



European
Commission

SCIENCE FOR POLICY BRIEF

The Future of Cities Series



Shrinking cities

HIGHLIGHTS

- Shrinkage will become **more important in the future** – due to demographic change every country in Europe will be confronted with some level of shrinkage in cities.
- Shrinking is not something cities can fix on their own: there is a need for further research into appropriate measures and **large-scale policy incentives**.
- Even currently stable or growing cities should **anticipate and plan** for possible shrinkage in the future.
- Shrinkage can be an **opportunity to reshape urban spaces** to be more sustainable and inclusive.

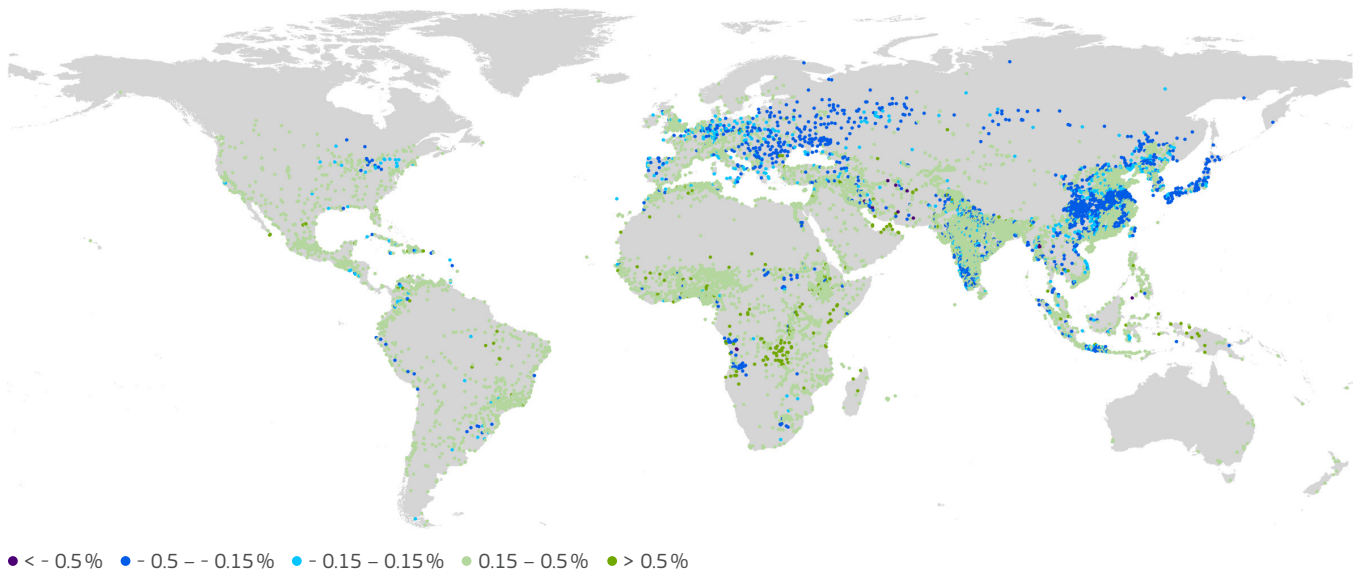


'Dealing with the results of demographic, economic and physical contraction processes and planning for the future of considerably smaller but nevertheless liveable cities is one of the most challenging tasks for urban Europe in the near future'.¹

Over the course of history, cities, influenced by various historical, social, economic, demographic or political factors, have gone through cycles of growth and decline. **While the world population has been increasing and is continuing to concentrate in cities, the idea that all cities are continuously growing is false.** As population ages and fertility rates fall or as the result of outmigration, an increasing number of cities are shrinking, particularly in the USA, Europe and Japan

but also in the developing world. In fact, shrinking may well become the new normal for many cities and the populations that inhabit them. Shrinking is a complex process that affects multiple aspects from the physical structure of the city to its social and demographic fabric. The definition of a shrinking city used in this brief is that formulated by the Shrinking Cities International Research Network (SCIRN): *'a densely populated urban area that has on the one hand faced a population loss in large parts of it (for at least 5 years, more than 0.15% annually), and is on the other hand undergoing economic transformation with some symptoms of a structural crisis'².* In what follows, trends are assessed for Functional Urban Areas (FUA)³, corresponding to urban centres and their commuting area⁴.

Figure 1: Annual rate of population change between 2000 and 2015 at FUA level at the global scale



CURRENT TRENDS

Shrinking: a global phenomenon

Although urban shrinkage is often associated with cities in eastern Europe and the American ‘Rust Belt’, it is now an ongoing phenomenon that is affecting cities all over the world and receiving increasing attention from policy-makers and academia. Between 1990 and 2000 a large number of cities worldwide, including 10% in the developing world, lost population⁵. An analysis for the period 1975–2015 indicated that this trend is continuing and accelerating⁶ and that cities worldwide lost three times more people in the period 2000–2015 than in 1975–1990⁷.

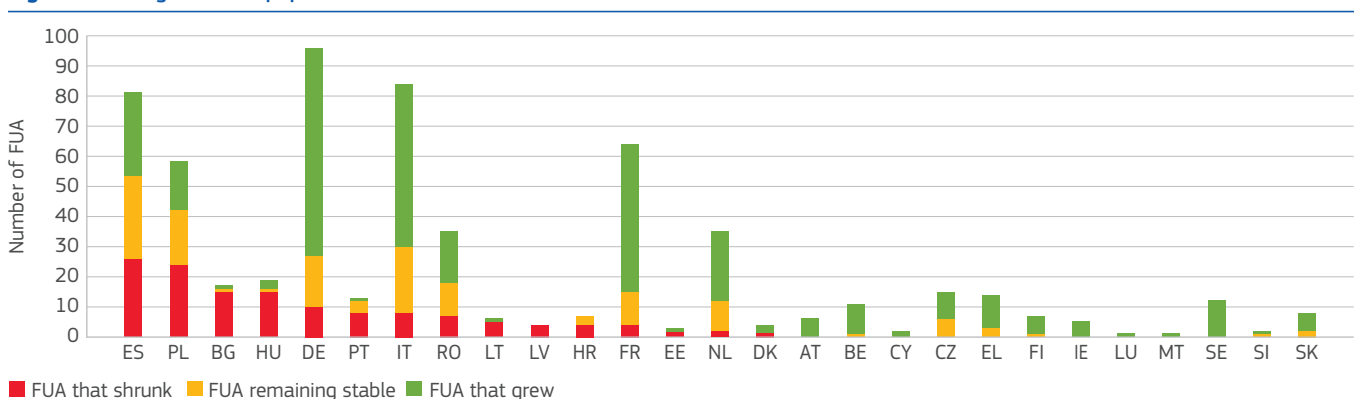
Between 2000 and 2015, almost one Functional Urban Area in six (16%) worldwide experienced a shrinking of its population (i.e. growth rate < -0.15%)⁸. Over 70% of these shrinking metropolitan areas are located in China, India, Indonesia, Japan, Russia and Ukraine, with 96% having a population of less than a million inhabitants⁹, and some in Asia and Africa having seen their population decrease by more than 50% since 2000. Unsurprisingly, the decline of metropolitan areas often goes hand in hand with demographic trends at the national level, particularly natural population loss and outmigration.

Shrinking cities in the EU

Between 2001 and 2011, more than a quarter of the 610 FUAs in the EU shrank, mostly in Eastern Europe, the Balkans and the south of Italy, accounting for about 48 million people (18% of the 2011 EU-27 population). This shrinkage continued between 2011 and 2018 (Figure 2), affecting more than 23% of FUAs, particularly in Spain and in eastern Europe, while the proportion of people living in these shrinking FUA decreased to less than 12% of the EU-27 2018 population. Figure 3 compares the population changes in FUA in 2001–2011 with 2011–2018. There are three distinct trends in shrinkage :

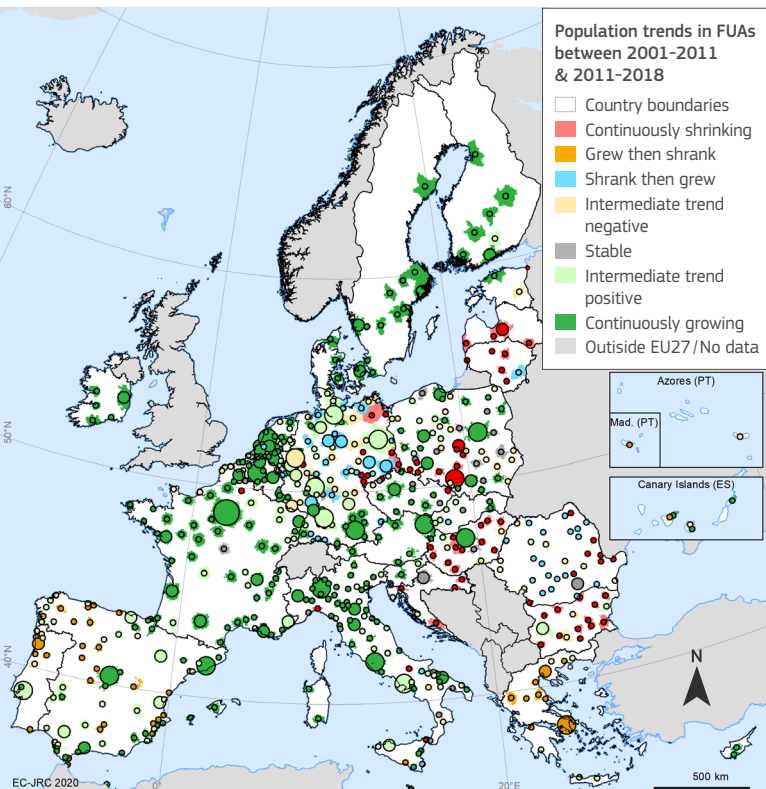
- **Continuously shrinking cities:** representing about half (70) of the shrinking FUA in 2011, mostly in Eastern Germany, Hungary, Bulgaria, Latvia, Lithuania, Croatia, Romania and Poland.
- **Formerly shrinking cities that later grew:** 55 FUA mostly in Germany, Romania, Lithuania and Slovakia.
- **Formerly growing cities that later shrank:** 39 FUA in Spain, Greece and Portugal, most likely affected by the 2008 financial crisis.

Figure 2: Changes in FUA population size between 2011 and 2018



Population shrinkage is very likely to increase in the future, affecting 45% of FUAs (hosting 24% of the total FUA population) in most EU countries by 2050. 8% of FUA are expected to lose more than 20% of their 2020 population by 2050, particularly in Germany, Bulgaria, Latvia and Lithuania. It should be noted, however, that some cities that are shrinking in terms of population, may actually still be growing in terms of the physical area/land they occupy, as people abandon emptying city centers to build new houses in the suburbs (e.g. in some Eastern European countries).

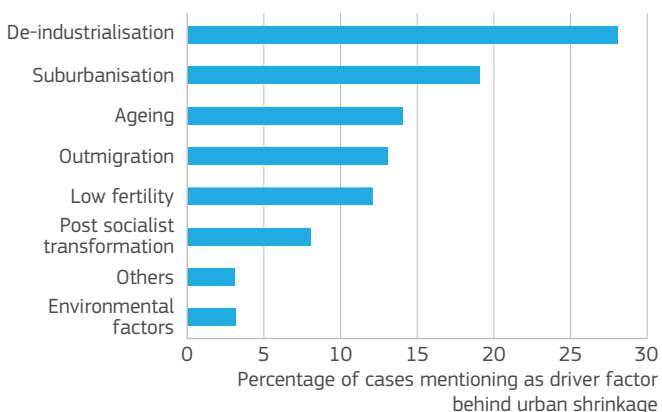
Figure 3: Changes in FUA population size between 2001 and 2018



WHY ARE CITIES SHRINKING?

Urban shrinkage is usually the result of a combination of factors, both local and global. The most widely recognised causes globally are given in Figure 4.

Figure 4: Reported causes of urban shrinkage¹⁰

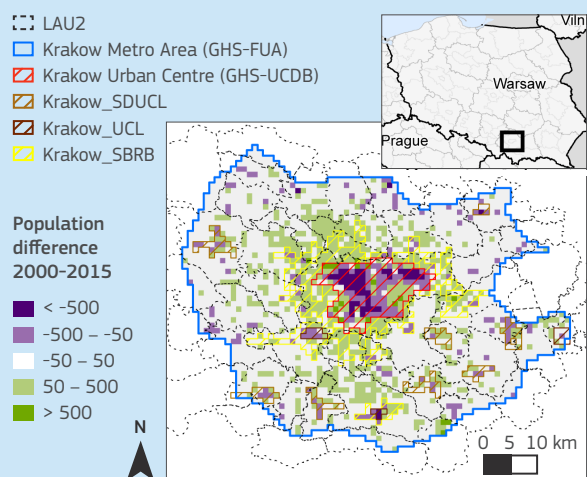


In Europe, urban shrinkage has been predominantly associated with deindustrialisation (linked to globalisation and global economic conditions), ageing and population outmigration from the mediterranean and east peripheries into the central 'blue banana'. The process of suburbanisation is also important at the local scale (see box 1). **Declining cities were almost always concentrated in declining regions, with economic factors being a key driver.** However the self reinforcing population ageing and low fertility rates will probably drive further city shrinkage in the future for all European countries. **One of the main consequences is that even currently stable or growing cities should anticipate and plan for possible shrinkage in the future.**

Box 1: Suburbanisation

The process of suburbanisation mostly occurs within Functional Urban Areas and corresponds to a movement of population away from city centres to less dense suburban areas within commuting distance. It affects almost 10% of FUAs worldwide.

Figure 5: Population change in Krakow between 2000-2015



A typical case of sub-urban development at the expense of cities and towns is Krakow (PL) metropolitan area. Its urban center lost almost 30 000 people between 2000 and 2015 (an average rate of -0.28% per year, same as other smaller surrounding urban clusters: Skawina, Myslenive, Bochnia, ...), mostly relocating to surrounding suburban and rural areas. In the same period, these areas in fact increased their population by about 70 000 inhabitants (+1% per year), considerably expanding the built-up area within the FUA. While the overall population of Krakow metropolitan area grew between 2000 and 2015, a similar process of suburban and rural population expansion in the commuting ring also occurred in 40% of shrinking FUAs, creating a pattern of shrinking urban areas that grew spatially.

One of the key messages here is that within FUA the process of shrinking can be strongly heterogeneous spatially (sometimes even at the city block level) and it should be investigated and addressed at the local scale.

What are the effects of shrinking?

The combination of factors associated with shrinking cities can have mutually reinforcing effects, potentially leading to further shrinking. Shrinking is a complex process that affects multiple dimensions of a city; from the physical structure of its buildings and infrastructure (hardware), to its social, economic and demographic fabric (software) and how it perceives itself and is perceived by others (mindware)¹¹.

Hardware – As population decreases, the housing supply may exceed demand, leading to an increase in vacant properties and a decrease in property value. This can lead to ‘urban blight’, particularly widespread in Japan, for example, where abandoned flats and houses accounted for 13.5% of the residential building stock in 2013¹². With a decrease in economic activities, there is also a risk of closure of smaller local shops and services and former commercial and industrial production sites turning into brownfields. The needs and financial capacity of city administrations to maintain local services and infrastructure may also decrease, leading to a decrease in the quality of public spaces, service levels of facilities, public transports and overall attractiveness of the city.

Software – Population loss in cities is not homogenous, often leading to important socio-demographic changes. Younger and more qualified residents tend to leave shrinking cities first, leading to an ageing of the remaining population and a relative increase in the proportion of less skilled, low income groups.

Mindware – Shrinking can affect how a city is perceived at the local and global scale. A negative image of the city can create a stigmatisation that can have a reinforcing effect leading to even more people and businesses moving out.

Measures taken in response to shrinkage

Overall, the type of measures taken by cities to respond to shrinkage depends on the level of understanding and acceptance of the shrinking process, and may include:

- (1) **expansion strategies** (focusing on economic growth),
- (2) **maintenance strategies** (increasing attractiveness via redevelopment of inner cities or development of substitute industries),
- (3) **planning for decline strategies** (taking into consideration a more comprehensive perspective)¹³.

Some of the specific measures most often taken to tackle the symptoms of shrinking cities include:

Urban renewal – Measures taken to renovate and/or repurpose vacant housing or industrial / historical buildings, often in the downtown area.

Rightsizing – Measures to buy off and demolish abandoned buildings, converting land to other purposes such as green space. These also include the consolidation of infrastructure and services combined with an incitement for people to relocate to more central locations.

Case study: Genova (IT)

Genova has experienced a slow population decline since 1975, with a faster decline from the 1990s onwards. It is the city with the oldest population in Italy, with an average age of 48.5 years. On average, monthly death rates are double the birth rate, and while there is an influx of migrants, both from the surrounding territories and abroad (7.5% of Genova's population are foreigners), this does not compensate for the natural decline. There is also a significant proportion of non-resident people in the city (e.g. having second houses, or studying/working in the city but officially registered elsewhere), making it difficult to monitor the trend.

The City Strategy* aims to mitigate the negative effects of this trend by focussing first on the provision of jobs, prioritising entry-level jobs for the younger generation, which are not easy to find in the city, and giving support to new start-ups. The University faculties also attract students of Medicine, Law, and especially Engineering related to the Sea and the Blue Economy. Improvements in infrastructure are also planned to improve connectivity by air and rail.

An important part of the recovery plan focuses on increasing the appeal of the city and attracting people. The City prioritises investments in sustainable mobility, digital transition, energy efficiency and social inclusion, and plans to renovate several important parts of the city together with the port authorities.

Genova also prioritises the provision of appropriate services for all ages, and recognises the importance of the Silver Economy, as a significant proportion of new residents come from the surrounding regions to spend their retirement in the city and surrounding coastal area.

The need for renovation of both public and private properties is recognised, especially in the city centre, where many are abandoned or occupied illegally. The municipality is working on several renewal and social housing projects in targeted areas, and it is studying new forms of incentives and educational campaigns to support the renovation of private properties.



*<http://www.genovameravigliosa.com/en>

Both urban renewal and rightsizing imply significant costs and often can be made difficult by the need to identify, track down and negotiate with private and corporate owners. Both measures tend to mostly address the visible symptoms of shrinkage but may have little impact on its causes.

City Branding – Measures taken to change the image of the city and make it more attractive.

New governance, bottom-up initiatives – Measures based on the active engagement and decisions of local citizens with the aim to increase the quality of life of residents. This is done by focusing on community projects to increase social capital, adapt services to local needs (retirees, families), promote local entrepreneurship or rejuvenate public spaces.

Economic diversification – Reorientation of the economic base, focusing on emerging economic sectors, such as technology, creative industries and/or tourism.

Culture led regeneration – Measures promoting cultural and artistic creative activities as means to increase the ability to attract and retain talents and residents. This can also lead to an increase in the ability of cities to attract tourists.

Box 2: Targeted Urban Strategies

Between 2014 and 2020, the Cohesion Policy invested nearly **17 billion EUR** to promote **Sustainable Urban Development**, addressing social, economic, environmental and demographic challenges in urban areas. More specifically, there are around 1 000 **integrated territorial strategies supported by the Cohesion Policy** deployed in Functional Urban Areas across the EU. From these strategies, 13% concerned territories within continuously shrinking FUAs which are present in only 12 countries. 40% of shrinking FUAs were targeted at least by one territorial strategy, another 40% by two or three strategies and 10% by more than three. Although, a direct correlation between the number of strategies and the fact that the FUAs are shrinking doesn't exist, strategies aim at raising the quality of life in their target territories, and can, at least indirectly, contribute to address the issue of shrinkage and correlated problems. In order to see that, an analysis of the funds used, and the themes addressed by the strategies is performed using data from STRAT-Board*.

37% of the strategies in shrinking FUAs were supported by only one of the European Structural and Investment Funds (ESIFs), in most cases the **European Regional Development Fund (ERDF)**, while another 42% combined two type of ESIFs (mostly the ERDF with the European Social Fund), and the remaining 21% were supported by three or more funds.

Promoting **social inclusion** was the ESIFs thematic objective most often addressed by the strategies

Country	Number of FUAs (continuously shrinking)	Number of strategies within these FUAs
BG	13	15
CZ	2	11
DE	9	17
EE	1	1
FR	1	1
HR	4	4
HU	12	35
IT	3	10
LT	5	16
LV	4	5
PL	9	10
RO	7	11
TOTAL	70	136

in shrinking FUAs, followed by **protecting the environment** and **promoting resource efficiency and supporting the shift towards a low carbon economy**. Strategies included measures contributing to employment, education and training were also present but to a lower extent.

A more detailed analysis of key themes confirmed social inclusion was the most recurrent policy area addressed. **Culture and heritage, education, jobs and skills, public spaces, mobility and abandoned spaces** are also recurrent areas of intervention. Other domains often associated with shrinking FUAs such as housing, ageing, nature based solutions received less attention.

*<https://urban.jrc.ec.europa.eu/strat-board>

Common needs and potential opportunities

While each city is unique and will likely respond differently to the effect shrinkage, some needs have been reported by many cities. These and the potential opportunities associated with them include:

A database of abandoned buildings – The identification and mapping of abandoned buildings and those at risk of abandonment as well as the identification and contacting of building owners is a common issue for most shrinking cities. Expanding on existing initiatives leveraging the crowdmapping of vacant buildings¹⁴, the development of common methodologies to identify abandoned buildings and the creation of shared spatial databases associating building information with owners' contact details could therefore prove particularly useful to municipalities.

New jobs and technologies – As the number of shrinking cities will increase in the future, the number of abandoned buildings to be demolished and the amount of building material to recycle will also increase. As an element of the circular economy, this ‘growing resource’ could represent an opportunity for the development of new technologies and businesses in the areas of building material recycling¹⁵ and re-use as well as in brownfield remediation and conversion to green spaces. Additionally, expected transformations in the economy triggered by the current climate change mitigation policies that promote local energy production and micro-grids, may also allow shrinking cities to self-generate employment in the building and energy sector.

Social housing – Policies focusing on building renewal or demolition may lead to gentrification. While the arrival of a wealthier population may have some positive effects, it may also have a negative impact on low income groups who could benefit from a decrease in residential property value. They should therefore be associated with measures to promote affordable housing, for example, inclusionary zoning ordinances, co-operative housing units, community land trusts and easy access to mortgages.

Technological solutions – the development and implementation of new technological solutions could help shrinking cities continue to provide some services and ensure the well-being of citizens in lower densities and with less funding. For example, increased teleworking and the development of teleservices (medical appointments, administrative procedures), online shopping as well as automated shared transportation or alternative, more efficient and potentially cheaper infrastructure solutions.

Post growth laboratories – Shrinking cities represent unique environments for empirical observations and experimentation to identify alternative systems and modes of development to successfully transition towards a society where growth is no longer the main driver but where wellbeing and cohesion are prioritised.

New funding opportunities – the 2021-2027 ERDF CF regulation will include support for disadvantaged areas (article 8) and in particular for areas which suffered from severe demographic handicaps and for which some shrinking cities may be eligible.

Case study: Kaunas (LT)

Kaunas is the second-largest city in Lithuania and an important centre of economic, academic, and cultural life. Historically Kaunas was a centre for light and heavy industries, food production, banking, trade, logistics and tourism and it contributes to about 20% of Lithuania's GDP. The population of Kaunas has been steadily declining since 1991 – the city has lost more than 20% of its population since 2001 due to

a decreasing birth rate and outmigration of younger generations to the capital, Vilnius, and abroad. The city of Kaunas has also been losing population to its commuting zone, where housing is more affordable and less regulated, which has increased social exclusion in the inner-ring of the city. The resulting loss in income taxes, responsible for the majority of the city's budget, has created significant issues, especially as many non-residents still depend on Kaunas city for services. The city's capacity to plan strategically has also been limited, with rapid movements of population leading in some cases to fragmented infrastructure development (eg. the building of schools in areas subsequently losing population).

To increase the incentive to stay in the city, Kaunas stopped payment benefits for non-municipal residents in educational institutions and decreased accessibility by bus to other neighbouring municipalities. These measures lead to a strong increase in the number of registered residents in the city.

Kaunas is still an industry centre in Lithuania and consistently produces a young, educated and highly motivated workforce suited to diverse and innovative business services (with more than 1 out of 4 students in Kaunas studying engineering related subjects). Its strategy* aims to attract and retain this talent by investing in the sectors of MedTech, ICT, Automotive components, medical tourism, game development and start-ups. In particular, Kaunas plans to establish the Aleksotas Innovation Industry Park by repurposing a 7 000 m² old helicopter workshop into laboratories, with the development of life sciences research, experimental production, and administration.

As part of its Comprehensive plan, Kaunas city recognises the need for compact development and focuses on regeneration of the city (favoured through the heritage renovation financing program), sustainable mobility and improving the living environment (Kaunas strategic plan 2021-2030 and mobility plan 2030). Every year Kaunas, in cooperation with NGOs, finances over 150 projects related to social, sports, culture, and youth work.



* <http://en.kaunas.lt/news/kaunas-plans-for-2021-2023>

Case Study: Ostrava (CZ)

Ostrava has been undergoing population decline since the early 1990s, a long-term trend related to the restructuring of the economy in the region after 1989 and the loss of jobs in the mining and metallurgical industries. Thousands of economically active, mostly more educated people, have left the city in the last two decades, some to suburban areas, but most left for new job opportunities, especially to Prague or abroad. The city recognises the potentially negative affect on city image, business activity, birth rates, tax revenues, real estate prices, quality of urban development, talent retention, community life and quality of life.

The current **Strategic Development Plan of the City of Ostrava** aims to halt the negative trend by 2023, and achieve growth by 2030*. The city hopes that an increase in migration will cover the demographic loss of the population.

Projects include new buildings at the University of Ostrava, apartment buildings in the city centre**, revitalisation of parks and public spaces, and a grant scheme to support talent management.

The *Ostrava Expat Centre**** helps to create and develop good life and the labour market conditions for foreigners and their families and thus keep them in the region. Together with universities in the region and the Moravian-Silesian Innovation Centre, activities are currently being prepared to attract excellent researchers from abroad to universities in Ostrava and the Moravian-Silesian Region. The city has also established a new organisation 'Urban studio of spatial planning and architecture', to ensure the existing urbanized area is used efficiently and that the city can grow sustainably, whether from the point of view of the environment or urban infrastructure.

City priorities include reducing land development, improving the use of brownfields, defining development areas, intensifying the use of internal space reserves, removing internal barriers and increasing cohesion.



OSTRAVA!!!

* <https://fajnova.cz/language/en/strategic-development-plan>

** https://fajnova.cz/language/en/strategic_projects

*** <https://www.ostravaexpat.eu>

Box 3: Related projects and tools

A range of activities related to shrinking cities are currently being conducted under the URBACT programme, including:

- The **ALT/BAU** Transfer Network (<https://urbact.eu/alt-bau>). Based on the experiences from Chemnitz' URBACT Good Practice, it focuses on alternative strategies to activate unused and decaying housing stock in European city centers.
- The **Re-growCity** Transfer network (<https://urbact.eu/re-growcity>). It focuses on the development of interventions, with minimal external resource inputs, that built on local capabilities to revitalise public services and the economy, regenerate the urban fabric and develop civil society in a context of long term decline.
- **2nd Chance**, which focused on rehabilitating large empty buildings, culminating in a guide book: <https://urbact.eu/urbact-guidebook-reactivation-and-reuse-larger-vacant-buildings>
- **(RE)making the City**, an online tool to promote and disseminate innovative planning approaches towards the rehabilitation of underused spaces. This database of good practice stories is includes examples from several URBACT networks categorised according to the planning cycle: <http://remakingthecity.urbact.eu/solutions.php>

The **Urban Agenda for the EU** provides access to network and resources to tackle issues related to underused spaces and revitalisation. These include:

- The partnerships on **Sustainable Land Use** <https://futurium.ec.europa.eu/en/urban-agenda/sustainable-land-use>
- The **Culture/Cultural Heritage** partnership <https://futurium.ec.europa.eu/en/urban-agenda/culturecultural-heritage>

The **3S RECIPE – Smart Shrinkage Solutions – Fostering Resilient Cities in Inner Peripheries of Europe** (<https://zenodo.org/search?page=1&size=20&q=%223S%20RECIPE%22>) also provides recommendations on mitigating urban shrinkage to help cities adapt.

The Way Forward

Despite some negative perspectives, urban shrinkage is not necessarily associated with a decline in happiness or quality of life of residents¹⁶ and it can provide an opportunity for cities to select a development path centred around quality of life, environmental protection, social equity and sustainability.

However, unlike growth, the process of shrinking in cities is not well understood, and often cities may not know how to plan for it. While different policy measures and government responses are being trialed to counteract the effects of shrinkage, there is still little evidence of their effectiveness and impact. Some policies can also lead to unintended consequences such as gentrification, or increasing inequalities and they should incorporate a more systemic perspective.

The number of shrinking cities will increase in Europe over the next 30 years. Expansions strategies aiming at restoring

growth are often popular and while they may succeed for some cities, for most others, particularly smaller cities, **regrowth is not a realistic objective.** Therefore, policies should aim at utilising existing resources to improve the quality of life of remaining residents, rather than focus on residential and job growth.

A combination of measures as part of an integrated strategy, to insure coherence and reduce spatial inequalities, may help cities remain liveable¹⁷. While some cities are already making use of territorial integrated strategies to address some aspects of shrinking, issues such as housing and ageing have received little attention.

Also, urban shrinkage due to de-industrialisation cannot be dissociated from the process of globalisation implying that local policy alone may have limited effects and that broader scale coordinated measures, for example at EU level, may be necessary.

ENDNOTES

- 1 Martinez-Fernandez, C., Weyman, T., Fol, S., Audirac, I., Cunningham-Sabot, E., Wiechmann, T., & Yahagi, H. (2016). Shrinking cities in Australia, Japan, Europe and the USA: From a global process to local policy responses. In *Progress in Planning* (Vol. 105). <https://doi.org/10.1016/j.progress.2014.10.001>
- 2 Jaroszevska, E. (2019). Urban Shrinkage and Regeneration of an Old Industrial City: The Case of Wałbrzych in Poland. *Quaestiones Geographicae*, 38(2), 75–90.
- 3 It is likely that the choice of population thresholds used to characterise cities or FUA (with more than 50 000 inhabitants in our approach) likely leads to a lack of visibility of shrinkage occurring in small urban centres. This seems to be particularly the case in countries such as France where the issue, also significant in small urban areas, has attracted little attention from policy makers (Martinez-Fernandez et al., 2016).
- 4 Dijkstra, L., H. Poelman and P. Veneri (2019), 'The EU-OECD definition of a functional urban area', OECD Regional Development Working Papers, No. 2019/11, OECD Publishing, Paris. <https://doi.org/10.1787/d58cb34d-en>
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- 6 OECD, & European Commission. (2020). Cities in the world. In *City Worlds*.
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- 8 Unpublished results – Moreno-Monroy, A., Schiavina, M., Veneri, P., 2020. Metropolitan areas in the world. Delineation and population trends.
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- 11 Jaroszevska (2019)
- 12 Slach, O., Bosák, V., Krtička, L., Nováček, A., & Rumpel, P. (2019). Urban shrinkage and sustainability: Assessing the nexus between population density, urban structures and urban sustainability. *Sustainability* (Switzerland), 11(15). <https://doi.org/10.3390/su11154142>
- 13 Pallagst, K., Fleschur, R., & Said, S. (2017). What drives planning in a shrinking city? Tales from two German and two American cases. *Town Planning Review*, 88(1), 15–28. <https://doi.org/10.3828/tpr.2017.3>
- 14 The mapping of vacant store fronts in New York (<http://map.vacantnewyork.com>), the map of abandoned places in Italy (<http://www.giacomozaganelli.com/projects/la-mappa-dell-abbandonato>) or the vacant homes initiative in Ireland (<https://vacanthomes.ie>).
- 15 See for example <https://www.nweurope.eu/projects/project-search/ferbe-facilitating-the-circulation-of-reclaimed-building-elements-in-northwestern-europe>.
- 16 Delken, E. Happiness in shrinking cities in Germany. *J. Happiness Stud.* (2008), 9, 213–218.
- 17 Such measures were recently adopted as part of the European Parliament resolution of 20 May 2021 on reversing demographic trends in EU regions using cohesion policy instruments.

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