

Chapter 3

Designing in Shrinking Cities – the case of Eastern Germany

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The Shrinking City

According to Karina Pallagst, a leading expert on shrinking cities, every sixth city in the world is shrinking¹. However, not all shrinking is equal. Reasons, degrees, rates and types of shrinkage vary from place to place and between eras. The primary reasons behind shrinkage in the 1950s in the US for example, “white flight” and post-war suburbanization, were not the reasons for shrinkage in the 1970s; the collapse of heavy industry in many areas². Shrinkage and growth, concentration and distribution, have to do with migration, and the reasons for migration vary based on social, political, and economic contexts. In addition, trigger events such as the opening of borders, the changing of laws or economic fluctuations can change the attractiveness of various areas for different groups, thus unleashing the selective migration seen in the “white flight” studies.

Twenty three years after Germany's reunification, East German cities present unique opportunities to develop innovative approaches to the conditions presented by shrinking cities. The legacy of forty years of socialist influences on urban development plus the ensuing dramatic demographic changes in the years after the fall of the Berlin Wall have created an individual set of challenges for professionals in the fields of urban design, architecture, and urban planning. The changes in Germany were not only sudden, but also drastic with Karina Pallagst speaking of a net migration of over one million East German residents to West Germany between 1991 and 2004³.

Some studies describe a net loss of 1.6 million people between 1989 and 2009 - a proportion of 12% of the total population⁴, while others quote figures of up to 2 million between 1989 and 2011 (Bauer, 2011). In the cities of East Germany an average of 12% of the population emigrated in the years after the fall of the Wall but, for the three case study cities in Saxony-Anhalt that will be discussed in this paper, the proportions were much higher, averaging 20%^{5,6}. In addition, a disproportionately high number of the émigrés in the East German case are women under thirty five – a particularly significant figure given that this demographic grouping is key to natural population growth and its absence is one of the more specific characteristics of German population decline.

In Germany, the interest in addressing the shrinking phenomenon from the perspective of urban redevelopment (*Stadtumbau*) began in February 2000 when a special commission was formed by the government. It was set up by the Federal Minister for Traffic, Building and Housing, the State Minister of the Chancellery, and the Federal Commissary for Affairs of the New German States⁷. The commission, formed to assess the problem of vacant apartments in the new German states, declared in their report in November 2000 that, “ten years after reunification, approximately one million apartments, or around 13% of the housing stock in East Germany, stood empty”, and suggested a 300,000 to 400,000 unit reduction in housing stock over the course of 10 years in order to stabilize the housing market⁸. Fig. 1



Fig. 1. Vacant Plot in Magdeburg, Saxony-Anhalt

The removal of housing units concentrated, above all, on the newest housing stock: the socialist post-war housing estates on the outskirts of the cities. In 2002, the joint federal-state program *Stadtumbau Ost* (Urban Redevelopment East) was officially begun. It hosted competitions and provided funding for urban regeneration projects and programmes. In order to be able to take part in the program, towns had to have developed an integrated urban planning concept (*Integrierten Stadtentwicklungskonzept - ISEK*). Thus the program, which ran from 2002 to 2009, did not just intend to remove housing stock, it aimed at ensuring this occurred as part of an integrated plan for the long term betterment and stabilisation of the East through holistic planning measures⁹.

German academic research about shrinking cities and *Stadtumbau Ost* has run parallel to this program and the growing demands on planners and urban designers has been increasingly discussed in academic circles in the last few years¹⁰. Furthermore, there has been increased interest in landscape ecology studies that deal with both the ecological goods and services of abandoned land¹¹ and the possibilities around urban forestry¹². Indeed, an interest in these issues has come together to form a rich vein of research in the context of the former East Germany.

German reunification and the East German shrinking city.

The fall of the Berlin Wall was the beginning of a great many changes in Eastern Europe. In Germany, forty years of separate development had created a critical economic difference between the states of the Federal Republic of Germany (FRG - West Germany) and the former German Democratic Republic (GDR - East Germany). In fact, the construction of the Berlin Wall, which began in August 1961, was in part a reaction to the differential development of the two Germanys and the political side effects created by it. According to official numbers, between 1949 and 1961, the population of the GDR fell from 18.3 million to 17 million; a loss of 7% of the population in just 12 years¹³. Other sources indicate that this number may be too low, suggesting that up to one quarter of the population emigrated before the Berlin Wall was finished in 1961¹⁴. The emigration was not equal across all professional and age groups however, but was primarily composed of young, highly-skilled and highly-educated citizens; a phenomenon aptly termed "Brain Drain"¹⁵.

The solidification of the border through the construction of the Berlin Wall, and the inner-German border, stopped the initial loss of skilled workers and young families, although birth rates remained very low. In the West, the post-war economic boom continued well into the 1970s and involved the establishment of industrial centres throughout West Germany. Good examples of this are the banking headquarters in Frankfurt am Main, the concentration of television and radio studios in Cologne, and the grouping of publishing houses in Bavaria.

German reunification doomed the inefficient and superfluous socialist industrial complex to closure and, at the same time, crippled the job market in the East¹⁶. This meant that the "new German states", as the former East is called in German, were disadvantaged in two regards in 1990: they had fewer skilled workers and no established industrial centres. The collapse of the socialist industrial complex in the first few years after the fall of the Wall meant unemployment rates were as high as 40% in some areas¹⁷ and, as a result, emigrating job seekers were one of the main sources of shrinkage in these areas in the early 1990s.

These structural conditions, and their resulting developments, also had significant effects on the landscape. The socialist industrial building complexes had consisted not only of factories and warehouses, but also of corollary structures for workers such as vacation settlements, kindergartens, worker housing, and administrative buildings, all of which were state-owned¹⁸. These facilities were all abandoned with the collapse of East German industry, leaving a proportionally high number of vacant and abandoned buildings blotting the landscape of the East almost overnight. In light of population decline, lack of demand, lack of industry, and a lack of funding, these buildings could only be repurposed to a very limited extent, if at all¹⁹.

Another issue affecting the renovation of buildings at the time was the restitution clause in the reunification contract. This stated that properties seized or abandoned during either the regimes of the Nazis or the socialists must be returned to their original owners²⁰. The main problem with this was the fact that the restitution clause covered a time span of over sixty years, during which several legitimate owners may have owned the buildings in question. Disputes over restitution rights dominated the early 90s and deeply complicated the renovation or adaptation of these properties, since no steps could be taken until the legitimate owners were found or determined²¹. In the case of Jewish properties seized by the Nazis, the original owners were often no longer alive and in these cases, the property was generally returned to their heirs; a fact that complicated matters even further²².

The fundamental economic changes that went along with reunification were also catastrophic for Eastern Germany. The economic logic of socialism did not favour the accumulation of capital in the form of savings for example, as it did and still does (in general) under capitalism. Hence, East German citizens were wholly at a disadvantage in comparison to their West German counterparts, who had not only benefited from the post-war economic boom, but also from being part of the fundamentally different, and ultimately victorious, economic system. All of this saw the value of earnings in the East halved with the adaptation of the new currency²³. To this day, wages, but also living costs, are much lower in the new German States²⁴. In this economic and labour context, emigration to West Germany (or elsewhere) became increasingly common and is a phenomenon which has left consequences that are still being dealt with today.

East German cities have become trapped in a downward spiral in which the skilled workers and educated young people with families, that could not only revive the inner cities but also

bring tax revenue to state coffers, are the ones who continue to move away. The remaining population is ageing and a larger proportion of them are retiring than entering the workforce; yet one more factor increasing the economic burden that the new states seem to pose²⁵.

While discussions of shrinking cities in countries such as the United States centre around privatisation and revitalisation, such as the transforming of old warehouses into loft apartments, the replacement of high-density housing with low-density housing, and the incorporation of empty lots into large city parks for example²⁶, East German cities are confronted with a very different set of issues. As described above, such redevelopments cannot be realised in East Germany for the simple reasons of an extremely low demand and a dearth of investors. All of this constitutes a constellation of negatively-developing characteristics: the lack of tax revenue means that the abandoned lots remain abandoned; the lack of young women means that the birth rate drops further; the average age of the population continues to rise meaning that more people retire rather than join the workforce; and the unattractiveness of areas of derelict landscape compound the problems by doing little to stem the tide of emigration.

A framework for solutions - Stadtumbau Ost & "Less is Future"

Several top-down planning instruments have been used in the last two decades to attempt to combat these problems, the first and probably most important of which was *Stadtumbau Ost*, (Urban Regeneration East). This federal program was intended to speed up the development of integrated urban development plans in the new German states. Several projects and laws were nested under the larger *Stadtumbau Ost*, among them the "International Building Exhibition Urban Redevelopment Saxony-Anhalt 2010" (*International Bauausstellung Stadtumbau Sachsen-Anhalt 2010*); an international design competition aimed at fomenting urban planning ideas, whose name was later shortened to "Less is Future" (*Weniger ist Zukunft*)²⁷. This programme, intended to provide the towns with planning instruments for the period up to 2010, not only informed practice but also forms the backdrop of many educational projects such as the case studies and student projects discussed here.

In the summer of 2001, the Bauhaus foundation in Dessau, which is housed in the same campus as the *Hochschule Anhalt* (The Applied University [Hochschule] Saxony-Anhalt), presented a concept for an international building exhibition to the federal minister of building²⁸. The programme proposed a design competition for sites in nineteen cities and towns in the state of Saxony-Anhalt between 2003 and 2010.²⁹ The proposal was approved in November 2002 and the resultant projects subsequently formed the backbone of architecture, urban design and landscape design teaching in the area in the following years³⁰; an example of which was the international masters programs in architecture and landscape architecture at *Hochschule Anhalt*.

In discussing education, and its response to the phenomenon of the shrinking city, it is important to note that not only the political, economic and industrial infrastructure of the GDR, but also its educational and research infrastructure was fundamentally affected by the political changes of the early 1990s. The education programs were reorganized throughout the East because, amongst other things, the East German higher education and research system was regarded as too influenced by the socialist state³¹.

In this context, four new applied universities were set up during this period, including the *Hochschule Anhalt*, all of which focus on subject-specific, practical and applied skills. These ‘applied universities’ are state-run and financed, and typically divide programs among themselves. As a result, there is only one design program in the state. In addition to the four technical universities however, two historic universities (*Universitäten*) that primarily focus on the theoretical and “high-science” aspects of education and knowledge production, are also located in the state. Thus, what we have in Saxony-Anhalt is a clear division of the practical and theoretical aspects that is typical of the German academic system.

Setting it apart from the strict traditional German disciplinary approach, the international masters program in architecture at *Hochschule Anhalt* integrates various departments at *Hochschule Anhalt* to provide a framework for interdisciplinary learning. Other characteristics that broaden the learning experience at the school are the mix of students from around the world and its learning-by-doing ethos.³² In this regard, the teaching methods employed are premised on presenting students with the harsh realities of local site conditions and encouraging them to develop innovative and creative solutions appropriate to the spatial and location-specific conditions of sites in the area.

The subject matter and scope of the lectures and studios offered at *Hochschule Anhalt* are intended to be appropriate for dealing with the very specific and demanding design challenges found in the region and includes, amongst other things, the study and response to ‘spatial breaks’; the fragmentation of cities resulting from processes of de-industrialisation and depopulation which are the result of globalisation, international emigration and local and regional factors such as those discussed earlier.

Numerous studios and courses at *Hochschule Anhalt* deal with, and have dealt with, these and other related issues relevant to German states affected by shrinkage and it is in this context that we see the importance and influence of programs such as *Stadtumbau Ost* in the educational sector and the way in which education is responding to the specific issues affecting the former East Germany. The architecture program alone for example, conducts four studio projects per year, at least half of which concern the immediate region. They are intended to involve real research and to come up with real proposals, three examples of which are discussed here.

Three Case Studies and Projects

Magdeburg, Dessau & Halle are all cities located in the southern and central parts of Saxony-Anhalt that border the state of Lower Saxony (*Niedersachsen*) to the west, and thus formed the inner-German border between 1949 and 1990³³ (Fig. 2). Overall, the population of Saxony-Anhalt has dropped by over half a million since 1990, a sum that represents nearly 20% of the state’s population at the time of reunification.³⁴ All its towns share similar characteristics in terms of their structural conditions, and all show evidence of having fallen derelict as a consequence of widespread emigration. That said, as we shall discuss below, although all three towns have been through the same political changes since 1989, these changes have had different consequences for their local urban character, and their material and immaterial urban conditions and characteristics.

All three towns successfully competed in the *Stadtumbau Ost* design competition in 2001, one of the goals of which was to come up with ideas to help the cities establish an ‘urban brand’

and new identity. Magdeburg won with the theme *Leben an und mit der Elbe* (Life on and with the Elbe). Halle successfully competed with the theme *Waldstadt Silberhöhe* (Forest city Silberhöhe - a socialist post-war housing estate in Halle) and Dessau won funding with their innovative concept *Stadtinseln* (Urban islands). All three integrated the demands of the design competition and worked towards the reduction of housing stock in different ways³⁵.



Fig. 2. Map of Saxony-Anhalt.

One of the main foci of the design projects carried out at *Hochschule Anhalt* was the goal set as part of *Stadtumbau Ost*, to increase the significance of the service and knowledge based economy in the area. All three of the case study areas contain a higher education facility, a university or technical university, which has contributed to the current situation of the town and, as we shall argue in detail later, can play a significant role in the redevelopment of this kind of city. The expansion of the university in Magdeburg has gentrified a former industrial riverside district near the river Elbe and, as a result, one of the former industrial sites near the river has been restructured and integrated into inner urban areas for the first time. Similarly, the development of the university district in Halle has revitalised this part of the city and strengthened the role of the already well-integrated inner city university as part of the medieval core of the town. The building of the campus in Dessau, and its renewal of public spaces during the last two years, has beautified the portion of Dessau around the Bauhaus and *Hochschule Anhalt* on the western side of the railway track, albeit in a way that visually and spatially underlines the separation of the town into two parts; the industrially influenced east and the arts and science influenced west.

These new developments around the universities have taken place alongside the cities' medieval cores which, in each case, have the potential to facilitate a rich and diverse array of service industries including, but not limited to, knowledge production. In order to broaden local opportunities in accordance with the locally existing structural conditions, the projects dealt with below suggest options for connecting currently derelict and recently regenerated parts of the urban fabric so as to enrich the uses, the image and the concept of urban space in these 'shrinking cities'.

Post-reunification housing development in these cities has concentrated on the redevelopment, redesign, or partial demolition of mono-functional socialist large-scale housing estates and the promotion of its opposite: single-family houses. In practice, this

means the case study areas are witnessing a post-reunification emergence of suburban neighbourhoods that continues unabated today. Within this range of general characteristics, the case studies and projects carried out at *Hochschule Anhalt* worked with a framework of five specific design criteria seen as being of key importance for successful redevelopment.³⁶

The first of these criteria can be defined as the distribution of large urban open spaces and their interconnection with the surrounding region. The cities in question are perforated by large ecologically significant urban spaces whose integration with the surrounding countryside is critical for wildlife migration, air circulation and the alleviation of the heat-island effect. The second important design criteria identified was the proximity of, and the relationship between, urban areas and river banks. Each of the case study areas is located on a river whose banks provided the backdrop for industrial expansion. Discontinuation of industrial uses has meant that the large quantities of industrial buildings located here are derelict and, in some cases, that the associated sites are contaminated. These waterways and their respective wetlands are ecologically, historically, culturally, and socially significant and must form a major area of interest in any future development.

Thirdly, the readability of history and different periods of urban development in the urban profile is considered an important design criterion. The case studies, which were all significant industrial centres in the first half of the 20th century, have been periodically destroyed and rebuilt over the years; both the First and Second World Wars in particular left significant 'scars' on the landscape. In addition, the substantial visual and structural differences between pre- and post-WWII architecture and urban planning means that the landscape feels very fragmented, and that the sense of place or *genius loci* is diffuse and impalpable. Finding ways to remedy this is fundamental.

The fourth point to be considered is the distribution and character of central and de-central public spaces in the case study areas. Open spaces play an important ecological role in the urban environment, as mentioned above, but are also important for recreation and thus a sense of general well-being for inhabitants. It is important to ensure that any new developments offer a just distribution of open space for recreation to all inhabitants and not just those in more well-to-do neighbourhoods.

The fifth and final point to bear in mind is the usability, legibility and changeability of urban conditions in settled areas. The fact that the case study towns have been partially destroyed and rebuilt in several waves means that it has been difficult to ensure the integration of buildings and areas into an overall coherent plan; a fact that impedes orientation, the integration of services, and movement, amongst other things. In addition, this lack of integration has hindered future-oriented changes and the urban responsiveness which are needed to adapt these towns to the changing demands for living and working in today's economic and social climate³⁷.

Case Study 1: Magdeburg

Magdeburg is located on the River Elbe. It is the state capital and, spatially, the densest of the case study cities. The River Elbe cuts deeply into the lowlands of the *Magdeburger Börde* region and, whereas the riverside to the east merges with woodlands and wetlands, to the west it forms a clear edge which was an important urban and industrial core in the past. The river

valley connects the large-scale greenways in the area and separates the wilderness in the east from the controlled agricultural lands to the west.

The research carried out as part of this project identified that the former fishing villages that form the core of the pre-industrial city on the western bank of the Elbe have clearly defined access to the river. It showed that the former industrial sites are frequently located on polluted and derelict ground and are separated by transport routes from the river and that 'readability' in the major urban core is primarily based on medieval landmarks such as churches and marketplaces (Fig 3). It also identified that the edges of the former villages were transformed by ribbon development in the period of the GDR that have fragmented the main core of the city, and that the cores of these former villages have been strongly influenced by single family house development since reunification; a fact that has further exacerbated their already existent mono-functional spatial arrangement.



Fig. 3. Magdeburg. Housing and the Towers of Magdeburg Cathedral in the historic centre.

The research conducted here also revealed that the central public spaces are fragmented and dominated by commercial activities, and that de-centralised public spaces like paths along the river and village cores derive their meaning from frequent use by residents. Mixed in with all of this are suburban areas that have direct access to open spaces, and thus allow for a small-grained spatial integration of new uses and activities.

In response to these conditions, the projects develop by the university students involved the redesign of a former industrial site between a major traffic route and river. The core of the project was a broad strategy that would allow for the preservation, maintenance and renewal of the city's historic water-tower; it would intensify the land use on and around the site so as to make it a viable location for investment and redevelopment. The historical water tower is a site with various inherent advantages such as the beauty of the adjacent riverside landscape. The importance of the landmark is highlighted by its nickname; "The Cathedral of the South of Magdeburg" (Fig. 4).

The projects put forward by the architectural students for this site involved firstly, arguing architecturally, technically and economically for the maintenance of the tower itself and then,

developing the surrounding site for decentralized residential housing. In this way, the site was to be developed with a differentiated hierarchy of public spaces that would combine and integrate the water tower as the main public space, the residential area as a semi-public space, and pathways to river Elbe as the main public network of connections to the waterside. The combination of these ideas not only met the design criteria identified in the early stages of the project, but their perspective was widened even more through the proposal to establish a “business improvement district”, “BID”, which would gain funding from the state.



Fig 4. Water Tower and proposed de-centralised development.

Case Study 2: Halle

Halle is built around the River Saale. Its main medieval centre is located to the south of the river, and the main post-war housing settlement, *Halle-Neustadt*, forms a satellite to the west of the main agglomeration. The historic city and *Halle-Neustadt* are separated by the north-south path of the river which meanders within the inner urban area and provides an extension of the riversides there. Our students suggested that, in addition, it connects ‘two different worlds’: the multifunctional pre-industrial core with its extensions in the East, and the large mono-functional ribbon of post-war housing complexes in the West.

They identified that the potential to connect the inner city areas and the riversides exists and, indeed, that many such attempts had been made in the past. Research indicated that the ‘readability’ of the urban fabric attains its highest levels in the central core of the city and that the central public spaces are clearly defined in the central core, but not yet in the areas around the watersides. De-centralised public spaces, in both urban and suburban settings, suffer from the effects of industrialisation and, since reunification, have also suffered from complete spatial fragmentation. These features are most obviously seen on the edges of the medieval villages that form the core of the city (Fig 5).

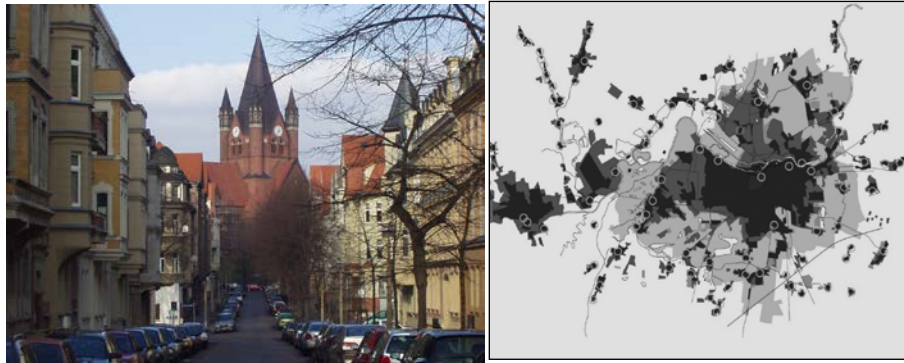


Fig 5. Halle. View towards the inner city.

South of the medieval core, the outskirts of the medieval fortification have been rebuilt several times, most recently during the 1960s, at which point the elevated highway that turned *Halle-Neustadt* into an area for the extension of industrial housing in the GDR period was built. West of the River Saale, there are several high-rise towers that have fallen derelict due to shrinking-related demographic changes and changing demands for housing. The projects developed in response to these developments attempted to restructure this housing and create a more “human scale” environment that connected the medieval core with the southern suburban areas of *Halle-Neustadt* through landscaping schemes and the creation of public spaces. Consequently, the projects concentrated on an arrangement of open “interim” spaces that could become a new core-cell for urban life between the medieval core and the south-western outskirts (Fig. 6).



Fig. 6 Position of and close-up of proposed ‘human scale’ housing

Case Study 3: Dessau

Dessau is located at the juncture of the Elbe and Mulde rivers. The River Elbe flows from east to west and has a distinct oxbow bend between the satellite centre Roßlau to the north, and Dessau’s urban core to the south. In the 1950s, a highway was built that cut through the riverside and through the former castle garden, disturbing the flow of the river in the urban core. The Mulde and the Elbe frame the city in the north and east which are areas dominated by green spaces that integrate well with the surrounding landscape (Fig. 7).



Fig7. Dessau. The poorly integrated city park.

The research conducted in this project identified that fragments of the city's pre-industrial history remain, although the landscape is mostly dominated by industrial relics and buildings with mono-functional uses. The most obvious central public space is the city park (*Stadtspark*) in the middle of the town which, however, needs to be better integrated into the surrounding built space in order to work well at an urban scale (Fig 7). Most public spaces are decentralised and are more or less invisible to visitors not familiar with the area. They are however, well known and well used by inhabitants. The architectural students' projects here focused on the interconnection of the park and the surrounding urban areas and identified three levels of intervention defined as slight support, modest renewal and strong intervention.

Slight support referred to opportunities to identify, localise and strengthen existing spatial characteristics. *Modest renewal* referred to enriching these conditions by adding new components, while *strong intervention* involved replacing areas with new designs that would facilitate new connections between built forms and open spaces. Different urban forms were proposed relative to the intensity of intervention proposed in different areas. In one case for example, the *Stadtspark* was 'framed' by built forms arranged around open spaces. In another, major mono-functional buildings, such as the local shopping-mall were removed and replaced by smaller structures that offered a mixture of uses and opened up movement around them (Fig. 8).

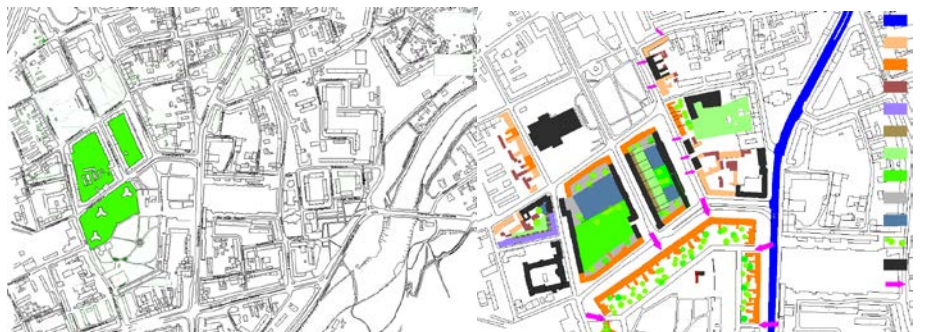


Fig. 8 Proposed plan of Dessau - 'strong intervention' to create a new block and better integration of the city park.

Each of these specific proposals and the broader studio projects from which they emerged were intended to address three aspects of development in post-socialist Germany: derelict historic buildings, disruptive post-war development, and the integration of urban planning from different eras. In Magdeburg, the students' projects involved the preservation of a historic landmark through the extension of contemporary mixed-used development. In Halle, they saw the creation of "interim" settlements that soften the edges between pre-war and post-war urban planning and, lastly in Dessau, the case study most significantly affected by fragmentation through loss of population, the projects focused on strengthening the city core and the creation of a central meeting and gathering place.

They are all projects that reflect the need to transform large-scale mono-functional housing zones in the area, whether they be urban post-war housing estates or suburban post-reunification single family dwelling areas. They reflect the need to find new uses for abandoned industrial sites and seek to enrich existing urban spaces by redeveloping the 'spaces' or 'gaps' between existing centres of activity. They also seek to restructure and integrate the existing well frequented urban and suburban public spaces, semi-natural landscapes, and greenways into their new proposals; all through small scale spatial interventions that instigate and guide processes of self-organisation and support the functional characteristics of the landscapes.

They are projects that support the postulation that holistic and socially sustainable interventions by urban planners, architects, and landscape architects in this type of city suffering from shrinkage need to break up, enrich, and combine areas of mono-functional use by integrating new activities and structures that make places meaningful, recognisable, and create a unique sense of place or *genius loci*. As a result, a move from large blocks of mono-functional buildings to diverse small-scale patterns is proposed to allow dynamic shrinkage and growth to take place as necessary. This is important because diverse, small-scale urban development and design allow for the restructuring of buildings and their uses in new ways as changing conditions dictate in the future.

Summary: the double role of education

Although the opportunities for implementing these plans in the current climate are very limited due to a complete lack of funding and a general lack of capital flow in the region, each of these projects was seen as a genuine investigation and a realistic proposal capable of either being implemented, or forming the basis of more developed proposals at a later date. As a result, they are important in that they provide a deeper understanding of the problems and possibilities offered by the region and thus represent the foundation of future possible developments. They are also important in that they encourage students, and universities as institutions, to engage in the 'realities' of their region which, in these cases, means more than just setting projects there.

The move from mono-functional to more adaptive spatial arrangements in such contexts represents the spatial expression of a fundamental social and cultural turn in Europe - from an industrial, product-based economy to a post-industrial, service- and knowledge-based economy. Solutions in shrinking cities like those of the former East Germany must continue to be future-oriented and focus on structural organisations that bring the development of knowledge-based infrastructures to the fore. Typical in this regard are creative individuals

such as artists and designers, but also institutions such as universities, research complexes, and facilities.

This involves seeing the creative industries and education as active economic factors as well as the sites of theoretical and practical research investigations³⁸. In contexts such as those described here, the university itself is an active economic driver in regeneration and, as a result, it is important to respond appropriately to make sure it remains so. On one level this involves ensuring that infrastructure such as housing, public transportation, and open spaces are appropriate and contemporary in order to attract students and keep young skilled workers in the area upon the completion of their degree. On another level however, it involves a reconsideration of the curriculum and approaches to teaching.

In today's complex economies, in which the factors that affect the success, or otherwise, of any initiative or region are multiple, diverse and interrelated, we would argue that it is important that professionals be trained in systems thinking - so as to better understand a range of different disciplines and ideas.³⁹ The educational programs at Dessau and *Hochschule Anhalt* seek to break out of the traditional, hierarchical, and disciplinary approach in Germany to rise to the challenges presented by shrinking cities. The success of *Stadtumbau Ost* further highlights the fact that an integrated and interdisciplinary approach is appropriate for dealing with the complex and multiple structural specifics in Eastern Germany.

The architecture and landscape architecture programs at *Hochschule Anhalt* have made the first step in this direction and continue to strive for locally-specific integration of this approach. This should however, be done with an eye on international lessons through both international and regional projects that help understand and dynamically define the innate qualities of urban life and character in shrinking cities.

The educational program must also be revised and extended to accommodate these requirements. Concrete steps to improve teaching so as to contribute to the tackling of the challenges presented by shrinking cities in our context include; a yearly symposium to refine the existing approaches to teaching and design; extending the existing program to PhD-level; employing PhD-students for teaching; and introducing a new practical office on site in Dessau.⁴⁰

This type of development will be the next step of an on-going engagement of education in the challenges of the future in Germany that will add to the potential of universities to work with local and regional areas and the issues and problems they face. They will add value to the type of project described here in which education has already been involved in the 'production' of new ideas and initiatives and the 'reproduction' or reworking of existing projects, initiatives and infrastructures inherent to the economy of the country and its regions. These must be the goals followed in any design or planning program, particularly one dealing with the phenomenon of shrinking cities.

Bibliography

- . (1989). Statistisches Jahrbuch der DDR. 1. Auflage. Berlin (Ost): Staatsverlag der DDR.
- . (2009, August 28). Despite Progress, Former East Germany Still Lags Behind. *Spiegel Online*. Retrieved from <http://www.spiegel.de/international/germany/20-years-of-investment-despite-progress-former-east-germany-still-lags-behind-a-645596.html>
- Abraham, K. G., & Houseman, S. (1995). Earnings inequality in Germany. In R. B. Freeman & L. F. Katz (Eds.), *Differences and Changes in Wage Structures* (pp. 371 – 404). Chicago: University of Chicago Press.
- Bahrman, H., & Links, C. (2005). *Am Ziel vorbei*. Berlin: Ch. Links Verlag.
- Bauer, U. C. (2011). Weniger ist Zukunft. *STANDORT - Zeitschrift für Angewandte Geographie*, 35(1), p. 2–5.
- Bentley, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive environments: A manual for designers*. Oxford: Architectural Press.
- Bontje, M. (2004). Facing the challenge of shrinking cities in East Germany: The case of Leipzig. *GeoJournal*. 61(1). p. 13-21.
- Bos, D., & Von Weizsacker, R. K. (1989). Economic consequences of an aging population. *European economic review*, 33(2-3), p. 345–354.
- Dettmar, J. (2005). Forests for Shrinking Cities? The Project “Industrial Forests of the Ruhr”. In I. Kowarik & S. Körner (Eds.), *Wild Urban Woodlands: New Perspectives for Urban Forestry* (pp. 263–276). Berlin/Heidelberg: Springer.
- Dissmann, C. (2010). *Die Gestaltung der Leere: Zum Umgang mit einer neuen städtischen Wirklichkeit*. Bielefeld: transcript Verlag.
- El Nasser, H. (2006, December 27). As older cities shrink, some reinvent themselves. *USA TODAY*. Retrieved from http://www.usatoday.com/news/nation/2006-12-26-shrinking-cities-cover_x.htm
- Florida, R. (2002). *The rise of the creative class and how it's transforming work, leisure, community and everyday life*. New York: Basic Books.
- Fuchs, H.-W. (1997). *Bildung und Wissenschaft seit der Wende: zur Transformation des ostdeutschen Bildungssystems*. Opladen: Leske + Budrich.
- Goschler, C., & Lillteicher, J. (2002). “Arisierung” und Restitution - Die Rückerstattung jüdischen Eigentums in Deutschland und Österreich nach 1945 und 1989. Göttingen: Wallstein Verlag.
- Haase, A. (2011, May 30). *Magdeburg, Halle, Dessau - Gegenwart und Zukunft der Stadtentwicklung in Sachsen-Anhalt*. Retrieved from <http://www.stadtentwicklung-sachsen-anhalt.de/>
- Hockerts, H. G., & Kuller, C. (2003). *Nach der Verfolgung*. Göttingen: Wallstein Verlag.
- Hollander, J. B., Pallagst, K., Schwarz, T., & Popper, F. J. (2009). Planning shrinking cities. *Progress in Planning*, 72(4), p. 223–232.

- Häußermann, H., Glock, B., & Keller, C. (2000). *Eigentumsstrukturen zwischen Persistenz und Wandel : zu den Folgen der Restitution in suburbanen und innerstädtischen Gebieten*. Plymouth: Univ. of Plymouth.
- Institut für Regionalentwicklung und Strukturplanung. (2012, August 6). Bund-Länder-Programm Stadtbau Ost. Retrieved from <http://www.stadtumbau-ost.info/>
- Kern, S. (2006). *Auswirkungen der Wiedervereinigung*. GRIN Verlag. Retrieved from <http://www.grin.com/de/e-book/51246/auswirkungen-der-wiedervereinigung>
- Kowarik, Ingo. (2005). Wild urban woodlands: Towards a conceptual framework. In I. Kowarik & S. Körner (Eds.), *Wild Urban Woodlands: New Perspectives for Urban Forestry* (pp. 1–32). Berlin/Heidelberg: Springer.
- Kulish, N. (2009, June 19). In East Germany, a Decline as Stark as a Wall. *The New York Times*. Retrieved from <http://www.nytimes.com/2009/06/19/world/europe/19germany.html>
- Kühn, M., & Liebmann, H. (Eds.). (2009). *Regenerierung der Städte: Strategien der Politik und Planung im Schrumpfungskontext*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Laar, M. (2010). *The Power of Freedom, Central and Eastern Europe after 1945*. Tallinn: Unitas Foundation.
- Langer, M., & Endlicher, W. (Eds.). (2007). *Shrinking cities: Effects on urban ecology and challenges for urban development*. Frankfurt am Main: Peter Lang.
- Leupolt, S. (2003). *Die rechtliche Aufarbeitung des DDR-Unrechts*. Münster: LIT Verlag.
- Müller, B., & Siedentop, S. (2012, August 29). *Growth and Shrinkage in Germany - Trends, Perspectives and Challenges for Spatial Planning and Development*. Berlin. Retrieved from <http://www.difu.de/publikationen/growth-and-shrinkage-in-germany-trends-perspectives-and.html>
- Müller, N., Werner, P., Mathey, J., & Rink, D. (2010). Urban Wastelands—A Chance for Biodiversity in Cities? Ecological Aspects, Social Perceptions and Acceptance of Wilderness by Residents. In N. Müller, P. Werner, & J. G. Kelcey (Eds.), *Urban Biodiversity and Design*. Oxford: Wiley-Blackwell.
- Pallagst, K. (2010). Viewpoint: The planning research agenda: shrinking cities—a challenge for planning cultures. *Town Planning Review*, 81(5), p. i–vi.
- Pfeiffer, U., Simons, H., & Porsch, L. (2012, August 29). Wohnungswirtschaftlicher Strukturwandel in den neuen Bundesländern - Bericht der Kommission. Retrieved from http://www.schader-stiftung.de/docs/kommission_strukturwandel_kurzfass.pdf
- Reimann, B. (1997). The transition from people's property to private property: Consequences of the restitution principle for urban development and urban renewal in East Berlin's inner-city residential areas. *Applied Geography*, 17(4), p. 301–313.
- Rieniets, T. (2012, August 27). Shrinking cities - growing domain for urban planning? Retrieved from http://aarch.dk/fileadmin/grupper/institut_ii/PDF/paper_presentation_EURA2005.pdf
- Rink, D. (2009). Wilderness: the nature of urban shrinkage? The debate on urban restructuring and restoration in eastern Germany. *Nature and Culture*, 4(3), p. 275–292.

Sonnabend, R., & Stein, R. (2006). *Die anderen Städte: Profilierung von Städten/The other cities: Urban distinctiveness*. Berlin: Jovis.

Statistisches Landesamt Sachsen-Anhalt. (2012, August 6). Entwicklung der Deutschen und Ausländer in Sachsen-Anhalt seit 1990. Retrieved from http://www.stala.sachsen-anhalt.de/Internet/Home/Daten_und_Fakten/1/12/124/12411/Entwicklung_der_Deutschen_und_Auslaender.html

¹ El Nasser, H. (2006, December 27). As older cities shrink, some reinvent themselves. *USA TODAY*. Retrieved from http://www.usatoday.com/news/nation/2006-12-26-shrinking-cities-cover_x.htm

² El Nasser, H. (2006, December 27). As older cities shrink, some reinvent themselves. *USA TODAY*. Retrieved from http://www.usatoday.com/news/nation/2006-12-26-shrinking-cities-cover_x.htm

³ El Nasser, H. (2006, December 27). As older cities shrink, some reinvent themselves. *USA TODAY*. Retrieved from http://www.usatoday.com/news/nation/2006-12-26-shrinking-cities-cover_x.htm

⁴ Kulish, N. (2009, June 19). In East Germany, a Decline as Stark as a Wall. *The New York Times*. Retrieved from <http://www.nytimes.com/2009/06/19/world/europe/19germany.html>

⁵ Statistisches Landesamt Sachsen-Anhalt. (2012, August 6). Entwicklung der Deutschen und Ausländer in Sachsen-Anhalt seit 1990. Retrieved from http://www.stala.sachsen-anhalt.de/Internet/Home/Daten_und_Fakten/1/12/124/12411/Entwicklung_der_Deutschen_und_Auslaender.html

⁶ These shrinking tendencies had different sources in the three case study areas examined and were linked back to three causes that were present in different proportions in the three cities: natural population decline (death rate > birth rate), emigration, and suburbanization (Haase, 2011).

⁷ Pfeiffer, U., Simons, H., & Porsch, L. (2012, August 29). Wohnungswirtschaftlicher Strukturwandel in den neuen Bundesländern - Bericht der Kommission. Retrieved from http://www.schaderstiftung.de/docs/kommission_strukturwandel_kurzfass.pdf

⁸ Pfeiffer, U., Simons, H., & Porsch, L. (2012, August 29). Wohnungswirtschaftlicher Strukturwandel in den neuen Bundesländern - Bericht der Kommission. Retrieved from http://www.schaderstiftung.de/docs/kommission_strukturwandel_kurzfass.pdf

⁹ Institut für Regionalentwicklung und Strukturplanung. (2012, August 6). Bund-Länder-Programm Stadtbau Ost. Retrieved from <http://www.stadtumbau-ost.info/>

¹⁰ Bontje, M. (2004). Facing the challenge of shrinking cities in East Germany: The case of Leipzig. *GeoJournal*, 61(1), p. 13-21.; Hollander, J. B., Pallagst, K., Schwarz, T., & Popper, F. J. (2009). Planning shrinking cities. *Progress in Planning*, 72(4), p. 223-232.; Kühn, M., & Liebmann, H. (Eds.). (2009). *Regenerierung der Städte: Strategien der Politik und Planung im Schrumpfungskontext*. Wiesbaden: VS Verlag für Sozialwissenschaften.; Müller, B., & Siedentop, S. (2012, August 29). Growth and Shrinkage in Germany - Trends, Perspectives and Challenges for Spatial Planning and Development. Berlin. Retrieved from <http://www.difu.de/publikationen/growth-and-shrinkage-in-germany-trends-perspectives-and.html>; Pallagst, K. (2010). Viewpoint: The planning research agenda: shrinking cities—a challenge for planning cultures. *Town Planning Review*, 81(5), p. i-vi.; Rienits, T. (2012, August 27). Shrinking cities - growing domain for urban planning? Retrieved from http://aarch.dk/fileadmin/grupper/institut_ii/PDF/paper_presentation_EURA2005.pdf

-
- ¹¹ Langer, M., & Endlicher, W. (Eds.). (2007). *Shrinking cities: Effects on urban ecology and challenges for urban development*. Frankfurt am Main: Peter Lang.; Müller, N., Werner, P., Mathey, J., & Rink, D. (2010). Urban Wastelands—A Chance for Biodiversity in Cities? Ecological Aspects, Social Perceptions and Acceptance of Wilderness by Residents. In N. Müller, P. Werner, & J. G. Kelcey (Eds.), *Urban Biodiversity and Design*. Oxford: Wiley-Blackwell.; Rink, D. (2009). Wilderness: the nature of urban shrinkage? The debate on urban restructuring and restoration in eastern Germany. *Nature and Culture*, 4(3), p. 275–292.
- ¹² Dettmar, J. (2005). Forests for Shrinking Cities? The Project “Industrial Forests of the Ruhr”. In I. Kowarik & S. Körner (Eds.), *Wild Urban Woodlands: New Perspectives for Urban Forestry* (pp. 263–276). Berlin/Heidelberg: Springer.; Kowarik, Ingo. (2005). Wild urban woodlands: Towards a conceptual framework. In I. Kowarik & S. Körner (Eds.), *Wild Urban Woodlands: New Perspectives for Urban Forestry* (pp. 1–32). Berlin/Heidelberg: Springer.
- ¹³ -. (1989). *Statistisches Jahrbuch der DDR. 1. Auflage*. Berlin (Ost): Staatsverlag der DDR.
- ¹⁴ Laar, M. (2010). *The Power of Freedom, Central and Eastern Europe after 1945*. Tallinn: Unitas Foundation.
- ¹⁵ Haase, A. (2011, May 30). Magdeburg, Halle, Dessau - Gegenwart und Zukunft der Stadtentwicklung in Sachsen-Anhalt. Retrieved from <http://www.stadtentwicklung-sachsen-anhalt.de/>
- ¹⁶ Bahrmann, H., & Links, C. (2005). *Am Ziel vorbei*. Berlin: Ch. Links Verlag.
- ¹⁷ Kern, S. (2006). Auswirkungen der Wiedervereinigung. GRIN Verlag. Retrieved from <http://www.grin.com/de/e-book/51246/auswirkungen-der-wiedervereinigung>
- ¹⁸ Bahrmann, H., & Links, C. (2005). *Am Ziel vorbei*. Berlin: Ch. Links Verlag.
- ¹⁹ Dissmann, C. (2010). *Die Gestaltung der Leere: Zum Umgang mit einer neuen städtischen Wirklichkeit*. Bielefeld: transcript Verlag.
- ²⁰ Goschler, C., & Lillteicher, J. (2002). “Arisierung” und Restitution - Die Rückerstattung jüdischen Eigentums in Deutschland und Österreich nach 1945 und 1989. Göttingen: Wallstein Verlag.; Hockerts, H. G., & Kuller, C. (2003). *Nach der Verfolgung*. Göttingen: Wallstein Verlag.; Leupolt, S. (2003). *Die rechtliche Aufarbeitung des DDR-Unrechts*. Münster: LIT Verlag.; Reimann, B. (1997). The transition from people’s property to private property: Consequences of the restitution principle for urban development and urban renewal in East Berlin’s inner-city residential areas. *Applied Geography*, 17(4), p. 301–313.
- ²¹ Häußermann, H., Glock, B., & Keller, C. (2000). *Eigentumsstrukturen zwischen Persistenz und Wandel : zu den Folgen der Restitution in suburbanen und innerstädtischen Gebieten*. Plymouth: Univ. of Plymouth.; Reimann, B. (1997). The transition from people’s property to private property: Consequences of the restitution principle for urban development and urban renewal in East Berlin’s inner-city residential areas. *Applied Geography*, 17(4), p. 301–313.
- ²² Goschler, C., & Lillteicher, J. (2002). “Arisierung” und Restitution - Die Rückerstattung jüdischen Eigentums in Deutschland und Österreich nach 1945 und 1989. Göttingen: Wallstein Verlag.
- ²³ Bahrmann, H., & Links, C. (2005). *Am Ziel vorbei*. Berlin: Ch. Links Verlag.
- ²⁴ Abraham, K. G., & Houseman, S. (1995). Earnings inequality in Germany. In R. B. Freeman & L. F. Katz (Eds.), *Differences and Changes in Wage Structures* (pp. 371 – 404). Chicago: University of Chicago Press.; -. (2009, August 28). Despite Progress, Former East Germany Still Lags Behind.

Spiegel Online. Retrieved from <http://www.spiegel.de/international/germany/20-years-of-investment-despite-progress-former-east-germany-still-lags-behind-a-645596.html>

²⁵ Bos, D., & Von Weizsacker, R. K. (1989). Economic consequences of an aging population. *European economic review*, 33(2-3), p. 345–354.

²⁶ El Nasser, H. (2006, December 27). As older cities shrink, some reinvent themselves. *USA TODAY*. Retrieved from http://www.usatoday.com/news/nation/2006-12-26-shrinking-cities-cover_x.htm

²⁷ Bauer, U. C. (2011). Weniger ist Zukunft. *STANDORT - Zeitschrift für Angewandte Geographie*, 35(1), p. 2–5.

²⁸ Bauer, U. C. (2011). Weniger ist Zukunft. *STANDORT - Zeitschrift für Angewandte Geographie*, 35(1), p. 2–5.

²⁹ The federal program worked through a system in which a state or agency “pitched” a concept for an IBA to the federal ministry of building, who then granted funding or initiated a joint-funding programme.

³⁰ Bauer, U. C. (2011). Weniger ist Zukunft. *STANDORT - Zeitschrift für Angewandte Geographie*, 35(1), p. 2–5.

³¹ Fuchs, H.-W. (1997). *Bildung und Wissenschaft seit der Wende: zur Transformation des ostdeutschen Bildungssystems*. Opladen: Leske + Budrich.

³² The teaching methods are mostly indirect and project-oriented, allowing the students to develop their own solutions and interventions based on the knowledge gained in their Bachelor Degree and the local conditions of the site. The principle of learning-by-doing is given specific emphasis, above all because of the varying experience levels and educational background of the students. Working in mixed groups on studio projects allows for the exchange of experience between various cultures of learning. Architecture students who have completed their Bachelors in Dessau, for example, with its combination of courses, projects, and practical experience (internship), come into contact with students who have been taught on courses with different formats. This usually forms a mutually beneficial and synergistic condition.

³³ Saxony-Anhalt comprises the western-central portion of former East Germany, and shares a border to the south with Thuringia (*Thüringen*), to the East with Saxony (*Sachsen*) and to the east and north with Brandenburg. Magdeburg, the largest of the three cities and the capital of the state, lies approximately 130 kilometres west-southwest of Berlin.

³⁴ The two largest drops in population occurred between 1990 and 1995 (135,029 residents or 4.7%) and 1995 and 2000 (123,553 residents or 4.5%). Since 2001, the population has dropped steadily - by approximately 1% per year (Statistisches Landesamt Sachsen-Anhalt, 2012). The state statistical office predicts a continuation of this trend.

³⁵ Sonnabend, R., & Stein, R. (2006). *Die anderen Städte: Profilierung von Städten/The other cities: Urban distinctiveness*. Berlin: Jovis.

³⁶ The analysis discussed in the following section stem from the German-language study *Magdeburg, Halle, Dessau - Gegenwart und Zukunft der Stadtentwicklung in Sachsen-Anhalt* (Magdeburg, Halle, Dessau – Present and Future of Urban Development in Saxony-Anhalt), which ran from 2000 to 2003 and was funded by the *Bundesministerium für Bildung und Forschung* (German Ministry for Education and Research). Further information (in German) is available here: <http://www.stadtentwicklung-sachsen-anhalt.de>.

³⁷ Bentley, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive environments: A manual for designers*. Oxford: Architectural Press.

³⁸ Florida, R. (2002). *The rise of the creative class and how it's transforming work, leisure, community and everyday life*. New York: Basic Books.

³⁹ In this regard we suggest that ideas related to Henri Lefebvre's arguments on the production of space, as both a physical and metaphysical (symbolic, conceptual or ideological) good are important. These processes of learning and above all 'discovery', need to be guided by the design program in order to promote the concept put forward by the Dessau-born Jewish philosopher Moses Mendelssohn; *enlightenment through education*.

⁴⁰ This, we suggest, should be in close and officially acknowledged cooperation with the Bauhaus Foundation in order to harness the design potential present at the university.