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Brandenburg University of Technology Cottbus - Senftenberg

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Crisis: an Opportunity for Historical Cities

--built cultural heritage as a factor of urban resilience

1. INTRODUCTION

No one knows what the future holds. However, it is more than likely that phenomena, such as climate change and the resulting weather patterns will greatly influence the development of our cities. Consequently, preventive measures must be taken, which range from reducing CO₂ emissions and other greenhouse gases to developing specific adaptation strategies tailored to local requirements. In considering 'demographic changes' the composition of populations is also expected to shift in many places. When looking at the current age structures, these will change greatly from region to region. Because there is a diversity of needs with people in different stages of life, it is pertinent that these manifold interests be incorporated into urban and municipal planning strategies. Population movements are likely to increase at both regional and international levels. Issues around integration and inclusion are nothing new to many places, but their dimension will require reassessing. In addition to these basic challenges, a large number of concurrent technical innovations is expected, which will lead to changes in cities. New telecommunication technologies and patterns of mobility are cases in point. All of these changes affect the intricate workings of a city in its various dimensions, levels of planning, places for development, and actors.

The pressure to change is only one side of the coin; the flip side shows that historical cities, more specifically their cores or old town centers, characteristically have great potential for conservation. Many highly professional and established heritage protection agencies from countries of central Europe has made an invaluable, recognizable contribution to keeping these places as intact as possible. In ideal cases these places have been characterized by enduring uses. In response to the new challenges and risks associated with development and implementation, innovative and adaptive strategies are required. On the one hand there is endurance and on the other there is the necessity of change. On first glance this appears to be a contradictory situation. However, endurance and change, simultaneously, present a major challenge that needs to be faced in the

coming years. The aim is to make cities resilient, which does not mean of course rigid and inflexible. To what extent can the theoretical concept of "urban resilience— [understood as] the ability to resist, adapt, and innovate"¹—be useful?

2. RESILIENCE – TERMINOLOGY

The term 'resilience' was first used in psychology in the 1950's. It originally applied to the tolerance abilities of children. At that time the term was understood within a conglomerate of qualities that allow people to remain psychologically balanced and mentally healthy when affected by negative life circumstances or crisis.² In recent years the term has gained currency in many disciplines³ and has been increasingly applied to various scientific contexts:⁴ from approaches to human ecology and taxonomy to studies on developing countries, micro- sociology, ethnology and political sociology. In relation to urban issues and studies in governance there exists a strong focus on the challenges of policy-making and planning. Since this focus is complex and not one-dimensional, various structures and areas of action can only be integrated by way of a systematic approach that overrides sectoral policy models with the aim of attaining resilience to imminent dangers and threats.⁵ And yet, how does one describe the pending dangers and hazards? There are "conditions and processes that necessitate dealing with risks [. . .] related to the exposure, vulnerability, and response capacity of a system or property. It is worth noting that physical, social, economic and environmental factors play a role."⁶ Robustness and resilience help in dealing with a system or property — here 'resilience'

¹ See announcement of Denksalon 2012 Revitalisierender Städtebau: Urban Planning that Revitalizes. In reference to Construct – Character, Hans Joachim Bürkner has rightly pointed out that "assumptions about vulnerability and compensation for damages are often not reflected as should be on the basis of their function within societal discourse— such as socially constructed ideas "; see, *H.J. Bürkner, Vulnerabilität und Resilienz – Forschungsstand und sozialwissenschaftliche Untersuchungsperspektiven*, Working Paper, Erkner, Leipzig-Institut für Regionalentwicklung und Strukturplanung 2010, S. 25 f.

² "'Resilience' denotes the psychological or psycho- physiological abilities that empower people to tolerate psychological and psycho-physiological stress (stress, hyper- stress, strain) without being harmed while enduring and overcoming the stress"; see, *H.G. Petzold / L. Müller, Resilienz und protektive Faktoren im Alter und ihre Bedeutung für den Social Support und die Psychotherapie bei älteren Menschen*, Düsseldorf / Zürich, 2002, S. 2.

³ Worth mentioning here is, for instance, the increasing awareness of the principles of positive psychology by Martin Seligman, and their use in conjunction with strategies for personal development and strengthening human resilience. By using scientifically validated methods Seligman has implemented different kinds of resilience training in schools and in the U.S. Army. Determining the resilience factors in personality profiles was also applied within the parameters of instruments used in selecting personnel and in better predicting the success of management actions; see, *M. Seligman, Flourish*, München 2012.

⁴ *H.J. Bürkner* (s. A 1), S. 22 f.

⁵ W. Medd / S. Marvin, From the politics of urgency to the governance of preparedness: A research agenda on urban vulnerability, in: *Journal of Contingencies and Crisis Management* 13 (2005), S. 44 ff.

⁶ *J. Birkmann et al., Glossar – Klimawandel und Raumentwicklung*, E-Paper der ARL Hannover 2011, S. 25; vgl.: [www. shop.arl-net.de/media/direct/pdf/e-paper_der_arl_nr10.pdf](http://www.shop.arl-net.de/media/direct/pdf/e-paper_der_arl_nr10.pdf) [25.01.2012]

means either the ability of individuals and social groups to compensate systems or properties that incurred damage (such as by restoring their lost functionality), or the ability to respond flexibly to threats and thereby ward off potential damage."⁷ This definition seems understandable and logical. However, a number of recent publications on the topic have laid out that the largely theory- dominated approximations to the concept need to be further implemented and applied to real spatial contexts.

3. RESILIENCE, ARCHITECTURE AND URBAN PLANNING

In the literature, various operations are named which promote the development of urban resilience. Although the different approaches appear in part useful, they cannot be applied to historical city districts and town centres without modification.⁸ It is also clear that the consideration given to the field of urban planning does not suffice in anyway. Planning is tied in with structures and systems (i.e. societal developments, availability of resources, etc.) with various parameters that engage numerous interactions. To address the matter, diversity (in terms of the multiplicity of typologies and construction methods etc.) as well as flexibility (in regards to structures, uses, and ground plans etc.) are required. In this way the instruments of planning can become more resilient. "What this refers to is the ability of a system to respond flexibly to situational changes and to confounding factors without changing into a different state."⁹

It is precisely because cities are structurally woven into complex systems—whether by trade, transport, utilities, or other— that a cross-sectoral perspective is required. Both architecture and urban planning fall within this context and indeed cannot be isolated. Consequently, it is of little help to have an overly fragmentary view, which considers only singular factors. For this reason it all but makes sense that architects and planning experts play a greater role. Not only should they be responsible for the delivery of a set project, but, more importantly, they should engage in defining the task itself to better honor the overall context and framework conditions. It follows that robustness is much desired in order for the context and framework conditions to remain recognizable, in full

⁷ H.J. Bürkner (s. A 1), S. 24.

⁸Resilience parameters of G. Christmann and others are mentioned here as examples: 1.) change to one's own position to the relational structure; 2.) changes to the units of the relational structure; 3.) removal of elements from the relational structure; 4.) additions to the elements of the relational structure; 5.) changes to the type or intensity of the relationship with the units; 6.) querying and shift of the plane used essentially for the analysis of vulnerability. However, it remains uncertain how these can be meaningfully applied to the circumstance of historic cities and their centres, see G. Christmann / O. Ibert u.a., *Vulnerabilität und Resilienz in sozio-raeumlicher Perspektive. Begriffliche Klärungen und theoretischer Rahmen*, Working Paper, Erkner, Leibniz-Institut für Regionalentwicklung und Strukturplanung 2011, S. 25.

⁹See M. Schaefer, Interview by the authors, in: A. Eisinger / J. Seifert (Hrsg.), *Urban Reset. Freilegen immanenter Potentiale städtischer Räume*, Basel 2012. S. 82.

force and effect.¹⁰ ‘Diversity’ is another component to building desired adaptability. What this means is perhaps best explained by a counter-example. Cases in point are Dubai and Abu Dhabi in the Middle East. Their development has been very much dependent on the automobile and on aircraft accessibility. This exclusiveness presents an issue.¹¹

Up to this point all too little consideration has been given to the discussion on the overall spatial dimension of resilience. The same applies to the role of individual city districts and the designation of specific spatial units. In this regard there is further strong evidence that resilience cannot be understood as a mere state or category, but rather as a process whereby focus is drawn on learning, adaptation and innovative processes.¹² Against a backdrop of urban challenges, this process seems compelling. In the area of intervention top down policy and management approaches must make room for bottom up approaches. In accordance, in some countries indeed, there have emerged parallel, citizen-based, grassroots movements.¹³ Resilience has already been investigated as a strategy connected to the maintenance



Figure 1: Wooden door in Edinburgh; Source: M. Ripp

¹⁰ Ibid., pp. 78 f.

¹¹ Ibid., pp. 83 f.

¹² G. Christmann / O. Ibert (s. A 8), S. 4 ff.

¹³ As a result of anticipated climatic change and dwindling oil reserves, the ‘Transition Town Movement’ developed initially in the UK, then in many other countries. Consequently, “citizens of several innovative cities and towns have dared to take steps by way of a holistic approach to reduce their CO2 footprint. They have also strengthened their resilience to the fundamental changes brought on by global peak oil”, see B. Brangwyn / R. Hopkins, *Transition Initiativen – Ein Leitfaden. Energie- und Kulturwende in Staedten, Gemeinden, Landkreisen, Doerfern, Gemeinschaften und ganzen Regionen*, 2008, S. 3 (available online). As a wider concept, numerous local activities have arisen and can be traced to a number of citizens’ initiatives. As of yet ‘Cultural Heritage’ in itself has hardly been a focus of Transition Town initiatives.

of cultural heritage¹⁴. However, little attention has been given conversely on the role of built cultural heritage as a factor of resilience.

If the focus is set on the specific features of urban resilience, one does not have to go any further than to Tom Sieverts who prescribes innovative urban planning. He sees resilience conjoined with planning and construction in the face of ever-increasing resource scarcity. His call to action is based on the observation that any modification to primary or basic energy has always led to profound urban changes and new urban forms. With this in mind he recommends a number of aspects which are important to the careful management of 'stress factors'. Several specific features appear to be relevant to historical city districts and centres: of priority is the call to conserve resources by ensuring the longevity of buildings. This is also closely related to the ease with which individual building elements can be repaired (see Figure 1). In order to mitigate any conflict between the longevity of a built structure and short-lived uses, a multi-purpose approach to issues of redundancy and availability, as well as economical usage, can be very helpful. In addition the skill of organizing space and designing buildings can make a real difference to energy efficiency.

Unfortunately, at this time there are just a few papers that deal with the application and direct implementation of resilience in a local planning context. The on-site 'translation' of the theoretical concept into understandable and specific planning activities remains to a large degree contextually incomplete. How can resilience be implemented through land use and development plans? What planning instruments are required or need adjustment in order to advance resilience? Although, for the time being, many questions still remain unanswered, the noted categories and features suggest that historical city districts and centres have a special role to play as a factor of resilience in urban systems.

4. RESILIENCE OF URBAN HERITAGE: OPPORTUNITIES AND LIMITATIONS

Since we cannot predict the future, we must rely on past findings to evaluate factors of resilience. In personality psychology, for example, an evaluation of existing [personal] strengths forms the starting point from which further [personal] development can be supported. [Life] events, patterns of interpreting, [approaches in] assessing, and more have all shaped specific personality traits.¹⁵ If one were to apply this model to cities, one could then examine how and under which circumstances certain typologies, spatial arrangements, local traditions, and construction styles, etc. have proved themselves, or, maybe not. It follows that by taking a somewhat closer look at the respective potential of

¹⁴ See J. Mackee, Sustaining cultural built heritage through resilience in the Asian region. Conference Paper University of Moratuwa 2012.

¹⁵ See *M. Seligman* (s. A 3).

historical city districts and centres, it only makes sense to apply this model according to four different categories indicated in related literature: 1.) design and construction, 2.) materiality, 3.) use, and 4.) planning (i.e. at the meta-level).¹⁶

4.1. Resilience by Way of Design and Construction

Economics largely determined the designs and construction styles of historical buildings that are still being used today and that to a large extent will remain viable in the future. This is because decisive measures had been laid down for the structure, volume, and arrangement of individual buildings. These measures reached well beyond the existing degree of resilience: the energy efficiency achieved by way of favorable spatial configurations and construction designs set many historical buildings apart. Stringent regulations for heated rooms and fire places etc. were the order of the day to save as much energy as possible and to secure long-term utility.

The resilience of robust technical designs was achieved with solid construction techniques using wood or stone and tile roofing materials as in residential and representational buildings. Only outbuildings were sometimes constructed to be less durable and simpler in design. Pavements and bridges made of stone etc. have made it possible for infrastructure to be still in use after hundreds of years.

When considering, for example, renovations or city redevelopment processes, individual building units could lose their relational structure to other buildings, or, as in the case of individual rehabilitation projects and area-specific planning processes, simply be removed. This might be done as a fire preventative measure—specifically in eliminating fire hazardous building materials. The addition of building elements is another strategy often used to facilitate modern needs. A city's infrastructure acquires new urban functions when it incorporates structural engineering projects both above and below ground. Similarly, specific protective features against floods, or fires, etc., for instance, become additive elements. Both the additive and replacement aspects in themselves do not disturb the general relationship of structures. On the contrary, they are immanent aspects to earlier urban development. In other words, many existing features of resilience in historical districts are determined by styles of design and methods of construction which are not apparent in other districts like large housing estates and single use zones. Business and commercial districts, as well as suburban housing estates are some examples.¹⁷

¹⁶ Here particular reference is made to T. Sieverts (s. A15), p. 85 ff. and G. Christmann / O. Ibert (s. A 8), pp. 25 ff. The approaches used here by Christmann and Tom Sieverts are principally different. Whereas Sieverts is concerned with the hardware while also considering the associated social actions, Christmann, inter alia, focus more clearly on combining the individual categories of change and governance.

¹⁷ A striking example is the meta-city, Wulfen, realized in the 1970s and based on a systematic approach developed by the architect, Richard J. Dietrich. The city failed as a holistic urban planning concept and eventually had to be demolished in 1987.

4.2. *Resilience by Way of Appropriate Materials*

The building materials used play a central role, particularly, with regard to life expectancy. The longevity of historical monuments is often determined by them with the repair of individual building components, such as bricks, and windows being considered a part of regular maintenance. In the case of historical buildings this is usually part of a daily course of action. Tile and stone rooftops can be quite easily repaired, whereas metal and flat roofs made of concrete require a much larger effort (see Figure 2). Making use of traditional, artisan-made materials, such as wooden windows, wooden floors, clay tiles, lime or clay plasters allows for easier repair. Thus historical wooden casement



Figure 2: *Roof landscape with traditional stone cover in Girokastra, Albania; Source: M. Ripp.*

windows can readily be renewed because of their replaceable, individual elements including window panes, seals, frames, and fittings, etc.—whereby even their insulative value can be optimized to a certain extent. In contrast, synthetic material windows provide very few options of adaptability. In order to strengthen this factor of resilience, building materials need to be locally and adequately available. More importantly, though, is a working network of specialized craftsmen who can professionally do the repair work. Given that the construction industry quite commonly produces prefabricated building components in large quantities, society is called to task on whether it can sustain [the desired]handcraft techniques.

4.3. Resilience by Way of Adapted Uses

Probably the most significant factors of resilience relate to the uses of buildings and city districts. It is not uncommon for redundancies to occur among the [different] types of historical structures and spaces. Variations of use are easily transferable and there is a scope of uses related to types of buildings and spaces. As such, the garden house is a type of building that has spread across much of the formative historical district of Bamberg. The district is also distinguished by, among other things, a grand gated entrance, which in earlier times provided access to the rearward properties. The redundant structures of Telc are another example (see Figure 3). With many types of historical buildings a multi-purpose approach is evident: that is, specific types of spaces serve several purposes



Figure 3: *Row houses in Telc, Czech Republic; Source: M. Ripp*

simultaneously. Cases in point include the entrance halls, work areas, and specific covered balcony designs that serve at the same time as stores for agricultural products, accommodation, and spaces for drying laundry, and much more. Many urban renewal projects demonstrate that heritage buildings often acquire new functions, and that redesignating the use of spaces for other purposes — whether a singular room or a part of a building—is the renovation measure of the day.

Resilience can also be achieved at little cost through long-term uses. This point must be clearly differentiated. Various historical categories of buildings, such as residential buildings from the Wilhelminian era, are much sought after today. Apart from installing innovative technologies, such as central heating, telephone lines, etc., the resulting costs of adapting new uses have been manageable. There are, however, other types of buildings, for example villas, that are at a disadvantage because of their very generous

room dimensions and floor plans. The utility of these buildings often entails considerable costs in maintenance and in modern investment which may take away from their original function. However, it is often these very generous room lay-outs that attract modern tenants. Essentially, the large room heights typical of Wilhelminian districts are attractive features and their associated higher energy costs are willingly accepted. In the complex interplay between the (potential) utility and the existing building fabric, subjectively valued singular qualities produce contradictions. Not all decisions take a compelling and logical course.

Many historical districts have undergone changes in significance and utility over the years. Where in earlier times courtyards served as the workshops of craftsman, now they have become attractive living spaces, and in some cases are used by artists or retailers as additional sales or storage areas. Sometimes they are simply used as parking space. As such, this robust urban fabric makes for resilience. The type and intensity of uses can be modified both for the individual structural elements of complete buildings and, also, for larger units such as plots of land and areas of redevelopment etc. Further modifications to the urban fabric can occur when changes are made to the service infrastructure and the routing of traffic in neighboring city districts. These modifications arise because of a recombination of urban elements. As a consequence of their integrated function within a larger city, historical districts thereby undergo change and reinterpretation when changes are made to, [for instance], transportation links. Concurrently, these districts preserve their basic structure while at the same time incorporate the new. It is especially this passive ability to change that constitutes a resilience factor.

So too, it seems that a regional lifestyle is paradoxically becoming more and more common in cities, earmarked by the largely local consumption of goods and the increased use of local resources. Interestingly enough this is happening among inhabitants who identify with their own district or neighborhood. What this shows perhaps is a new relationship wherein the popularity of local markets (accordingly farmer's markets), or the love of cuisine is catered to by regional products connected with the historical setting of a building and related historical district. This is the case with the old town inhabitants of Regensburg, who go on foot to the Danube Market every Saturday and rave about it. While there they can enjoy some regional cuisine in one of several traditional brewery inns.

This local community -conscious lifestyle fosters resilience by drawing equally on the strengths of surrounding, functional interactions and the support of local business circles. When considering the links between urban functions, historical city districts and centres often have a high number of functions. Contextualized within a robust building or urban fabric there are good grounds for reinterpretation and changes of use. The catch phrase, 'city of short distances,' especially relevant to historical city centers, indicates flexibility

for new, alternative, or traditional forms of transport. There is also a degree of flexibility in regards to the power supply, albeit to a limited extent as shown by restrictions on the use of solar power systems or geothermal energy.

The limits of flexibility are reached, however, when it comes to historical districts giving up large retail spaces, which retailers all too often request in regards to the buying habits of prospective customers. Looking into the recent past of European urban development, historical districts and centers over the past hundred years have coped with change remarkably well. Today's historical districts and centers make for popular communities to live in, and serve as places of work, centres for service, and sites to relax in. (see Figure 4) .



Figure 4: *Center of Český Krumlov, Czech Republic; Source: M. Ripp*

When considering the town plans of old-urban areas, and even whole historical districts, one discovers a high density of urban uses. It becomes apparent that functional changes have often occurred already in earlier times; this also indicates adaptability, however slight to new uses. As a rule historical city districts and centres are also a source of urban identity. Not only do inhabitants value with particular flair the impact that imperfection has on their senses—i.e. winding streets and alleyways, and non-conforming structural designs and cubature—they also value this imperfection as a place of residence and daily living. Environs, like old town centers, are very popular wherever there are appropriate patrons. The resilience of such environs is strengthened by their unmistakable distinctiveness accentuated by high quality architecture and sense of aesthetics.

4.4. *Resilience Factors in Planning*

In addition to established local planning programs, as in the preparation of development plans, there are modern pressures for change, which have meta-level effects. Top-down and sectoral approaches to planning frequently result in rather incomplete and selective accounts of matters of concern. Only by integrating planning processes, and by involving a sizeable number of interest groups is it possible to overcome and balance diverse interests and requirements. Important determinants to this end are the planning horizon and planning period. It follows that, on the one hand, a certain flexibility regarding short-term needs is required. On the other hand, there needs to be a common thread if not for the long-term then at least for the medium-term. In essence this will keep the structural and urban fabric robust.

A long-term perspective is self-evident for districts with historical buildings and urban structures. However, when changes are to be made, viable pre-conditions must also be met, either by customizing uses, adding or removing individual elements (within the practices of heritage conservation), or by means of other planning interventions. Risks, too, must be calculated and, correspondingly, the contents of analysis and actions must be regularly reconfigured and reexamined. In this way risk factors and hazards can be reassessed to meet local adaptation strategies. Planning processes, investment models and communication structures are constantly evolving and, in their complexity, can only be understood with the aid of systematic models. Simply choosing a sectoral planning approach to address all-encompassing and complex challenges is almost like expecting immediate improvements in a building's total energy efficiency by simply replacing an old window.

5. OUTLOOK

Exclusive consideration of the built environment is clearly not enough to understand the complexity of a system which draws on the theoretically constructed concept of 'resilience.' However, the resilience of historical parts of a city can be purposefully supported. To this end different strategies and measures are possible using various courses of action:

Resilience through Design and Construction

When considering individual buildings, attention should be paid to their deconstruction within the context of construction and remediation. In addition building plans should make room for multi-purpose uses. This starts with the infrastructure that is of public interest, but equally affects, for instance, basic issues pertaining to built floor plans. Robust design solutions as well as premeditated structural options for building additions

can strengthen the sustainability of such structures by enabling a wider range of uses and thereby furthering the framework of urban planning. In reality, [though] it is not unusual to encounter opposing individual interests, the likes of powerful, assertive, single-minded investors.

Resilience by Using Appropriate Materials

Selecting durable building materials and quality workmanship eliminates the need to replace whole building components after they reach their life expectancy. By giving greater consideration to simple repairs through the exchange and maintenance of small parts, the whole can be preserved. The treasure chest of know-how and skills required for such a task must be obligingly maintained and preserved by the society at large, even if occasional, short-term, economic disadvantages arise.

Resilience through Adapted Use

In order to meet the complex demands of urban planning and society, the basis for strengthening resilience should be laid down by appropriate integrated concepts of utility. By including a wide range of stakeholders, a wider range of uses can be considered and diversity [in itself] strengthened. This includes the facilitation of temporary uses, which have previously played an important role in many historical districts. A robust building and urban fabric in the long term, however, can only be preserved by a defined and enduring basic structure. Traditional structures should, therefore, not be sacrificed thoughtlessly for any short-lived trend. One can only be reminded of the lessons learned in planning for car-friendly cities in the 1960s.

Resilience Factors of Planning

Since resilience is based on a systemic approach, integrated conservation and development strategies can only be realized by crossing the frontier of sectoral policy. The threats and challenges that cities face rarely stand out as one-dimensional, and because of this, the best response and stabilization strategies must be worked out with the above in mind. The approaches for promoting good governance are, therefore, just as important as the approaches for implementing holistically integrated planning.

Historical city districts and centres are much loved in many places. Their role in sustaining our cities for the future has not been taken very seriously until now. It is imperative to raise greater awareness about their role at political, planning and civic levels, and thereby improve the prerequisites to strengthening their capacity.

Historical cities are not simply found between the extremes of preservation, presentation,

and exploitation; they represent a much more significant resilience factor with their historical centres and districts. Historical cities are capable of reducing the vulnerability associated with future threats and risks. The contradiction between preserving historical structures and developing strategies for change and adaptation is all but apparent.

[Translator's note]¹⁸

¹⁸ Quotations from all German sources indicated in the footnotes have also been translated by Andrew H. Lukat.