our study uses structural equation modeling to account for both direct and indirect impacts of density on the COVID-19 infection and mortality rates for 913 U.S. metropolitan counties, controlling for key confounding factors. We find metropolitan population to be one of the most significant predictors of infection rates; larger metropolitan areas have higher infection and higher mortality rates. We also find that after controlling for metropolitan population, county density is not significantly related to the infection rate, possibly due to more adherence to social distancing guidelines. However, counties with higher densities have significantly lower virus-related mortality rates than do counties with lower densities, possibly due to superior health care systems. Takeaway for practice: These findings suggest that connectivity matters more than density in the spread of the COVID-19 pandemic. Large metropolitan areas with a higher number of counties tightly linked together through economic, social, and commuting relationships are the most vulnerable to the pandemic outbreaks. They are more likely to exchange tourists and businesspeople within themselves and with other parts, thus increasing the risk of cross-border infections. Our study concludes with a key recommendation that planners continue to advocate dense development for a host of reasons, including lower death rates due to infectious diseases like COVID-19.","container-title":"Journal of the American Planning Association","DOI":"10.1080/01944363.2020.1777891","ISSN":"0194-4363, 1939-0130","issue":"4","journalAbbreviation":"Journal of the American Planning Association","language":"en","page":"495-509","source":"DOI.org (Crossref. Other articles argue that the pandemic, specifically the experiences during lockdowns, underline the importance of human contact, even through a window or a balcony (Mäckler, 2020).

Compact scenario storyline

Starting in 2020, a prudent policy of urban containment was promoted throughout Europe to avoid the wasteful, haphazard urbanization which had resulted in the destruction of natural resources, exacerbated land consumption, and undermined the vitality of cities. A selection was made from sustainable urban development policies that had proved successful in the past plus some innovations. The result was that urbanization occurred in or near existing cities. By 2050, redevelopment, regeneration or infill development had become the norm.
Looking back, there were various reasons behind this course of action. Attitudes regarding where and how to live had changed considerably. The generation that had grown up with the Twentieth Century ideal of a single-family home and private car had passed on. The notion that people would willingly commute for hours to a large home in a sprawling suburb or remote village and waste their weekend mowing lawns and taxiing children back and forth to dispersed activities, seemed by 2050 as alien as it was anachronistic – a tiny apartment at a good location was preferable. In short, a change in mindset had occurred in which people preferred convenience and flexibility to size and luxury in their housing decisions.
The millennials decided to reinvent urban areas to suit their needs. In order to produce urban areas large enough to provide the quality they demanded – especially given the demographic developments – an ambitious containment programme was introduced.



Land-use change in Bologna-Ravenna in the compact (l), polycentric (m) and diffuse (r) scenarios

Various policies enacted in the 2000-2020 period provided inspiration for policy packages throughout Europe. These were territorially differentiated for maximum impact and an overall objective was set that half of all demand for urban land use be accommodated within the existing urban fabric.

Divergent outcomes

The impact of policies and trends can be illustrated by modelling potential urbanization patterns using models. In this case, the scenarios outlined above were entered into the land-allocation model LUISETTA, the open-source version of the Land Use-based Integrated Sustainability Assessment (LUISA) model developed by the EU's Joint Research Centre (Barbosa et al., 2017). LUISETTA uses approximately 40 self-contained databases for its calculation of the demand for and spatial distribution of future land use. The base-map for the model is a high-resolution (100m) version of the 2012 Corine land cover map, updated using sources such as the GHSL (Rosina et al., 2018).

The scenarios hold all environmental, economic and technological variables constant; the factors that vary are societal attitudes. This was done by adjusting demand for urban uses (to simulate infill development) and by adding weights to specific variables such as nearness to existing population, water and roads. Specifically, the diffuse scenario retained much of the baseline scenario's calibration, which favoured development along existing roads and at the edges of the existing urban fabric. For the other scenarios, added weights were attributed to existing urban areas. This was done by calculating the percentage of urbanised land within a radius of 2,500 meters and 1,000 meters for the compact and polycentric scenario respectively, squaring this percentage to make the gradient gravitate towards existing urban contours. In addition, demand was reduced by 30% in the polycentric and 50% in the compact scenario. The model was run iteratively at 5-year intervals up to 2050. The output was a modified version of the basemap, with pixels assigned to urban, commercial, agricultural, and natural categories. The output can be analysed statistically by counting the number of pixels in different land-use classes and aggregating them to administrative boundaries. It can also be analysed visually, by examining output maps side-by-side. For example, the figure below displays the results for a part of Italy currently struggling with controlling urban development (new urban development is indicated in bright red). The maps reveals that the diffuse scenario results in the penetration of the Appennini mountain region by urban development, particularly near Bologna. The other two scenarios, by contrast, result development on the plateau at the edges of existing urban areas, with 'polycentric' producing a complex urban system, whereas 'compact' concentrates this in Bologna, Imola and Lugo. From these maps, one can initiate a discussion on the (dis)advantages of the emergent urban form for future generations as well as the value of the land (irrevocably) being converted.

In summary, the current pandemic is fuelling speculations on the future of urban form. As this paper shows, this discussion fits well into the longstanding debate within the planning community, and therefore is quite amenable to be discussed using scenario methods, which includes the generation of quantitative analyses and cartographic images. This allows for a reduction of near-apocalyptic statements such as 'the demise of the global city' and a nuanced debate on the concrete consequences of changing housing preferences on which locations are likely to become urbanized in a particular region.

Notes

* Department of Spatial Planning, Netherlands Environmental Assessment Agency, david.evers@pbl.nl

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Assessing the sustainability of the urbanization strategies: housing and residential areas

Ivana Katurić*
and Ries van der Wouden**

Introduction

Many urban areas in Europe have faced rapid growth of the urban economy and population during the last decades, resulting in the development of new residential areas to enlarge the urban housing stock. Different urbanization strategies are used to facilitate the development of new residential areas, depending on the planning system and political priorities. They can maximize the building of new houses within the existing urban area by densification programs, they can cluster new residential area around infrastructure (Transit Oriented Development), or they can leave the building of new houses as the low density areas. These strategies result in three archetypical modes of urbanization: urban containment, concentrated urbanization, and diffuse urbanization. Each mode has different positive and negative effects upon the economic, ecological, and social sustainability. The relation between these three modes of urbanization on residential areas and sustainability is the central issue of the paper.

The paper builds upon the results of an international research project facilitated by ESPON, Sustainable Urbanization and Land Use Practices in European Regions (SUPER). Despite the numerous studies on the impacts of various kinds of urban development over the past decades, few scholars have attempted to systematically compare the sustainability of different urbanization modes.In the next section of this paper we will discuss the relation between urbanization and sustainability in general. In the subsequent section we will focus upon housing and residential areas. Also, the paper uses the results of case studies in different European countries. The impact of urbanization modes on housing will be further explored by case studies of Stockholm and Bassa Romagna in the fourth section of this paper.

Modes of urbanization and sustainability

Today, the discourse on urbanization policy centers on the concept of sustainability. Especially in Europe, there is a palpable concern that current planning decisions and practices are negatively impacting future generations and undermining long-term economic prosperity, social cohesion, and ecological vitality (Hennig et al. 2015; Jehling et al. 2018). Despite the plethora of studies on the impacts of various kinds of urban development over the past decades, few scholars have attempted to systematically compare the sustainability of different urbanization modes. One exception is Jabareen (2006) who proposed a methodology to measure the sustainability of contemporary urban planning concepts. In this document, we build on his approach by widening and simplifying the concepts considered (for analytical clarity) and applying a multidimensional definition of sustainability, including economy, ecology, and the social domain.

Sometimes a false dichotomy is invoked between interventionist urban-containment policies that severely restrict urban growth, preferably with 'zero land take', and an implicit choice for 'urban sprawl' by taking a laissez-faire approach to urban development. The reality is far more complex. In addition to the culturally embedded suburban ideal of owning a house with a garden and two-car garage (Jackson, 1985; Fishman 1987), modern spatial planning was confronted with changing demographics within the cities themselves such as a growing use of residential space by their inhabitants. A century ago, an average of 4.5 people lived in every house in Amsterdam, but by the end of the 20th Century this was less than 2 (Wintershoven 2000: 128-129). This made it difficult if not impossible to accommodate growing housing demand within the existing urban fabric. Because of these tendencies, new strategies were invented to direct urbanization to balance individual desires for space (including businesses) and the public interest (preservation of valuable cropland, natural habitats, support for public services and infrastructure). This resulted in the production of a variety of urbanization models and planning neologisms such as self-sufficient growth centers or garden cities, satellite towns and green belts, or finger-shaped urban extensions. These strategies were later adapted as their side- effects became apparent. For example, new towns created in the 1970s and 1980s increased traffic congestion in the UK and Netherlands, prompting a move towards transit-oriented development in more recent years (Cervero 1998).

To escape the binary world of 'zero land take' versus 'urban sprawl', avoiding the normative meanings of these two terms, and doing justice to the real world of spatial planning, we discern three archetypical modes of urbanization: *compact urbanization* (i.e. high-density compact cities with land-take close to zero, often the result of urban containment strategies or geographical limitations), *polycentric urbanization* (i.e. clustered, medium-density urbanization usually resulting from spatial development policies like new towns, smart growth, TOD, some new urbanist designs, etc.) and *diffuse urbanization* (i.e. low-density scattered urban development like monofunctional car-oriented suburbs, ribbon development and exurban, often informal, construction). Other urbanization modes certainly exist, but we concentrate on these three for the sake of analytic clarity. For the same reason, even though we acknowledge that these modes are not mutually exclusive and can be combined in practice, we evaluate them separately.

The three modes of urbanization have variegated impacts on sustainability. Based upon an extensive literature review of North American and European sources, we have estimated the various effects on sustainability (the economic, ecological, and social dimensions of sustainability). The findings of the literature review are presented in *Table 1*. The full review, including references to the literature resources, is published in the final SUPER report, annex 4 (XX source website ESPON). The table provides an expert-judgement estimation of the net impact for each sustainability indicator based on the reviewed literature (on a Likert scale indicated by
- - to + +). For the sake of readability, the table presents the findings of this literature review in a synthetic way, omitting the references and averaging out the weights for each indicator (+/- usually means conflicting findings between studies).

The analysis leads at least to one clear conclusion: each of the three urbanization strategies contains trade-offs between the dimensions of sustainability, there is no 'winner-takes-all' urbanization strategy. For example, compact urbanization has clearly positive results on ecological sustainability, by reducing land consumption. But at the same time, it may result in scarcity of land for residential development and high prices for housing. Diffuse urbanization may better meet housing demand but may lead to higher transportation costs and loss of natural environment. In the next section we will focus upon the effects of the three modes of urbanization upon affordable housing, one of the most important domains of social sustainability. The polycentric urbanization strategy has a lot of positive scores on many indicators, but contains also compromises and potentially negative scores,

Table 1 – Modes of urbanization and aspects of sustainability (summary)

	Compact	Polycentric	Diffuse
Economic sustainability			
GDP, wealth	+/-	++	+
Public finance	+ +	+	-
Jobs	+ +	++	+/-
Accessibility	+/-	++	+/-
Business areas	++	++	+/-
Housing demand	-	+	+
Transportation costs	+/-	+	- -
Energy consumption	+	+	- -
Ecological sustainability			
Reducing mobility (by car)	+ +	+ +	- -
Reducing pollution, including CO2	+ +	+	- -
Green urban areas	-	+	-/+
Biodiversity	+/-	+/-	--
Land consumption	+	+	- -
Natural hazards	-	+	+/-
Climate change	+/-	+	+/-
Consumption of resources	+/-	+	-
Renewable energy	+/-	+/-	+/-
Space for future water retention	+	+	+
Circular economy	+	+	-
Social sustainability			
Health	+/-	+/-	+/-
Affordable housing	+/-	+/-	+ +
Equity/inclusion	+/-	+	- -
Public and recreational space	+/-	+	+/-
Variety (high-rise, suburban, etc.)	+	+	+
Mixed-use areas	+	++	-
Satisfaction with home environment	+/-	+	+

as the analysis of affordable housing in the next section and the case study of Stockholm will show.

Urbanization strategies and affordable housing

Within the assessment of impacts of urbanisation modes on sustainability dimensions, the impact on housing was investigated in the aspect of economic sustainability by analysing housing demand, and in the aspect of social sustainability by analysing housing affordability.

According to the analysis, the first urbanisation mode - urban containment has pronounced negative impacts on economic sustainability related to housing demand. Numerous studies emphasize that restrictive land regulation policies lead to possible restrictions of economic growth, as house prices increase, development land becomes scarce and individuals and businesses decide to relocate to other cities where there is still room for new development on the periphery.

Studies in the US also recorded reduced new housing supply (Mayer & Somerville 2000). More restrictive residential land use regulations and geographic land constraints are linked to larger booms and busts in housing prices, which increase market volatility (Huang & Tang 2012; Laughlin 2012).

In the Netherlands, restrictive land-use policy causes an increase in house prices – consequent estimated economic loss in the Netherlands is 0,5 % of GDP (Besseling et al. 2008, 13-77).

Studies form the UK showed that increasing development risk makes all houses less affordable because fewer get built (Cheshire 2018). Furthermore, restrictive land use regulation and local planning constraints increase local housing vacancy rates: a study by Cheshire et al (2018) showed that a one standard deviation increase in restrictiveness causes the local vacancy rate to increase by 0.9 percentage points (23%).

Regarding social sustainability, studies have shown that urban densification increases housing prices, which has a negative impact on affordable housing.

The second mode of urbanisation, concentrated urbanisation, has generally a positive impact on housing demand since it considers new construction. Regarding social sustainability and housing affordability, studies mostly note positive or neutral effects of TODs. Affordable housing is an important part of most TOD policies, and lower-income passengers often represent the majority of transit users. Some studies emphasized that housing prices may increase due to enhanced transport accessibility; however, in the US lower-income residents did not move out of new transit neighbourhoods at a disproportionate rate. Therefore, the majority of transit neighbourhoods do not undergo dramatic changes in their socioeconomic composition in the decade following the placement of the station.

Demand for affordable low-density housing caused by an increase in population is one of the drivers of diffuse urbanization. Most studies have emphasized positive impacts of diffuse urbanisation on housing demand. Diffuse urbanisation represents a fulfilment of low-cost and low-density housing market needs for the growing population and economy. Also, a study in Italy showed that housing market in less dense cities is more resilient and affordable than in denser cities during a recession phase (Antoniucci and Marella

2016). Regarding housing affordability, we noted positive impacts of diffuse urbanisation. Many studies proved that people choose to live in low-density suburbs due to low housing prices. Also, some emphasize that suburbs are a desirable place to live because low-density housing offers more privacy and larger garden areas than densely built up compact cities. Living close to nature reduces stress, and some argue that decentralised urbanisation, as a return to the countryside, would help to instil positive rural values.

Housing and COVID-19

The world is still finding out new ways of how the COVID-19 virus is affecting every aspect of our lives, as well as affecting the housing provision and its affordability. Urban containment, having close ties to the neighbors and living in proximity to all basic needs was looked at as an asset because less time was spent in transportation, people have easier access to schools, health care facilities, and groceries, while they also have a superb social network. It is positively viewed from the ecological side due to lesser use of new greenfield but rather a redevelopment of existing brownfields. With the pandemic, this type does not seem the like a positive option but seen as an easier way of spreading the disease and there are remarks such as Rosenthal (URL 2) showing the ease of spreading the virus in densely packed cities such as New York. However, there are conclusions that density itself is not a major issue for the virus spread, but connectivity in terms of social, economic, and transportation relations are increasing the risk (Hamidi, Sabouri, Ewing, 2020). The third type, diffuse urbanization, is opposing the previous one and bases its strengths in having more spacious and less dense housing options as well as the cities themselves. Olsen (URL 3) underlines that the American way of living in a suburb and owning a vehicle is a secret weapon for keeping social distance and helping with the prevention of spreading the disease. This might become a more valued type of urbanization, however, on the stake of hurting ecology due to the need for converting more agricultural to urban land. The second type is polycentric urbanization has similarities with the first one, but it has more than one node that represents a point of interest. People and housing are gathered more around specific points such as public transportation stations and those are then consequently built up other services needed for daily life. COVID-19 has seriously affected public transportation preferences. Moreover, an increasing population is starting to work remotely, while at the same time more and more services are available either online or with door-to-door delivery options, which means having less need for orientation towards the use of public transportation in general. Although that can have health benefits in terms of reducing the spread of the virus, it has negative effects of fewer people being active in everyday activities and getting more comfort. From an economic point of view, it can impact badly socially vulnerable groups who depend on the public transportation networks and who would need to potentially find new housing in the area where more services would be closer and available. In terms of ecological sustainability, this type and trend call for later higher use of private transportation and for more trips needed to fulfill daily needs, which leads to more traffic congestion and air pollution. Based on different levels of homeownership - renters ratio, cities, and states have put in action numerous measures for both protecting its citizens' health-wise as well as for maintaining social security. The capital of Latvia, Riga, has secured an allowance for helping its socially endangered groups which are having troubles making ends meet, both in terms of minimum income level and for housing installments (URL 4). As pandemic is causing the economic crisis, more people are left with no jobs, and therefore measures like the ones in Riga have been implemented in numerous cities and states around the world. Nantes has formed a housing solidarity fund available to people with low or less income because of the coronavirus crisis. Another form of help is the so-called rent moratorium which freezes the payment of the rent for tenants during the crisis but will be paid afterward when the economic situation of tenants will improve, which was implemented in Spain (URL 5). Portugal has banned evictions until further notice (URL 6). Cities that were in a need of creating more lodging places might have put shelters in use for homeless people, such as Athens. It is worth mentioning that not all cities can rely on these due to different climate settings. Bratislava generated 'quarantine town' where medical and other professional staff provides care for homeless people. Barcelona has put tourist accommodation in use for providing housing for socially endangered families, in Ljubljana hotels are being used for housing for medical personnel for reducing the possibility of spreading the virus. Migrants in Europe are also impacted by coronavirus and cities are finding appropriate housing for the mas well – in Brussels that is hotels (URL 7). Even though in Vienna more than 60% of its population already, the city agreed-upon building 1000 new social apartments by the year 2022 (URL 8). This type of housing generates limited profit but puts citizen welfare and security of housing in the first plan. City representatives stated that the experience of a lockdown is changing the perception of what is seen as a minimum standard for comfortable housing as more spacious rooms and apartments with a balcony or a courtyard now becoming a need. With a lot of people having to work from home for the first time and kids staying at home for online schooling, new standards of the living environment are emerging - such as the need for private rooms or even separate office room, more natural light, and enough windows for better air circulation and high-speed internet (URL 9). People have started to invest more in their homes to make them more enjoyable and livable since spending a great deal of time inside the home. Additionally, there is a predicted shift towards more people starting to prefer to live in a house rather than an apartment because of a lockdown, as well as preferring lower density areas than clustered areas. COVID-19 has shed a light as well on problems related to domestic and gender violence and showed a need for opening up more safe homes such as in Madrid, where the city council has decided to undertake this temporary measure to tackle the rising problem (URL 10). Tourist housing in cities have also suffered from COVID-19 as some renters have decided to stop renting to spread the virus, some are in troubles as that was their only income regularly which now with no tourists is not available, while some Airbnb apartment owners in Italy and France have offered their rented places for free to medical personnel (URL 11).

Van den Berg (URL 12) points out that the resilience of our cities depends on how well we plan them. Planners need to keep their eyes opened and always have more possible outcomes in mind and with that, plan accordingly for a better and more sustainable urban future.

Cases

Stockholm

Stockholm has a longstanding record in urban containment policy and spatial planning, both on the municipal level and the regional level. Decades ago, Stockholm adopted the Transit oriented development strategy, resulting in a polycentric urbanization pattern connected by an extensive public transport system (Cervero 1998; Paulsson 2020). Sustainability is a central issue in urbanization policy, including economical, ecological, and social goals. There are two major documents

that pinpoint the urbanization policy. On County level it is the RUFS 2050: Regional Development Plan for the Stockholm County (Stockholm Läns Landsting, 2017) (swe. Regional utvecklingsplan för Stockholmsregionen 2050). For the municipal level it is the Stockholm City Plan 2030 (swe. Översiktsplan för Stockholms stad) (Stockholms Stad, 2018). They both are mainly focused on economic and environmental goals, whereas social goals are more spread through thematic or geographic sections.

Stockholm's urbanization strategy resulted in many positive effects in the economic and ecological dimensions of sustainability. But social equity was the weakest aspect of the urban containment policy in Stockholm, according to the assessment of stakeholders interviewed for this case study (SUPER final report 2020, annex 3.12, 32-39). The extent of the housing crisis is foreshadowing the positive outcomes of the policy that otherwise could be considered successful. There is a visible effort of improving social infrastructure, especially the public healthcare system, and adjusting it to the needs of the contemporary metropolitan society. Moreover, investments in the infrastructure and e-services improved the accessibility to social services. Also, a lot of housing projects in and outside Stockholm are going according to the schedule.

Despite these efforts all stakeholders claim that the social equity in Stockholm is challenged not by the fact that the urban containment policy has negative impacts on the housing situation, but the fact that it has relatively limited capacity to address it. As a result, the situation gets worse overtime and for example civil servants feel quite helpless about it. The complexity of legal, economic, and institutional factors behind the housing crisis in Stockholm is the reason why the plan has limited power to mitigate it. Some stakeholders claim that in this matter Stockholm was a victim of its own success. A growing number of inhabitants, attractive labor market, great amenities and quality of life all puts pressure on housing market (both rental and ownership). The number of new houses is still below the level of demand and there is a mismatch between the production of housing supply and demand: developers and municipalities are good in building high-quality expensive showcase houses, but fail to deliver affordable, mid-range quality housing. The provision of new housing is dropping because people cannot afford it.

This situation is leading towards more serious inequalities, contributing to growing segregation in terms of income, class and ethnicity, social frustration, and rising tensions as well as growing pressure on local transport hubs. Social segregation is seen not because of planning, but rather a consequence of previous neo-liberal political decisions (see also Hall 2014: 229). On the other hand, local actors believe that regional and municipal planning authorities have higher impact on the situation than they claim and by using the regulatory tools, like assuring diverse tenure mix as an anti-segregation instrument and keeping the 50% rent – 50% sale ratio in new developments the situation could improve.

Civil servants admit that they are trying to mitigate the situation by exploring other options, namely looking into cooperative housing solutions from Denmark, Austria and Germany as well as lobbying the central government for tailor-made solutions for expanding metropolitan areas. There is also the Social Impact Assessment tool, which enables an analysis concerning social impact of intervention on people representing various demographics. Clearly, having social policy goals is not enough to provide affordable housing and to reduce segregation. It is the institutional arrangements that matter.

Bassa Romagna

Bassa Romagna is in north-east Italy in Emilia Romagna and it is composed of nine municipalities: Alfonsine, Bagnacavallo, Bagnara di Romagna, Conselice, Cotignola, Fusignano, Lugo, Massa Lombarda, and Sant'Agata sul Santerno (URL 13). It is a predominantly rural area with small and medium-size towns, developed road networks, and high agricultural potentials. Its proximity to the Adriatic Sea adds to the value of the landscape with its natural beauty. Urbanization in the area is increasing constantly and therefore using existing agricultural land for further development. ESPON SUPER has classified the model of urbanization in the area as diffuse urbanization according to the existing analytical categories. A considerable challenge in Italy is the legal framework of obtaining agreements of a spatial plan which needs to be in consolidation with both local and national level plans and therefore, besides complicated bureaucracy, they are oftentimes inefficient. Bassa Romagna is a specific example as nine municipalities have decided to gather and have one common framework to make things easier for collaboration and to fight rising urban sprawl as well as to support sustainable urban development. Together they have introduced the Municipal Structural Plan (PSC- Piano Strutturale Comunale) back in 2009. Background of the plan is that Emilia Romagna has one of the highest land usages in the whole of Italy and combined with the fact that it is also one of the economically strongest regions, it can only be expected that a need for converting agricultural to urban land use will continue. Due to previous laws that were sometimes contradictory, there was a substantial percentage of illegal development and by bringing this new plan into action it is also a try to combat that issue. As a consequence of the economic crisis back in 2007-2008, municipalities have been forced to start selling the land to private stakeholders as it was seen as a way to gain money that the municipality needed which meant that the land was used in an unsustainable manner due to these market speculation mechanisms. Along with then-existing national law which did not per se mention sustainability as one of the important aspects of future development, there was little hope for any change. The new plan has stated that it is the vital essence of planning to use the existing resources in the best way possible to promote socially, economically, and physical sustainability and with the least possible harm towards the living environments of future generations. Then current spatial fragmentation and competitiveness among municipalities were only weakening the care for future generations and each municipality worked as it existed solely in the region. Implementation of the plan showed once again numerous issues that had to be addressed. One big challenge was presented in the form of political will that has historically existed in the area for a long time and it was used as showing superior power even over the matters of a public good. Changing that and establishing strong institutions that would be collaborative and effective emerged as the priority. On the other side, having sufficient data availability plus social, economic, and environmental richness has facilitated the implementation of the plan. The main change brought by the plan was a shift from very regulative-oriented planning to more strategic and integrated planning activities. Novelties like including citizens' participation in a decision are also in force, however, having in mind that the majority of citizens do not have a planning educational background and therefore might not be able to completely understand and rightfully evaluate the challenges and opportunities of specific locations. When looking at the economic impact of the plan, there is the positive and negative side of it, and it is not necessarily that it had more positive impacts. This can be since at the beginning of a step like uniting there are always more costs than later,

once when there is a better understanding of where the money goes to and how it can be better regulated. From a point of ecological impact, the plan has brought up much more positive changes, such as preserving the land and having a restriction mechanism that prevents going against the tendencies of the plan. It has also strengthened up sensitivity about the importance of nature preservation and environmental assessment measures the same as a new culture of zero-waste management. Regarding the social impact of the plan, views are separated. There are claims that its negative impact is seen through fewer investments in renovating certain city areas and thus leading to the higher pressure of socially vulnerable groups. Additionally, there were fewer sights on the topic of affordable housing. On the positive side, it is said that new investors must dedicate 20% of their development volume on social housing/housing affordable solutions, be it for building in situ or some other location. It also makes private investors obliged to dedicate part of their investments in providing public facilities (urbanization, taxis), etc. Overall, the plan has been marked as innovative and bringing up towards urbanistic equalization and after seeing how the plan works, there is little to no possibility of going back to a chaotic system of territorial (mis)management. Despite having some very location specific remarks, this plan showed five important lessons for future congregations of different spatial units. The very first observation is that territorial integration is vital. It does not come only in form of easing the finances and spending more time dealing with the bureaucracy but as well in forming and maintaining social and infrastructural networks and having dedicated goals to follow to make the best for all parties included. Territorial scale matter as well as stakeholders should think also about what is beyond the existing borders of the municipalities and how does that compile or not with other ongoing processes be it on regional, national, or even international levels. Gathering municipalities underlines the essence of a cooperative-based approach which can bring new ideas that might have been missed while not having newcomers' points of view on a particular matter. The same goes for cooperation on the vertical level when citizens can make an impact in deciding about a matter related to the development of their environment. Fourthly, it has shown that the holistic sustainability approach matters and following higher institutions and agencies on the international level that promote sustainability. Understanding sustainability might not always be an easy task since the results are shown often in more time-distant periods, but even just building the capacity for understanding its value is necessary. Finally, institutional dimension matter for balancing the interests of public and private stakeholders and actively making sure that operations are legally binding.

Concluding remarks

A growing network of cities across the European, along with the increase of population living in the same poses a need for more insightful understanding of the processes of urbanization and types and consequences of its occurrence. Different cities have different needs when it comes to housing and residential preferences, socioeconomic groups with diverse purchase power and culture. This article tried to outline possible assessment framework for the three main modes of urbanization. We have outlined how they affect housing affordability and what are going to be current strategies related to the housing crisis in cities. So, it has been discussed how is affordable housing affected in times of greater uncertainty caused by the worldwide pandemic of COVID-19 and how have different cities and states tackles this issue. Considering that there are still not many researches done in a relation of housing and novel virus, it is still possible to spot a predicted long term changes of the housing system. This kind of systematical overlook of pros and cons lacks in the scientific domain and to improves the understandings of the matter, two examples of case studies are given, with Stockholm being a representative in urban containment of and Bassa Romagna for diffuse urbanization. Both cases can illustrate some location-specific features, but they do show also lessons that are potentially valuable for some other European cities and can be used as a guide for making improved decisions on sustainable urban development.

Note

Ivana Katurić
Specialist course on Spatial Planning, Faculty of Architecture, University of Zagreb Urbanex, Zagreb, Croatia, ivana.katuric@urbanex.hr
Ries van der Wouden
PBL, Netherlands Environmental Assessment Agency, ries.vanderwouden@pbl.nl

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Interventions and instruments to promote sustainable land use in Europe

Alys Solly*, Erblin Berisha**, Giancarlo Cotella*** and Umberto Janin Rivolin****

Introduction

Since the first examples of human settlements, land has been subject to transformations. With the industrial revolution and in particular after the Second World War, land transformation has become more intense in terms of overexploitation of natural resources. Only recently, however, have policy and decision makers acknowledged the importance of land as a finite resource. Sustainable development has increasingly become the subject of many studies and a reason for debate, leading to different lines of thought among the various disciplines. This has led to the design and implementation of a great number of sustainable land use practices in many European cities and regions. In fact, it seems that sustainability of land use depends both on the socio-economic processes that trigger spatial development and the effectiveness of the instruments that regulate these processes (Solly et al., 2020).

The need for a more sustainable and eco-compatible approach, and the European objective to achieve zero net land take 2050 (Science for Environment Policy, 2016), have been one of the reasons why ESPON launched the pan-European research project SUPER – Sustainable Urbanization and land-use in the European Regions. The project examines, on the one hand, the nature and the structure of urbanization processes and, on the other, it seeks to analyze the degree of success of interventions and instruments aiming at a more sustainable use of land.

This contribution presents the results of the project by focusing especially on the content of the SUPER "Guide to Sustainable Urbanisation and Land Use" (Cotella et al., 2020). Thanks to the exploration of more than two hundred examples of urbanization interventions gathered all over Europe, the guide suggests a set of policy recommendations for policy and decision makers in order to address land use in a more sustainable perspective. According to the different objectives and contextual needs, policy and decision makers should focus more on: (i) which intervention (i.e. densification, regeneration, containment, governance and sectoral policies) and (ii)

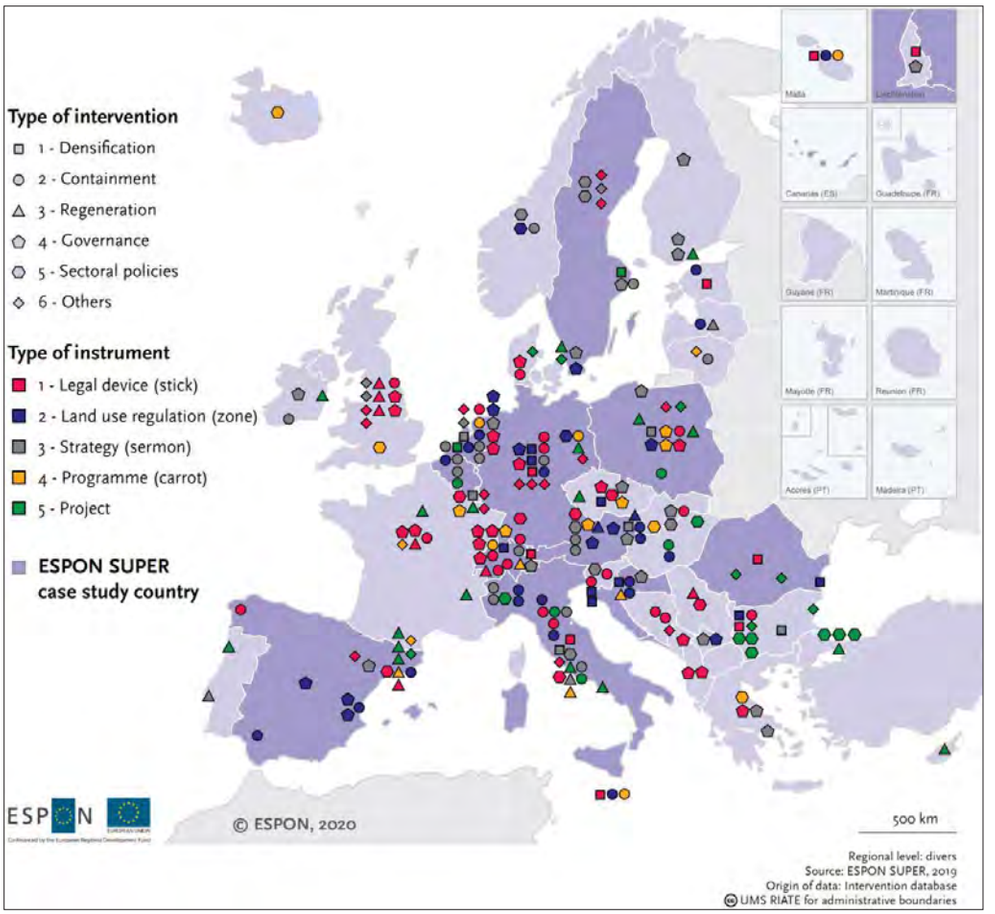

Figure 1 – Interventions in Europe (Cotella et al., 2020: 35)

which instrument, should be used (i.e. visions and strategies, rules and legal devices, land use regulations, programmes and projects).

How to promote sustainable land use?

The SUPER "Guide to Sustainable Urbanization and Land Use" provides advice to enable policy and decision makers to better understand and address land use. Building on the SUPER intervention database which includes 235 examples of urbanization in Europe (see Figure 1), the guide delivers a set of recommendations focusing on the subnational, national and European level. The recommendations mainly focus on the choices in relation to the objectives that the interventions have to pursue (e.g. urban containment, densification, regeneration, governance and sectoral policies), as well as on the instruments through which these objectives should be more easily achieved (e.g. strategies and vision, rules and regulations, programmes and incentives, projects). The number of examples gathered all over Europe reveals that all the countries are trying to address land use in different ways and with different levels of success. Accordingly, the SUPER database offers a wide spectrum of possible initiatives showing both strengths and weaknesses.

The following sections explore the ways to promote and address sustainable land use, accompanied by a series of recommendations and warnings addressed to the different territorial stakeholders.

Different lines of intervention…

Certain lines of intervention are frequently used to promote sustainable urbanization and land use. This section reflects upon interventions aiming at densification, regeneration, containment, governance and sectoral issues, in particular reflecting on their level of success.

Densification

The analysis of the SUPER interventions shows that certain characteristics, such as those that trigger long- term sustainable development, support densification initiatives. Yet, it is important to adopt tangible short-term results in order to implement effective long-term strategies. For example, the Croatian Spatial Plan of the Primorje-Gorski Kotar County tries to limit future urban growth, promoting a more effective management of land use. Nevertheless, in an attempt to plan more surface area for settlements, non- residential facilities seem to have been driven further away. Increased cooperation between stakeholders also seems to improve the effectiveness of these interventions. In fact, the success of the Royal Seaport eco- district in Stockholm is attributable to the negotiation between public and private actors during the various phases of the project. The adoption of legal binding instruments and strategies often seems to improve the successfulness of these types of interventions (e.g. the general development plan of the City of Stara Zagora and its adjacent territories). Data, knowledge and technical capacity are other characteristics that seem to promote sustainable development. For example, the Infrastructural cost calculator (Austria), supports municipalities in pre-assessing the financial costs of rezoning and urban expansion. Although the intervention tries to assess the municipal repercussions on where and how new inhabitants are settled, the effectiveness of the intervention seems to vary according to its implementation. Overall, densification strategies can encourage different typologies of urban development (e.g. compact, polycentric). Yet, a typology of urban development might produce positive effects in one case and negative effects in another.

Regeneration

Among the characteristics that promote urban regeneration are those that envisage the concept of reuse. This can be seen in many urban regeneration processes, such as: *Gründachstadt Linz*, the transformation of green roofs; *Réinventer Paris*, the renovation of underutilized areas; Dublin Docklands, the regeneration of brownfield areas; the transformation of vacant areas in Berlin, the renewal of vacant areas (unused since World War II). Since 1998, the United Kingdom has been applying brownfield targets (with at least 60% of new housing to be built on brownfield land by 2008), under the banner of an 'urban renaissance' (Shaw & Robinson, 2010). Improved multilevel cooperation between stakeholders also seems to strengthen the effectiveness of these types of interventions. In Italy, the community-led regeneration process in Casoria produced very positive results in relation to the rehabilitation of abandoned areas and the enhancement of public participation. On the contrary, the regeneration of parts of the Taht-el-Kale Quarter in Cyprus was perceived as less successful, mainly due to the scarce level of public participation. The adoption of legally binding instruments often seems to improve the successfulness of regeneration interventions. This is the case of the 2007 zero-growth plan of Cassinetta di Lugagnano which forbids urban expansion to keep agricultural land as intact as possible.

It also seems that the most successful interventions promote an integrated approach. For example, the 22@Barcelona regeneration programme, which was well integrated with the restructuring process of the metropolitan area and the urban policies framework.

Containment

Many containment interventions have been implemented in Europe with the objective of reducing land take. Green belts and sustainable strategies have been designed (e.g. the *Grüner Ring* in Leipzig, *Corona Verde*) to control urban growth. The support of political will and the adoption of long-term visions seem to improve the implementation of these interventions. For example, the German government set the 30 hectares target, the ambitious goal of reducing annual land consumption to 30 hectares per day nationwide by 2020. In Austria, the success of the Vision Rheintal is due to cooperation that goes beyond municipal boundaries and the engagement with a group of experts. The adoption of legal binding instruments also seems to improve these interventions. The 2014 Tuscany Regional Law on soil consumption requires municipalities to delimit the borders of their more densely urbanized areas and to promote the urbanization of empty plots through simplified regulations and incentives. Similarly, the 2009 Law for the City of Sofia, which works together with the city's General Urban Development Plan (GUDP), seems to have produced positive outcomes. The GDUP, however, seems to have been less successful. In fact, inconsistencies seem to exist between the plan's overall goals and some of its measures and implementation tools. Thus, certain interventions, if not implemented correctly, might lead to a discrepancy between the desired objectives and the actual outcomes. Certain containment initiatives may also turn out to be counterproductive for sustainable land-use. This is the case of the Cork Area Strategic Plan, which aims to reduce urbanization in the countryside but seems to be based on a pro-growth approach.

Governance

Despite the relevance of the topic, governance interventions seem to have produced results that are varied. Interventions that adopt an integrated approach are generally more effective. In Stockholm, the urban transformations and modalities of integrated planning are considered successful cases of integrated land use, housing and transport planning. Nevertheless, multi-level collaboration in Stockholm's urban transformations favouring the integration of local actors has had to face challenges, such as the intervention of the central government. In Helsinki, the agreements on land use, housing, and transport (MAL) for the 2016-2019 period are also perceived as successful. In fact, the intervention promotes a more effective land use management and cooperation between municipalities. As regards the adoption and implementation of urban plans, governance interventions seem to have had different impacts in different cities. In general, multilevel collaboration seems to improve the effectiveness of these types of interventions. In Poland, the Tri-City metropolitan area planning is perceived as successful due to the integrated governance structure it set up; however, despite its good potential, time is still needed to fully assess its success. On the contrary, the attempt to promote bottom-up, integrated metropolitan planning led to the approval of the Poznań metropolitan area planning law (Poland) that, despite identifying areas that are important for environmental protection, failed to achieve the expected results in terms of municipal coordination.

Sectoral policies

Sectoral policies that refer to transport, environment and rural development seem to have different impacts on sustainable land-use. As regards transport policies, the Urban Mobility Plan of Barcelona, introduced 'the superblock model' (Mueller et al., 2020), an intervention that is considered very successful since it reduced air pollution. In the United Kingdom, the Mini-Holland in Waltham Forest is another successful intervention that supports urban mobility, reducing motorized transport on the model of Dutch-style infrastructure. The results of the Slovenian Sustainable Urban Mobility Plans are more mixed. In fact, only one third of the municipalities adopted them and their poor acceptance by local political leaders remains one of the main challenges. Another questionable intervention is the City of Sofia's underground metro that appears unable to integrate its mobility aims with achieving a more integrated land use approach. As regards environmental policies, in Germany, the BOKS – Soil Protection Concept is a successful example of sectoral intervention, which promotes a higher level of environmental quality and aims to reduce soil consumption. It is also worth mentioning the 2007-2013 project Green cross-border area - Investment in nature (between Bulgaria and Serbia) which has enhanced environmental awareness, as well as an exchange of knowledge and good practices. On the contrary, in Austria, the Soil Enhancement Plan has the potential to support sustainable urbanization and land-use, but is rarely applied. The flood management system along the Tisza River in Hungary is also considered unsuccessful due to a lack of coordination between authorities and financial mechanisms.

…and different types of instrument

Experience has shown there is no "ideal instrument" to be used for managing land use. On the contrary, sustainable urbanization and land use could be achieved through the implementation of a variety of instruments (visions and strategies, rules and legal devices, land use regulations, programmes and projects).

Visions and strategies

Visions and strategies are future oriented and non-mandatory instruments that set the main directions for development. One of the characteristics of successful visions and strategies is establishing ambitious, future- oriented objectives but, even more importantly, identifying realistic ones, while conversely, underfunded, incoherent or unrealistic strategies can erode credibility and commitment (Cotella et al., 2020). On the basis of the examples gathered, strategies introducing an ambitious target that have influenced the use of land include the Vision Rheintal of Vorarlberg in Austria and the Tri-City metropolitan area planning in Poland. Both initiatives promote a more integrated approach to urban containment by facilitating investment on e- mobility transportation, encouraging densification along public transport routes and improving intercity connections within the region. Other successful cases are the Corona Verde in Italy, whose success is demonstrated by its capacity to mobilize substantial funds for implementing short-term projects within a wider long-term strategy, and the *Kooperationsplattform Stadtregion* of Salzburg which implemented a regional green belt using development compensation measures to guarantee equal benefits for participants. At the national level, one clearly successful strategy is the zero-growth goal for car traffic applied in Norway that aims to introduce non-motorized models of transport.

However, visions and strategies are not always successful and face various challenges. This has proved the case for a number of strategies for European cities, which were challenged by sustainability trade-offs, implementation difficulties and lack of institutional will and capability. For example, the new Finger Plan of Copenhagen to promote a more efficient transport network paved the way for sacrificing valuable green areas. Similarly, the last

Cork Area Strategic Plan aimed to reduce the loss of agricultural land, but what in actual fact rural land consumption increased. Again, while the Athens Master Plan introduced innovative concepts, it failed to combine its attention to environmental causes due to a lack of public consultation processes (Skayannis, 2013), while the Sustainable Metropolitan Plan of Rome Capital City 2003 has never been implemented due to limited political and institutional will. Similarly, at the central level, the Climate Adaptation Programme in Portugal shows that the success of this type of intervention can be undermined by a lack of political will at the local level.

Rules and legal devices

Sustainable land use can be addressed by establishing specific legal devices, such as binding laws and bylaws, to create a supportive institutional framework. Decision and policy makers can activate a plethora of different legal devices that can be mandatory or not mandatory – allowing authorities a certain level of flexibility. Sustainable land use can be promoted by introducing ad *hoc laws* and norms (for land use or environmental protection), as well as by promoting disincentive measures (fees, *ad hoc* taxes). Based on the experiences gathered, legal devices are not always successful. Contradictions emerge, for instance, in the case of the Poznan Metropolitan Area Planning Law, which despite having the merit of introducing concepts like 'compact city' and 'energy-efficient spatial structure', does not offer enough legal clarity to enforce them. A sustainable land use can also be achieved by introducing successful economic disincentives or compensations as proven by examples from Austria (Development and Maintenance Fee applied in the region of Upper Austria), in Italy (doubled urbanization fees in Emilia Romagna) and in Germany (soil compensation account introduced in Dresden). Upper Austria establishes that the infrastructure fee is in charge of the owner to limit urban expansion while the Emilia Romagna region decided, on the one hand, to double urbanization fees for projects that convert agricultural land into built up area and, on the other hand, to decrease these by at least 35% for projects that rehabilitate abandoned areas. In Dresden, although the soil compensation account aims to confine built-up land for settlements and traffic to 40% of the total urban land, its approach is considered too limitative for investors, who are forced to carry out compensation measures by themselves or to pay a compensation fee.

Land use regulations

Land use regulations establish binding principles, usually through zoning, that define how land can or cannot be transformed. Historically, this occurs through dedicated local land-use planning tools, aiming at regulating physical development or, in some cases, to forbid development and to leave the land as it is (Hall, 2002). Based on the experiences gathered, plans are shown to act in different directions according to their final objective. Some plans may promote policies aiming at reducing land exploitation or increasing its optimal use (e.g. Municipal Operative Plans of Reggio Emilia and Bassa Romagna)[1]. Similarly, the Province of Utrecht (the Netherlands) is experimenting the de-zoning of urban functions back to agricultural via the imposed land-use plan, primarily as regards unbuilt office space. Other land use plans instead, may focus mainly on protecting and improving existing agricultural land (Territorial Action Plan of the Huerta de Valencia and Rural Park South in Milan) or limiting urban expansion (e.g. the Physical Environment Special Plan Protection of the Andalucía Region).

However, land use regulations cannot guarantee *per se* the achievement of sustainable land use objectives. In some cases, plans can increase land transformation to respond to market mechanisms (see the Sofia General Urban Development Plan in Bulgaria and the Spatial Plan of Zone Chalupkova in Bratislava, Slovakia). Land-use regulations can also promote, indirectly, the explosion of informal development due to their rigidity or lack of clear implementation mechanisms. The Urban Development Plans of Prishtina (Kosovo) are an example that despite their original intentions, pushed urbanization processes to occur outside formal rules (Gollepeni, 2016), like the Outside Development Zones in Malta; even if their aim is to safeguard the integrity of rural areas, they have been accused of justifying speculative initiatives as construction limits are easily exceeded.

Programmes

Programmes are policy packages aiming at a particular objective. They can be used to create economic conditions (financial schemes, direct investments, allocation of developing funds) for sustainable land use. Throughout Europe, these initiatives have been mainly implemented to create the economic condition for the rehabilitation of industrial areas (e.g. 22@Barcelona, Spain), the protection of environmental quality (e.g. Re-creation of Lake Karla in Thessaly in Greece and the Enjoy Waltham Forest programme, in United Kingdom), as well as examples that promote cross-cutting initiatives (e.g. BENE – Berlin Programme on Sustainable Development in Germany). From an environmental perspective, an interesting and successful example is the Re-creation of Lake Karla in Thessaly (Greece), which was seen as an opportunity to enhance water supply, restore the ecosystem and improve the quality of the soil that was in danger of overexploitation. The Enjoy Waltham Forest programme, which has delivered a series of micro-interventions (e.g. segregated cycle lanes, planted trees) is also environmentally oriented. The success of the Berlin Programme on Sustainable Development (BENE), is evidenced by the amount of funds allocated (234 million euro), the number of projects put in place and the integration of existing development programmes.

Projects

Projects are individual *ad hoc* initiatives with a given timeframe. They can be used for the implementation of permanent or provisional transformations of sites. Projects are extremely heterogeneous in terms of nature, objectives, design and level of success. A variety of examples show how projects can contribute to regenerate abandoned areas like the Dublin Docklands (Ireland), the South Harbour in Copenhagen (Denmark) and the Royal Seaport in Stockholm (Sweden). The same has been done in other parts of Europe like Vila d'Este (Portugal), Industrial Park Borská Pole in City of Plzeň (Czech Republic) and Miasteczko Wilanów (Poland). Although diverse in some aspects, all the projects deal with recovering, eco-designing and promoting a healthy life-style. Efforts in reducing the human footprint have been made in the case of the Eco-Viikki project in Helsinki (Finland), which demonstrates how new living standards can be successfully combined with a minimal impact on the environment. Also successful was the *Caserne de Bonne* in Grenoble, the first eco-district in France. From the sustainable land-use perspective, the crucial factor is that the shapes of the buildings were compact to reduce land consumption and urban sprawl. More community- oriented but also successful are the transformation of Vacant Urban Areas in Berlin into attractive parks, vibrant public spaces and the case of Rotterdam where houses in deprived neighborhoods were simply bought up by the municipality and given away for free to anyone willing to invest a certain amount in renovation and promising to live there for at least 5 years (Snel et al., 2011).

However, projects also can fail or create unexpected or unwanted effects. Regeneration ini-

tiatives can easily produce gentrification like the Urban Development Project of Hyllie (Finland) that ended up with an image of housing 'wealthy white westerners' (Baeten, 2012). If not well-designed, regeneration projects may channel a pro-market authoritarian approach as the cases of Skopje 2014 (Macedonia) and the Belgrade Waterfront (Serbia) demonstrate. While both pursue the rehabilitation of strategic urban areas, local community interests take a back seat vis-a-vis private investors. Finally, some projects explicitly provide for overexploitation of natural resources like the Nessebar and Sunny beach seaside development in Bulgaria, the resort Ranca in Romania and the third Istanbul Bosphorus Bridge Canal Project in Istanbul in Turkey.

General recommendations and warnings

Overall, the analysis shows that no instrument or intervention can unequivocally guarantee success and, thus, the achievement of sustainable land use. However, a number of recurrent factors exist, that both decision and policy-makers should bear in mind when it comes to designing instruments or defining targets. In particular:

- visions and strategies should support common territorial perspectives for territories that share the same needs and challenges;
- decisions should be based on cooperative mechanisms (balanced between public and private interests); otherwise, instruments could remain on paper, without any (or only limited) chance of being effectively implemented;
- instruments should be supported by the presence of a strong, stable and future-oriented political will;
- long-term visions should be supported by short-term projects and accompanied by economic feasibility programmes;
- instruments should be: normatively strict (adapted to their different institutional contexts), technically feasible (a coherent set of norms and regulations that may guarantee the interventions' applicability) and socially acceptable (sustained by social legitimacy);
- interventions should find an optimum balance between the need of development and the need of achieving sustainable land use. Often the former is privileged at the expense of the latter, especially in those contexts that are overexposed to market (speculative) mechanisms;
- planning decisions should be reoriented to promote sustainable land use by reconfiguring (reconverting) buildable areas into agriculture ones;
- interventions should promote measures of urbanization containment and protection of agriculture/natural land;
- interventions should be well integrated with existing instruments and spatial planning tools and policies;
- planning decisions should be operative-oriented by indifferently promoting mega-projects or small- size initiatives, integrating all the thematic dimensions of sustainability;
- market mechanisms should be limited through the adoption of policies that help the promotion of a more rational land use;
- interventions should incorporate simultaneously economic priorities (being cost-efficient), environmental needs (promoting pro-environmental solutions) and social aspects (supporting citizens' involvement.

In addition, interventions risk being scarcely effective when:

- there are no institutional capabilities to translate them into effective measures;
- sustainability is not considered in a holistic perspective;
- there are directly legitimate speculative phenomena when it comes to facilitating private investments and real estate by indirectly facilitating illegal initiatives when plans are difficult to implement;
- there is a gap between ambition and effective achievement possibilities;
- instruments are too development-oriented instead of focusing on environmental protection leading to an institutional and economical mismatch with the rest of the programmes;
- instruments are used for achieving political legitimacy or exercising political power without considering sustainable land use;
- regeneration (and densification) sites are viewed as a tabula rasa for facilitating real-estate and speculative initiatives;
- instruments produce side-effects like increasing inequalities, gentrification, segregation etc. Often these kind of projects are rejected by the local communities instead of being implemented;
- instruments explicitly promote the overexploitation of natural resources since they follow pro-growth market logics.

Conclusions

There are different ways to address land use; however, none of them is either fully sustainable or unsustainable. The SUPER guide presents a number of urbanization experiences that cannot be considered 'best or worst practice' *per se*, but practices from which policy and decision makers can learn. The examples gathered are representative, but not comprehensive in terms of different socio-economic, political, institutional and territorial contingencies. Accordingly, urbanization processes are a combination of factors that cannot be simply replicated (copied and pasted) from one context to another, but require a tailored approach. In this view, the guide itself is aware that land use policies are not prepackaged but should be contextualized according to territorial, institutional, and cultural specificities (Cotella et al., 2015). At the same time, it offers a range of possibilities and toolkits that policy and decision makers can activate according to their needs and opportunities. Sustainable land use approaches can shift from a more ecological and environmental perspective by promoting reconversion of land, establishing ambitious target and strategies, promoting a densification of urban structures through the rehabilitation of industrial areas or applying a wide range of incentives and disincentives. Decision and policy makers should: (i) avoid 'one size fits all' solutions, each policy recommendation should be assessed according to territorial specificities; (ii) avoid stand-alone initiatives when addressing complex issues like sustainable land use (multi-dimensional, multi-sectoral and multi-stakeholder approaches are preferable); and (iii) ensure that sustainable land use is a shared responsibility, the identified solutions should be carefully evaluated and shared with all the relevant actors. To conclude, as the COVID-19 pandemic has brought to the surface, making careful and prudent decisions on land use is not only a political and technocratic decision but also a societal one. Even though there is no 'right instrument' or 'right target' for all European regions, there are 'right attitudes' that can be adopted to promote sustainability (Cotella et al. 2020).

Notes

* Dipartimento Interateneo di Scienze, progetto e politiche del Territorio (DIST), alys.solly@polito.it
** Dipartimento Interateneo di Scienze, progetto e politiche del Territorio (DIST), erblin.berisha@polito.it
*** Dipartimento Interateneo di Scienze, progetto e politiche del Territorio (DIST), giancarlo.cotella@polito.it
**** Dipartimento Interateneo di Scienze, progetto e politiche del Territorio (DIST), umberto.janin-rivolin@polito.it

1. In both cases, they decided to reduce the builda-

ble surface by 30% and 50% respectively to guarantee a more sustainable use of land, while preventing landowners from paying higher taxes on buildable land.

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