



3S RECIPE - Smart Shrinkage Solutions Fostering Resilient Cities in Inner Peripheries of Europe

ZONGULDAK (TR) POLICY BRIEF #2 • COMPACT CONNECTED CITY

EXECUTIVE SUMMARY

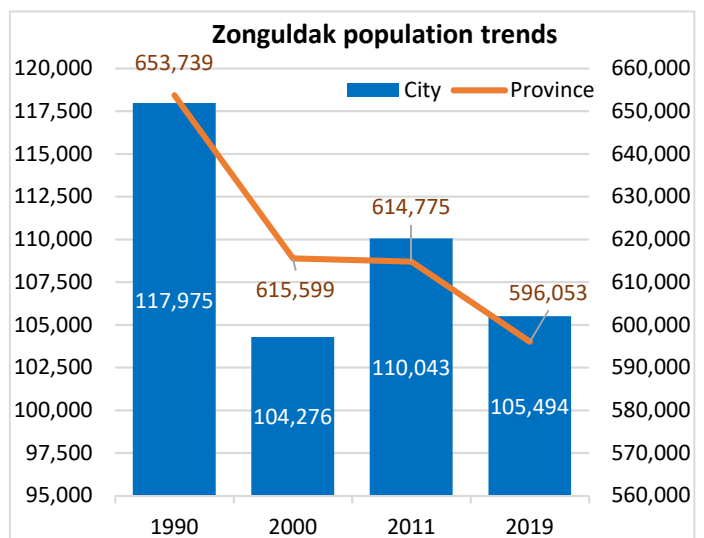
This policy brief introduces a successful solution to convert Zonguldak, a peripheral shrinking city in north-western Turkey, into a compact and connected urban area. Amongst many promising initiatives, recently identified by the local stakeholders, **Zonguldak Harbour (Coastal Area) Recreation Project** has been put forward as the exemplar of sustainable urban development, improved accessibility, and connectivity. This project, initiated by Zonguldak Governorship in 2012, is aimed at **redeveloping the heavily industrialised coastal strip** of Zonguldak for leisure, sports, recreation, and entertainment. The first implementation phase (2016-2018) involved drawing spatial design and architectural plans for the redevelopment of the coastal strip around Zonguldak harbour, cleaning up the harbour area, and demolishing unregistered buildings that were illegally constructed on public land. Zonguldak's harbour redevelopment has been a transformational project that is changing the image of the city from a polluted coal-mining hub to a more liveable municipality, with attractive public amenities and recreational facilities. The key lesson learnt is that **collaborative efforts of local stakeholders** are imperative not only for **favourably shifting the public perception** of a shrinking city but also for **giving its local inhabitants** a sense of **attachment, belonging, and pride**.



INTRODUCTION

Zonguldak is a small urban core of a medium-sized city-region in north-western Turkey. Zonguldak¹ fully owes its existence to coal-mining. With the crisis of capitalist mass-production system in the West in the late 1970s, and industrial restructuring that followed, the modern Turkish state has increasingly come to rely on market-led economic development policies (Birch & Mykhnenko, 2010). The shift towards neoliberal economic policies worldwide has had a severe effect on costly underground coal production in wider Europe (Özatağan & Eraydin, 2020; see also Mykhnenko, 2011).

As coal production in the Zonguldak coalfields has significantly declined, leading to a major contraction of mining employment, the impact of these policies on the city-region has been devastating. Between 1987 and 2001,



¹ **Zone Geul-Dagh** was the Francophone description of the coal-mining area used by the *Societe Française d'Heraclee*, the dominant multinational mining company operating in Turkey in the early 1900s.

Zonguldak's economy was continuously shrinking at an annual rate of 4.7%. Consequently, many decades of continuous population growth have come to an abrupt halt: during the 1980s, the city-region's population declined by around 20%, propelled by a rise in out-migration by local inhabitants seeking a job elsewhere. Population loss continued in the 1990s, with the city losing 11.6% of its inhabitants, whilst the province as a whole shrunk by 5.8%. Initially, deindustrialisation had had the most severe impact on the urban core (the city itself), where the registered unemployment rate reached 9.1% in 2000, whilst the number of inhabitants declined between 1985 and 2020 by 10.5% in total, from 117,879 to 105,494, respectively. Following a series of state intervention measures undertaken during the last twenty years, **Zonguldak has managed to stabilise its population level**. Demographic decline in the neighbouring local authorities has accelerated, however. As a result, **the province** of Zonguldak as a whole has now been **continuously shrinking for forty years**, further losing 8.8% of inhabitants between 1990 and 2020 (see Zonguldak population trends above).

ZONGULDAK HARBOUR RECREATION PROJECT: A KEY MECHANISM FOR RE-IMAGING THE CITY

Most of the policies, practices, and interventions that the central government undertook in the 1980s-1990s to boost industrial growth and propel population recovery in Zonguldak have failed to fulfil their growth-oriented aspirations and to bring a change for the better in the city's condition. Eventually, the policy **emphasis on re-growth has diminished**. At the same time, **discontent with the overall quality of life** in the city has also risen, with particular concerns about housing conditions, traffic congestion, and the dire lack of access to open and green space. For that reason, the government priority has gradually shifted to practical ideas and municipal projects focused **on bettering the quality of life of the local community**, especially in terms of reducing pollution, cleaning the physical environment, and improving the standard of living of ordinary people across the city.



Zonguldak's harbour (coastal area) recreation project's redevelopment design: before (left) and after (right) images.

Since the beginning of commercial exploitation of the Zonguldak coal basin in the late 1880s, the harbour has served mainly for coal transportation to industrial areas in Anatolia and Istanbul (Güney, 1966). However, with the gradual decline of coal-mining, most **industrial and warehousing areas** surrounding the harbour have been abandoned, becoming a **vast brownfield site** of derelict land in need of decontamination and regeneration.



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Zonguldak Shipyard / Orta Kapuz Beach redevelopment design: before (top) and after (bottom)

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In 2012, the local authority and the provincial government (*Zonguldak Valiliği*) initiated a large-scale **Harbour (Coastal Area) Recreation Project** centred on the merchant port in the joint effort 1) to transform Zonguldak into a more liveable city with attractive tourism, leisure, and recreation facilities, and 2) to alter radically the smokestack industrial image of the city-region, as a whole. First, the municipality has prepared a 1:5000 architectural location plan for the harbour regeneration, followed later by detailed spatial design site plans prepared for implementation. In 2016, these plans were further amended after a public consultation. The key declared objective of the *Zonguldak Harbour Recreation Project* has been to enable the coastal strip to be **opened for full public access** and transformed into a **recreational outdoor open space**, thus serving as a major contribution to the quality of urban life. In 2018, with support of Zonguldak Governor and Zonguldak Special Provincial Administration, the project's initial phase was completed (Güneş, 2018). By 2020, the initial engineering studies, ground investigation, and the necessary soil surveys had been finalised, with Zonguldak Governorship signing protocols with various government departments related to sharing rights and responsibilities for the project's public tendering and construction phases (Arkitera, 2019). In the meantime, private contractors have developed a series of landscaping and architectural designs, linking up the entire coastal area of Zonguldak (see images above and below).

To identify practical mechanisms driving this project's success, we have used a distinctive in-house **Urban Futures** methodology. It has been designed to facilitate stakeholders' collective reflection on and learning about the city's smart shrinkage solution, its benefits, and necessary conditions for effective urban regeneration and long-term resilience (Lombardi et al, 2012). During a special workshop on 11th September 2017, hosted by the Municipality and the Mayor of Zonguldak, local actors – with the knowledge of urban regeneration initiatives in Zonguldak – put the accent on the harbour recreation project leading to the following five **intended benefits**: (1) attaining a better **standard of living** of ordinary residents by introducing attractive open spaces; (2) **community building** through a steady flow of people visiting the coastal area and their frequent interaction; (3) enhancing **ecological sustainability** of the city by removing an environmentally polluting activity, cleaning, and upgrading the quality of the physical environment; (4) fostering **economic revitalisation** of the city by boosting commercial development in leisure, retail, and recreational services; (5) contributing to **sustainable mobility** and transport infrastructure by reducing inner-city traffic. Although there is strong support for this project by the different stakeholders, there is a whole sets of prerequisite conditions, necessary to realise this project and to reach its expected benefits, as follows:

Outcome

What are the necessary conditions that make it happen?

1. Higher living standard	<ul style="list-style-type: none"> • Co-ordination between the central and local governments, in addition to collaborative work between relevant public sector institutions and non-governmental organisations, is vital. • Allocation of adequate financial resources by the central government as the initiator of the project is extremely important to complete the project promptly and on time. • Strong leadership and commitment by the provincial Governor and the sub-national level of public administration.
2. Community-building	<ul style="list-style-type: none"> • Good design and management of the project is key to the long-term success. • Making the coastal area accessible by a well-designed public transport system and active mobility. • Meeting diverse user demand: satisfying different socio-economic groups in terms of public amenities provided by the project; creating a safe environment with high-quality leisure and recreational facilities that are attractive to families with children, the youth, and other parts of the local community.
3. Ecological sustainability	<ul style="list-style-type: none"> • Good design and management of the project is key to the long-term success. • Co-ordination between the central and local governments, in addition to collaborative work between relevant public sector institutions and non-governmental organisations, is vital. • Allocation of adequate financial resources by the central government as the initiator of the project is extremely important to complete the project promptly and on time.
4. Economic revitalisation	<ul style="list-style-type: none"> • A geographically wide consumer market: making the harbour attractive not only to local residents but also to outside visitors and tourists. • Meeting diverse user demand: satisfying different socio-economic groups in terms of public amenities provided by the project; creating a safe environment with high-quality leisure and recreational facilities.
5. Sustainable mobility	<ul style="list-style-type: none"> • Making the coastal area accessible by a well-designed public transport system and active mobility. • Co-ordination between the central and local governments, in addition to collaborative work between relevant public sector institutions and non-governmental organisations, is vital.





Zonguldak's Kizlar Girls' Beach redevelopment design: before (top) and after (bottom) images.

RECOMMENDATIONS: LEARNING FROM ZONGULDAK HARBOUR RECREATION PROJECT

➤ Leadership, governance, and public funding

Institutional aspects of governance are essential for the realisation of large-scale public investment projects, especially in shrinking cities. The co-ordinated work between the central government and local authorities, in addition to close collaboration between relevant public sector institutions, is particularly vital. Public funding provision, including the allocation of adequate financial resources by the central government as the originator of the project, is extremely important for prompt and timely completion.

➤ The quality of project design ensures the durability of liveability improvements and the longevity of community building

Design features such as broad and well-maintained promenades, pedestrian walkways alongside rivers or around large areas of water, and an abundance of green and open space are key to the success of urban regeneration initiatives aimed at stemming population loss. Well-connected and attractive public places and open spaces can not only encourage more people to exercise and make active travel choices, but can also facilitate social interaction and community building. A well-designed built environment improves urban liveability and helps retain the local inhabitants. Furthermore, to encourage usage and increase footfall, it is crucial to get the right mix of amenities, which are open during convenient times and accessible to people of different age and physical ability.

➤ Good public transport access and pedestrian connectivity

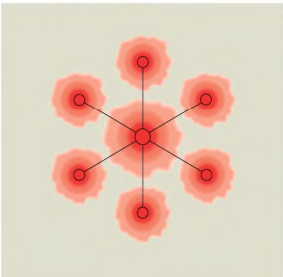
Increasing the connectivity of the coastal area by creating alternatives to motorised private transport can eliminate potential traffic congestion, tackle urban air pollution, reduce parking space consumption, and increase the accessibility of the area to the local community as well as visitors and tourists. Limited facilities for pedestrian and non-motorised active transport and poor public transport links largely discourage people from visiting and using open spaces and create a negative perception of low quality of the amenities the city offers.

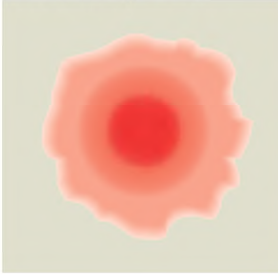
➤ 'Going for growth' is not the best policy to address the problem of urban shrinkage

Internationally, growth promotion policies tend to fail in their attempts to reverse urban population loss. By improving the local provision of public goods, by upgrading municipal infrastructure, and by building modern leisure facilities and recreational amenities, a shrinking city could be much better positioned to retain its residents and attract newcomers and businesses. Although the availability of job opportunities in the city are vital, the quality of urban life on offer must be prioritised for it to improve its appeal.

WOULD THE ZONGULDAK HARBOUR RECREATION PROJECT DELIVER THE SAME BENEFITS WHATEVER THE FUTURE BRINGS?

During this project, we have tested the likely future performance of each urban regeneration-related 'smart shrinkage solution-benefit pair' – that is, actions taken today in the name of sustainable urban development – in a series of possible future scenarios for the year 2060. If a proposed solution delivers a positive legacy over a 40-year regeneration cycle, regardless of the future against which it is tested, then it can be adopted with confidence. Four **plausible but distinct** future scenarios were included into our analysis (see Lombardi et. al., 2012: Table 2). A summary of these four global **urban future scenarios** is provided below:

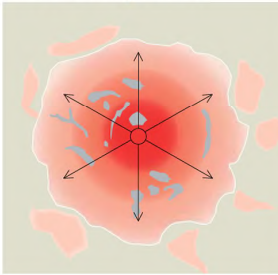
New Sustainability Paradigm (NSP)		Key driver: Equity and sustainability
Settlement pattern 	Description An ethos of 'one planet living' facilitates a shared vision for more sustainable living and a much improved quality of life. New socio-economic arrangements result in changes to the character of urban industrial civilisation. Local is valued but global links also play a role. A sustainable and more equitable future is emerging from new values, a revised model of development and the active engagement of civil society.	Philosophy The worldview of the <i>New Sustainability Paradigm</i> has few historical precedents, although John Stuart Mill, the nineteenth century political economist, was prescient in theorising a post-industrial and post-scarcity social arrangement based on human development rather than material acquisition (Mill, 1848).

Policy Reform (PR)**Key driver: Economic growth with greater equity****Settlement pattern****Description**

Policy Reform depends on comprehensive and coordinated government action for poverty reduction and environmental sustainability, negating trends toward high inequality. The values of consumerism and individualism persist, creating a tension with policies that prioritise sustainability.

Philosophy

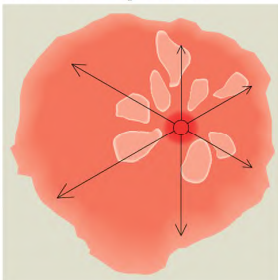
In *Policy Reform*, the belief is that markets require strong policy guidance to address inherent tendencies toward economic crisis, social conflict and environmental degradation. John Maynard Keynes, influenced by the Great Depression, is an important predecessor of those who hold that it is necessary to manage capitalism in order to temper its crises (Keynes, 1936).

Market Forces (MF)**Key driver: Competitive, open global markets****Settlement pattern****Description**

Market Forces relies on the self-correcting logic of competitive markets. Current demographic, economic, environmental, and technological trends unfold without major surprise. Competitive, open and integrated markets drive world development. Social and environmental concerns are secondary.

Philosophy

The *Market Forces* bias is one of market optimism, the faith that the hidden hand of well-functioning markets is the key to resolving social, economic and environmental problems. An important philosophic antecedent is Adam Smith (1776), while contemporary representatives include many neo-classical economists and free market enthusiasts.

Fortress World (FW)**Key driver: Protection and control of resources****Settlement pattern****Description**

Powerful individuals, groups and organisations develop an authoritarian response to the threats of resource scarcity and social breakdown by forming alliances to protect their own interests. Security and defensibility of resources are paramount for these privileged rich elites. An impoverished majority exists outside the fortress. Policy and regulation exist but enforcement may be limited. Armed forces act to impose order, protect the environment and prevent a societal collapse.

Philosophy

The *Fortress World* mindset was foreshadowed by the philosophy of Thomas Hobbes (1651), who held a pessimistic view of the nature of man and saw the need for powerful leadership. While it is rare to find modern Hobbesians, many people believe, in their resignation and anguish, that some kind of a *Fortress World* is the logical outcome of the unattended social polarisation and environmental degradation they observe.

The **Urban Future Method** applied does not favour any particular scenario. Indeed, for a solution to be determined to be robust and resilient to future change, the necessary conditions to support intended benefits being achieved over time must exist in all scenarios. Drawing on expertise, experience, and **knowledge of the local context**, we have graded the likely performance of Zonguldak Harbour Recreation Project in the future as follows:

Urban Futures Method applied to Zonguldak Harbour Recreation Project

Necessary Conditions	New Sustainability Paradigm	Policy Reform	Market Forces	Fortress World
Co-ordination between central and local governments and collaborative work between relevant public sector institutions and non-	Collaborative work, co-production, and co-ordination of sustainable urban development initiatives is part of the everyday decision-making toolbox	The importance of co-ordination between different central government bodies is recognised in policies. However, central government actors still dominate new urban development and regeneration projects and	High deregulation of planning policy hinders government co-ordination attempts. Market drivers dominate new urban development and regeneration projects.	The fortress world is highly fragmented and segregated to allow for cross-boundary collaboration. The rich will protect access to coastal areas and open spaces for private use. The poor will have no control on new redevelopment



Urban Futures Method applied to Zonguldak Harbour Recreation Project				
Necessary Conditions	New Sustainability Paradigm	Policy Reform	Market Forces	Fortress World
governmental organisations		could override local concerns and ignore local voices. Real multi-level government collaboration requires a major public administration reform		
Allocation of adequate financial resources to complete the project promptly and on time	Post-industrial rehabilitation of coastal areas is highly valued and the environmental importance of accessible open spaces is recognised. Local community engagement ensures cost-effective use of public funds. However, small local authorities and individual volunteers have to rely on external financial backing for any large-scale multi-annual project, potentially leading to frequent delays with subsidy transfers, charitable donations, and voluntary contributions from the outside	Large-scale investment into urban infrastructure and services is publicly funded and supported by policy to boost demand, accelerate economic growth, and help maintain party-political support	Large-scale public infrastructure investment is limited by conservative fiscal policy and strong budgetary constraints. Limited to no public investment is made available to small, peripheral cities. Yet if the private sector considers a project commercially viable, profit-seeking entities may provide adequate financial resources for its completion	All investment is poured into prime 'winner' locations and sucked out of struggling urban areas. Poor communities chronically lack even the most basic of local facilities, services, and amenities. None are provided by the state
Strong and committed leadership	A local democratic consensus-based decision-making process does not favour 'strong' personalistic leadership	A state interventionist context is characterised by frequent discontinuities and severe changes in government direction. It may just be about maintaining the status quo, not looking for risk. However, strong commitment to a public infrastructure project may be possible, if it gains favour with the electorate	'Strong' leadership and risk-taking are highly acceptable, especially for short-term economic gain. Small city boosterism becomes part and parcel of local politics, business, and community life	High acceptability of strong leadership and a very stable political structure, underpinned by brute force
Ability to meet diverse user demand by providing amenities to different socio-economic groups	The active engagement of civil society and participatory planning facilitate the sustainability of the project by respecting diverse demand patterns of different socio-economic and demographic groups. Furthermore, an ethos of 'one planet living' helps keeping those consumer demands in check	Municipal planning policies force the issue of generic, basic standard provision, though people will choose whether to use them. Only some community needs for facilities and coastal area amenities are met	Profit-making drives business activities, so only those facilities and amenities that are profitable are likely to survive	Rich have good access to local facilities and amenities; poor may be lacking most basic local facilities and amenities; none are provided by the state
The harbour becoming attractive to a geographically wide consumer market	A broader range of outcomes beyond the market value is well-articulated and more important, allowing one to hold the project to a higher level of social accountability and inclusion	Consumer values do not support local retail and services but policy emphasis on domestic production and consumption, combine with partially free public access mean local leisure and recreation options	Commercially viable retail, leisure, and recreational service providers are quick to piggyback onto a publically-funded revitalisation of the waterfront. Private sector firms successfully	The fortress world is not attractive to outside investors since it severely restricts inter-city and international mobility, limiting the potential consumer market to a few wealthy residents. A recreational harbour area



Urban Futures Method applied to Zonguldak Harbour Recreation Project				
Necessary Conditions	New Sustainability Paradigm	Policy Reform	Market Forces	Fortress World
		are chosen out of convenience and low cost	promote the regenerated harbour to visitors and tourists	only serving the interests of the rich enclave may not be commercially viable in the long-run
The coastal area is accessible and connected to the rest of the city via a well-designed public transport system and active mobility means	Public attitudes shift strongly in favour of sustainable transport options, including walking, cycling, and other means of non-motorised green and active travel. Public transport routes are all interconnected. Car use is low.	Connectivity is seen as a major tool for accelerating economic growth and achieving regional equalisation and social cohesion. Construction and maintenance of sustainable transport and low-carbon infrastructure is enforced through public investment and strong public policy incentives	Materialist and consumerist attitudes push public towards private vehicles and away from alternative modes of transport, reducing connectedness. Inefficient and fossil fuel-based modes of transport are favoured. Car use increases because cars serve as a status symbol, providing control and autonomy. Limited state funding is available for public transport	In a disconnected world, public transport system is not a real priority, as better accessibility jeopardises the security of the rich enclaves. Private vehicle use is likely to increase by the wealthy
Good design and management of the coastal recreation area	Building standards and construction practices conform to high spatial and ecological design requirements. Sustainable development is a priority, with the local community effectively managing and maintaining public spaces, buildings, and shared facilities	Redevelopments are driven to enhance the urban quality of life (thus retain residents). Better design standards are supported. Existence of planning policies to ensure management and maintenance of open spaces, public buildings, and shared facilities	No policy enforcing or supporting promotion of better spatial and ecological design and higher environmental standards; market may demand it, nonetheless. Private-led management is based on willingness to pay, so some parts of the harbour better managed than others, depending on the customer base	Strong enforcement of policy that supports better design and higher environmental standards for the rich. The rich support management and maintenance of their spaces and buildings; for the poor, many buildings and spaces are unsafe due to poor design and limited/no resources for management and maintenance

Key: ■ condition highly unlikely to continue in the future ■ condition is at risk in the future ■ condition highly likely to continue in the future

POLICY IMPLICATIONS

Changing the public perception and the image of a remote smokestack mining town to that of a more liveable, accessible, and attractive city is a well-known urban regeneration policy. It has been frequently attempted across old industrial regions. Yet, despite one's familiarity with such initiatives, their potential for success in the long run depends on having several crucial prerequisites in place, ranging from good **design and management**, generous **public funding**, **co-ordination**, and **leadership to connectivity**, and a **growing customer base of satisfied users** of the new recreational facilities. Results of the project's Urban Futures Methodology workshop with Zonguldak stakeholders reported above clearly demonstrate that the proposed harbour (coastal area) recreational project is a very resilient solution to the long-term challenge of urban shrinkage. Certainly, it **works best** in the **New Sustainability Paradigm** (NSP) urban futures scenario: notwithstanding a lack of 'strong' leadership to drive the project through, the Zonguldak Harbour (Coastal Area) Recreation Project has a **79% chance of success** under the NSP conditions. This project would also **work very well** in the **Policy Reform** scenario, with the probability of success approaching **71%**, as not a single necessary condition is highly likely to fail in the future. In the **Market Forces** urban futures scenario, a harbour recreation project aimed at improving a shrinking city's connectivity and compact land use has a **50/50 chance of success**, for it is highly likely to lack the necessary spirit of co-ordination and collaboration amongst the project's many stakeholders and to neglect sustainable transport opportunities. Except for the presence of strong leadership and attentiveness to the needs of the wealthy, the **Fortress World** urban future scenario does not possess 4/5 of the necessary conditions, which could allow a coastal area recreation project to flourish long-term.



REFERENCES AND FURTHER READING

- Arkitera (2019). Zonguldak Orta Kapuz Tersane ve Yakın Çevresi Düzenleme Projesi. *Arkitera* (14 February), <https://www.arkitera.com/proje/zonguldak-orta-kapuz-tersane-ve-yakin-cevresi-duzenleme-projesi/>
- Birch K & Mykhnenko V (Eds) (2010). *The Rise and Fall of Neoliberalism: The Collapse of an Economic Order?* London: Zed Books.
- GSPH (2013). The built environment and health: an evidence review. Briefing Paper - Concepts Series 11. Glasgow: Glasgow Centre for Population Health, https://www.gcph.co.uk/assets/0000/4174/BP_11_-_Built_environment_and_health_-_updated.pdf
- Güney M (1966). Underground Mining Operations in Zonguldak Coal Mines. *Maden Tetkik ve Arama Dergisi / Bulletin of the Mineral Research and Exploration*, https://web.archive.org/web/20161009201207/http://www.mta.gov.tr/v2.0/eng/dergi_pdf/68/7.pdf
- Güneş Ö (2018). Vatandaşı sahil ile buluşturacak proje için ilk adım atıldı. *Pusul Gazetesi* (17 August), <http://www.pusulagazetesi.com.tr/vatandasi-sahil-ile-bulusturacak-proje-icin-ilk-adim-atildi-104918-haberler.html>
- Haase A, Bernt M, Grossmann K, Mykhnenko V & Rink D (2016). Varieties of shrinkage in European cities. *European Urban and Regional Studies*, 23(1): 86-102, [DOI:10.1177/0969776413481985](https://doi.org/10.1177/0969776413481985)
- Haase A, Rink D, Grossmann K, Bernt M & Mykhnenko V (2014). *Conceptualizing urban shrinkage. Environment and Planning A*, 46(7): 1519-1534, [DOI:10.1068/a46269](https://doi.org/10.1068/a46269)
- Lombardi DR., Leach JM, Rogers CDF et. al. (2012). *Designing Resilient Cities: a Guide to Good Practice*. Bracknell, UK: IHS BRE Press.
- Mykhnenko V (2011). *The Political Economy of Post-Communism: The Donbas and Upper Silesia in Transition*. Saarbrücken: Lambert Academic Publishing.
- Özatağan G & Eraydın A (2014) The role of government policies and strategies behind the shrinking urban core in an expanding city region: The case of Izmir. *European Planning Studies*, 22(5): 1027-1047, [DOI:10.1080/09654313.2012.757588](https://doi.org/10.1080/09654313.2012.757588)
- Özatağan G & Eraydın A (2020). Emerging policy responses in shrinking cities: Shifting policy agendas to align with growth machine politics. *Environment and Planning A: Economy and Space*, [DOI:10.1177/0308518X20975032](https://doi.org/10.1177/0308518X20975032)
- Pusula (2019, 17 August) <http://www.pusulagazetesi.com.tr/vatandasi-sahil-ile-bulusturacak-proje-icin-ilk-adim-atildi-104918-haberler.html>
- CITE AS:** Özatağan, Güldem, Eraydın, Ayda & Mykhnenko, Vlad (2021). 3S RECIPE – Smart Shrinkage Solutions: Zonguldak (TR) Policy Brief #2. Compact Connected City. University of Oxford. Zenodo. [DOI: 10.5281/zenodo.4479901](https://doi.org/10.5281/zenodo.4479901).

