Rapid urbanisation and security: Holistic approach to enhancing security of urban spaces

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Abstract: Rapid urbanisation, particularly driven by rural-urban migration, can pose a wide range of security challenges in the global south and global north. The management of such a transition, in terms of the provision of social goods and quality of life raises significant challenges. Security of contemporary urban environments has become more complex due to a greater range of risk drivers, many of which can be exacerbated by the observed and portended impacts of climate change. This chapter outlines the phenomena underlying the transition to urbanisation - and the security challenges that have been exacerbated by these transitions. In doing so this work a holistic approach to security and highlights a gradual trend in the increased securitisation of issues (such as climate change) that in the past were not considered part of typical 'security' dialogues. It also introduces a decision support framework that can aid a broad range of stakeholders in making decisions about the enhancement of security of urban spaces in a context of multiple threats exacerbated by these new security challenges.

1. Introduction

The relatively recent global expansion (in number and size) of cities has been unprecedented: in the 1800s only 2% of the population lived in cities - currently over 50% of the world population lives in urban areas (Figure 1).

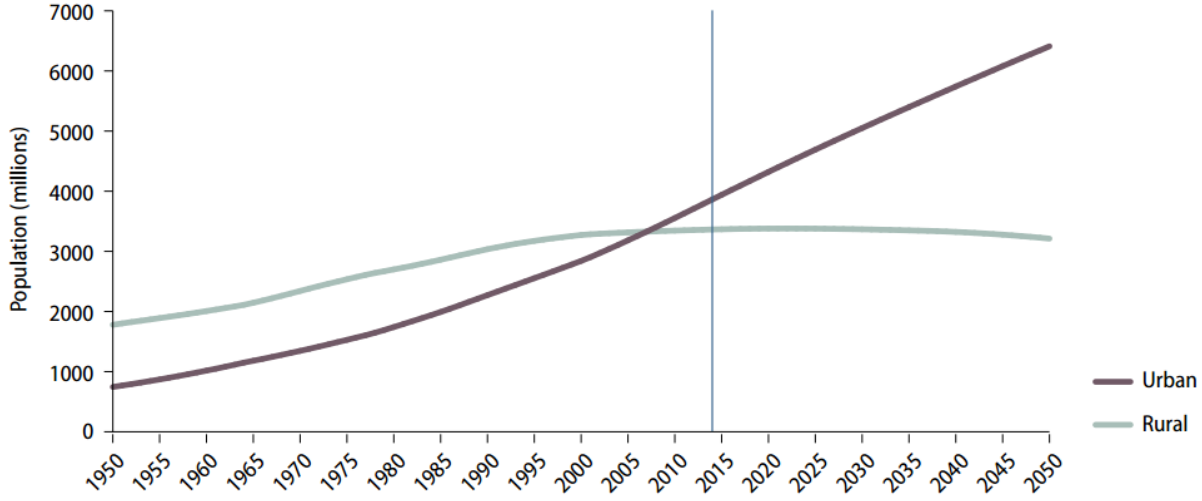

Figure 1: Global urban and rural populations (Source: UN 2014)

Whilst occupying less than 1% of the Earth's surface, cities are responsible for the consumption of over 75% of its resources. The most urbanised regions include Northern America (with 82% of population living in urban areas in 2014), Latin America and the Caribbean (80%) and Europe (73%) (UN 2014). Although Africa and Asia remain significantly rural (with 40% and 48% of urban population respectively)

(Figure 2), they are urbanising faster than other regions and are projected to become 56% and 64% urban, respectively, by 2050 (WEF 2015). The main drivers of urbanisation are (HCSS 2009; Kotter 2004):

- Natural population growth: urban spaces grow through natural increase as more people are born than die;
- Rural-urban migration: the unattractiveness of socio-economic living conditions in rural spaces effectively 'pushes' people towards urban spaces, which at the same time 'pull' people by presenting various opportunities (such as a variety of employment opportunities);
- Intercity migration: large demographic movements occur between the cities (prevailing in Latin America and Africa).

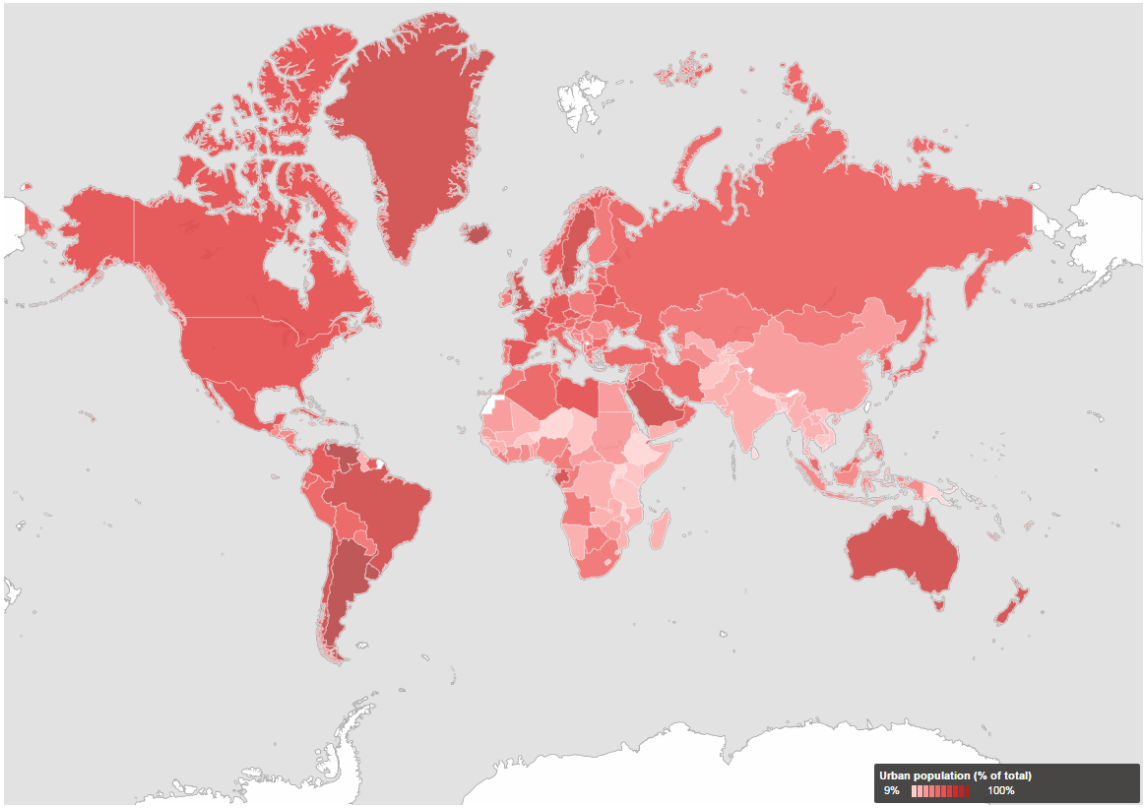

Figure 2 Urban population (% of total). Source: the World Bank

The rapid urbanisation experienced in some low- and middle-income countries creates a number of challenges different to those faced in higher income countries where rates of urbanisation may have stabilised. Most developed countries have already established risk-reducing capacities that can manage increases in exposure (Bene 2013); in addition most of the citizens barely engage in risk management as it is often assumed that the government will provide support (Satterthwaite 2008). This is not the case in the global south, where governments' capacities are restricted and the majority of the most vulnerable population does not formally participate in the city's governance mechanisms.

This however does not mean that urban areas in high-income countries are risk-free: Taipei, Tokyo and Seoul are the top three riskiest cities in the world due to their high

economic value and high exposure to natural hazards as well as economic threats (such as market crash and peak oil prices) (Coburn et al. 2014).
According to Bene (2013), there are three main factors that multiply the risks generated by urbanisation:

- Geographical location with respect to extreme weather events and human-induced threats;
- Dependence on the complex systems that are vulnerable to various threats and hazards;
- The level of resilience and the governance of resilience.

Arguably, the governance driver has been playing the largest role in driving urbanisation – and therefore the risks associated with it. Neo-liberal reforms have been a great motivator for the intense growth in urban populations, especially in low and middle-income nations (Johnson et al.2013). These newly introduced policies and reforms that followed have produced an ideological trilogy of competition, deregulation and privatization, distinguished for its hostility to all forms of spatial regulation, "*including urban and regional planning, environmental policy and economic development policies*" (Gleeson and Low, 2000, pp. 270-271). This led to movements that were suggesting complete exclusion of planning and regulation of urban processes through reliance on market mechanisms (*ibid*). In addition neoliberal policies – particularly those addressing security agenda - are based on a large amount of information, advice, expert opinion as well as 'heroism' stories where an individual acts in an emergency (Amin, 2013); they emphasise the desirability of personal contingency plans and importance of public involvement and at the same time makes an emergency a 'shared problem'. Thus in these expanding cities, the governance capacities and state was, and in many cities today still is, unable to regulate urban development or to provide the necessary infrastructure to adequately support the increase in populations.
Combined together, the drivers of urbanisation and the risk factors create a diverse range of vulnerabilities unique to urban environments. These new processes are leading to a gradual trend that is witnessing the increased securitisation of issues that in the past were not considered part of the typical 'security' dialogues such as urbanisation and climate change; these will be discussed later in this chapter.

1.1 Megacities

The most remarkable examples of urbanisation are the so called megacities (Figure 3) with 10 million or more inhabitants: in 1975 only four megacities existed; in 2000 there were 18; and currently there are 27 (UN 2014). Megacities share specific characteristics that often imply high risks but also provide potential for increased development (Kotter 2004):

- High density of inhabitants, infrastructure, industrial assets and production;
- Dynamic special and demographic growth, change of land use and consumption of land (that often takes place without adequate urban planning);
- Settlements, infrastructure and land tenure is divided into a 'proper city' and an agglomeration that grows outside the city (often informally);

- Lack of adequate provision of infrastructure;
- Socio-economic disparities due to wide range of social standards, social fragmentation and social-cultural conflicts;
- Risk and vulnerability due to the density and number of inhabitants, poor infrastructure, lack of governance and increases in the frequency of natural hazards and man-made threats;
- Large numbers of settlements in unsafe locations;
- Inadequate traditional models of centralised governance that can be prone to adopting overly technocratic top-down approaches.

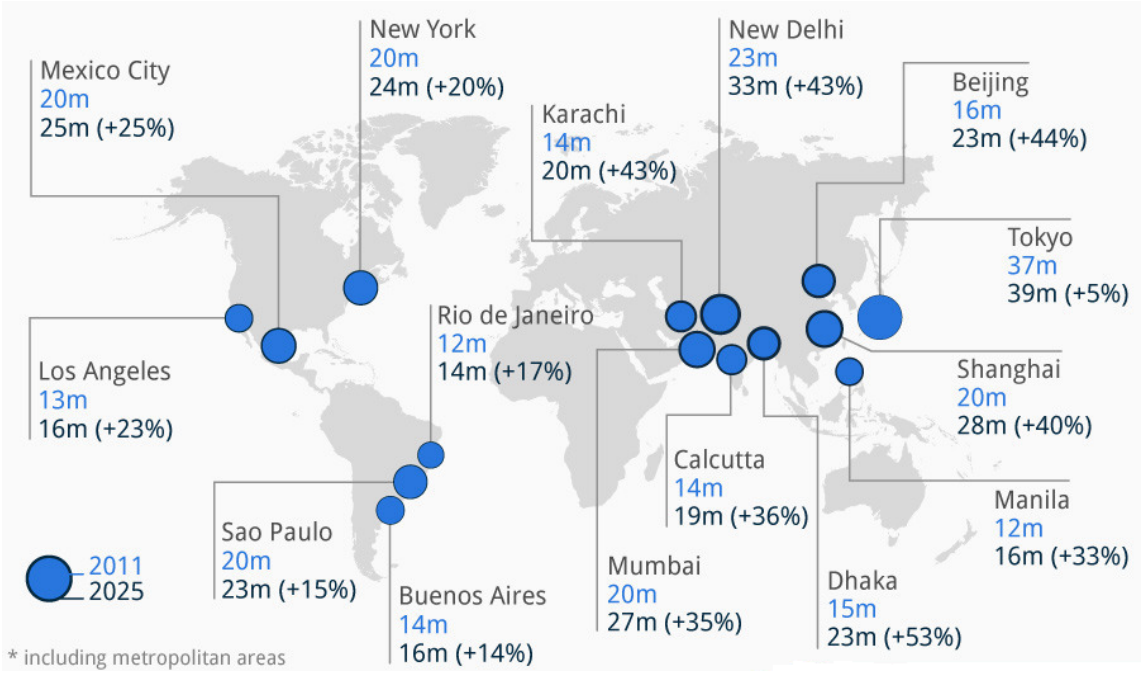

Figure 3 Fastest growing megacities (2011 – 2025) (Source: UN Population Division, 2014)

1.2 Resilience of urban spaces

Recent disasters around the globe, for instance Superstorm Sandy (USA) in 2012 and the Gorkha earthquake (Nepal) in 2015, have highlighted the fragility of cities to a range of hazards and threats and raised concerns about the resilience of cities. Disasters are on the increase globally due to various natural and human induced processes, including climate change and poor development planning decisions (Johnson et al. 2013). Resilience and vulnerability are often discussed in the context of urbanisation, with vulnerability referring to the exposure of a city (and its inhabitants and systems) to disturbances, such as a natural hazard, an economic crisis or political upheaval, and resilience referring to the capability to anticipate, cope with and adapt to these risks. Whilst there are a large number of advantages for the inhabitants of large cities (e.g. improved economic development, easier access to basic services, a comparatively rich cultural life), with increasing social polarisation, segmentation and fragmentation, the number of people that are excluded from these benefits is growing. Their livelihoods are at risk due to their informal status impeding their labour, tenure and political rights as

well as poor living environment and an over-dependence on the cash economy (Butch et al. 2009).

In recent debates, resilience and security of the built environment are used interchangeably, with resilience seen as a desirable property of natural and human systems in the face of various potentials stresses (Klein et al. 2003). Yet it is important to understand the context in which the term resilience is used. Bosher and Dainty (2011) suggest that the concept of resilience primarily emerged in relation to how ecological systems cope with stresses or disturbances caused by external factors (see Errington 1953; Blum 1968; Holling 1973). More recently, the term has been applied to human social systems (Manyena 2006), economic recovery (Rose 2004), engineering (Hollnagel and Wood 2006) and urban planning and recovery (Vale and Campanella 2005).

It is often highlighted that the Latin root of the word 'resilio' means to 'jump back' or return to a previous state (Sapountzaki 2007; Klein et al. 2003), however, it has been argued that it is not sufficient for systems to simply return to a previous state, and that there should be progression to a more robust version (Clinton 2006; Bosher 2008). Alexander (2013) argues that the modern conception of resilience is derived from a rich history of meanings and applications but that it is dangerous to rely too much on this term, stating that resilience is being used as a buzz-word that has started to lose meaning and pertinence. However, the term is widely used in both policy and literature relevant to security, and is seen as the ability of a system to cope with disruption, maintain essential operations, return to normal operations after the disruption has ended, and elevate to a more informed state. Bosher (2014) suggested that "'*built-in resilience' can be a quality, a process and an end-state goal that can intuitively and proactively cope with dynamic changes (in their various natural and manmade guises)"* (242); he argues that built-in resilience is a quality of a built environment's capability (in physical, institutional, economic and social terms) to keep adapting to a range of existing and emergent threats.

Urbanisation creates and magnifies the probability of risks that are unique to large cities due to their high concentration of people, their ecological footprint and the development and planning processes (Johnson et al. 2013). It therefore generates and amplifies specific risks to safety and security of the urban environment.

2. Security challenges in the increasingly urbanised world

Cities play an important role in driving development as they concentrate much of the national economic activity, government, commerce and transportation, and provide crucial links with rural areas, between cities, and across international borders. Urban living is thus often associated with higher levels of literacy and education, improved health, greater access to social services, and enhanced opportunities for cultural and political participation (UN 2014). Nevertheless, rapid urban expansion puts cities' infrastructure, environment and social aspects under pressure, with the challenges being intertwined and thus hard to resolve.

2.1 Urbanisation and social challenges

Fast but unplanned urban growth threatens sustainable development when the necessary infrastructure is not put in place or when policies are not implemented. In some cities, unplanned or inadequately managed urban expansion leads to rapid sprawl, pollution, and environmental degradation, together with unsustainable production and consumption patterns (UN 2014). The increased polarisation between rich and poor (Simo 2007) creates a challenge of increased crime rates, urban violence and social unrests (UN 2007; WEF 2015). Widening inequalities also tend to be more starkly visible in urban than rural areas, sometimes with the most wealthy areas of cities often neighbouring slums. The combination of inequality, competition over scarce resources such as land, impunity from the law and weak city governance increases the risk of violence and potential breakdowns in law and order (WEF 2015). Social aspects of urbanisation thus face the following security challenges:

- *Negative policy environment*: Migrants are often put in a vulnerable position as policy puts in place barriers to acquiring housing, assessing welfare and education programmes and other facilities, thus excluding this section of society from political, social and economic participation.
- *Poverty*: In 2008 the majority of the population in poverty lived in rural areas (HCSS 2009), however, urbanisation does not always result in a greater distribution of wealth, and in many low and middle income countries urban poverty is growing compared to rural (Tacoli 2012). Poor economic conditions could worsen ethnic and other tensions as well as widen the gap between rich and poor, thus negatively affecting socio-political stability.
- *Crime and violence*: Particularly in low and middle income countries, crime rates are higher in the larger cities (UN 2008; Muggah 2012), with most perpetrators being young uneducated and unemployed men (HSCC 2009). Rapid urbanisation can quickly bring together large numbers of unemployed youth. Due to the dynamics of migration, urban areas tend to concentrate "*a large proportion of the youth population [who] will lack employment opportunities and pursue social and economic advancement by joining an armed group*" (Muggah 2012: 9). Some of the most common urban crimes include homicide, robbery, burglary, drug, arms and human trafficking, and kidnapping (UN 2008), all of which threaten personal safety and security and influencing business continuity.
- *Urban unrest*: Since 2011, cities have become the centres of protest, riot, and widespread uprising (e.g. Arab Spring), triggering strong, often violent responses from governments. Since late 2010 the Arab uprisings, European and US anti-austerity protests and occupations, and riots in the UK have suggested the presence of a new political moment of social disaffection, disobedience and resistance which creates a new security challenge linked to the lack of social justice, human rights, and democracy and fulfilment of these rights in the city (Fregonese 2013).
- *Activities in an informal sector*: Many economic activities (with the construction sector being one of them) often take place informally, thus encouraging

corruption and non-compliance with building codes and other regulation as well as an employment of semi-skilled people who may not be aware of the developments in safe construction techniques and risk reduction measures. Such a combination of factors creates vulnerabilities throughout the construction process and affects the economic rights of those involved in the construction process (i.e. the labourers) and those using a building (i.e. the residents and workers).

- *Terrorism*: As demonstrated in recent years, cities can be attractive targets for terrorists due to their population and infrastructure density (and thus potential for a large number of casualties), accessibility and concentration of important businesses, and international coverage. A fear of terrorist attack may lead to disturbances in business and social stability as well as resulting in the 'fortification' of urban spaces. Similarly, cities are seen as a suitable environment for the promotion of radicalisation, with the dissatisfied youth being an easy target (Lombardi et al. 2014).

2.2 Urbanisation and infrastructural challenges

Cities heavily rely on centralised infrastructure, including water and energy supply, transportation, drainage, waste management etc. Inadequate land and policy planning will lead to the creation of 'parallel societies': some parts of the cities will enjoy the benefits of urban life, whereas others will live in worse conditions than those in the rural areas (HCSS 2009). Those living in slums are increasingly left to provide their own water, energy and food supply, which affects the overall performance of the infrastructure (e.g. illegal connections to the electricity grid) and has negative environmental and health effects. Coupled with poor adaptability to and coping capacity with a fast growing number of urban dwellers, urban infrastructure can create the following security challenges:

- *Decline of existing infrastructure*: According to Doshi et al. (2008), approximately US$ 40 trillion is needed to be invested globally by 2030 in order to modernise and expand the existing urban infrastructure. Constant underinvestment will act as a risk multiplier, exposing an increasingly deteriorating infrastructure to environmental stresses and leading to breaches in physical security (including deaths in areas with poor construction practices) and eventually a catastrophic failure (HCSS 2009).
- *Inadequate use of infrastructure*: Degradation and deterioration of infrastructure can be furthered by its poor use, such as inappropriate waste disposal leading to blocked drainage and therefore flooding, illegal electrical connections leading to fires, or inadequate water disposal causing structural instabilities (Wamsler 2004).
- *Poor construction practices*: Lack of appreciation of the local context and lack of appropriate training may lead to worsening the existing infrastructure. For instance, building roads and other paved areas may prevent rain from infiltrating

into the soil thus producing accelerated runoff rates, which can overwhelm the existing drainage systems and lead to flooding.

- *Slum formations*: The number of urban slums is constantly on the increase with hundreds of millions of the world's urban poor living in sub-standard conditions (PWC 2014). UN (2006) estimated that by 2030 there will be a 32% increase in slum population leading to 21% of total global population living in slums. This security challenge is heavily intertwined with social impacts of urbanisation discussed in previous section, as isolation of the poor in slums diminishes the effectiveness of any governance thus 'allowing' for the formation of criminal activities. In addition, when increasing in size, slums will creep towards business districts, thus 'spilling-over' into safe areas.
- *Traffic congestions*: Traffic congestions are mainly created by infrastructural bottlenecks. They are not only costly in a long run but also create a security challenge, as they increase a risk of traffic accidents as well as lead to health problems, related to air pollution.

2.3 Urbanisation and environmental challenges

The rapid, inadequate and poorly planned expansion of cities (particularly in developing countries) makes urban population highly exposed to the effects of climate change and other environmental impacts. High population density and the concentration of assets, critical infrastructure and economic activities in cities exacerbate the potential impacts of natural hazards, including heatwaves, extreme rainfall and drought-related shortages of water and food. These impacts are likely to be mostly felt by the poor, whose informal settlements tend to be on land at especially high risk from extreme weather (WEF 2015). Climate change, called in the UK's security policy a 'risk multiplier'(Cabinet Office 2013), will thus significantly contribute to and alter the vulnerabilities of the urban population (especially the poorest), not only through the direct impacts of extreme events but also through indirect effects such as water scarcity, food security and rapid migration (Bene 2013; Biermann and Bas 2010). Thus, making cities more resilient to extreme weather events should be a priority for both local governments and the private sector.

- *Extreme weather events*: Extreme weather events account for significant damage to cities, with the annual direct losses now reaching an average of US$250 billion to US$300 billion each year. Future losses (expected annual losses) are now estimated at US$314 billion in the built environment alone (UN 2015). Satterthwaite (2008) estimates that hurricane-force winds will become more frequent and intense, with a possibility of the hurricane belt moving southwards. Similarly higher temperatures and heat waves intensified by the urban 'heat island effect' are also becoming more common. Nearly half of the cities in the world are located in major tropical cyclone tracks or earthquakes zone, with some of the highest risk zones being the most populous.
- *Urban coastal zones*: Out of 23 megacities worldwide in 2011, 16 were coastal (UN-DESA 2012). Inadequately built or maintained levees and flood defence as

well as poorly designed (or non-existent) drainage systems present a large threat to the built environment and can at the same induce a false sense of security to local communities. In addition, much of these new developments take place in flood plains and coastal zones, the population of which is not adequately protected and informed about potential risks.

- *Food and water supply*: An increasing demand by growing cities and decreasing supply from declining rural areas create food and water scarcity, which is also exacerbated by the effects of climate change. Limited water resources are likely to become even more limited in areas where they are already most likely to be critical (Satterthwaite 2008). Insufficient food and water supply may result in social disturbances but also lead to increased levels of mortality among the urban poor (Matuschke 2009).
- *Air and water pollution*: Air pollution in the cities is mainly caused by the combustion of fossil fuels in industry, power stations and transportation emissions (HCSS 2009). Water pollution can cause serious health issues as some of the poor urban dwellers have no access to a clean water supply.
- *Pandemics and other health risks*: Lack of improved sanitation, immunisation, facilities for the early detection and treatment of diseases together with the high density of urban areas can lead to epidemics that result in widespread illness and death. In addition, international travel and close proximity to other cities can ensure that diseases will not be confined to the poor areas of the cities. Other health risks can be generated by extreme weather conditions and disruptions to public health services (Satterthwaite 2008).

Whilst being vulnerable to hazards and threats the risk of which is multiplied by climate change, cities are also large contributors to greenhouse gas (GHG) emissions (While and Whitehead 2013; Lizarralde et al 2015), and thus have to play an important role in not only adaptation to, but also mitigation of, climate change. The early phases of urbanisation tend to generate massive GHG emissions as the construction of infrastructure uses concrete and metals that are carbon intensive to manufacture (Seto et al. 2014). Low- and middle- income countries already account for around two-thirds of annual GHG emissions, caused in part by their economic growth and rapid urbanisation (WEF 2015). Whilst adaptation measures which have to be implemented in the low- and middle-income countries are often carbon-intensive, they cannot be undermined as they focus on the expansion and improvement of protective infrastructure and services. Therefore risk reduction in low- and middle- income developing countries cannot focus on either mitigation or adaptation but has to incorporate both and focus on changes in lifestyle (Satterthwaite 2008). This emphasises the importance of energy consumption and emissions reduction going hand in hand with resilience, without reducing the security, function and sustainability of the built environment (Lizarralde et al 2015).

3. Multi-hazard and multi-stakeholder approaches to risk reduction

Security challenges discussed in the previous section can easily exacerbate the fragility and vulnerability of the built environment; they highlight the increasing complexity of disasters and the impacts they have on society and the environment. There is an array of hazards and threats that can pose risks to cities potentially leading to impacts that can nullify years of development and investment (Fisher et al. 2014). It is thus important to address these challenges without diminishing the advantages of the urbanisation processes. Discussions focusing on human-induced threats (e.g. crime, civil unrests) range from the gradual fortification of cities through aggressive and defensive architecture to the rapid expansion of surveillance technologies and the regulation of mobility (Muggah 2012; Coaffee and Bosher 2008). Debates on hazards exacerbated by the effects of climate change highlight that as more and more people are settling in potential danger zones such as flood plains, landslide prone hills, seismic faults and coastal areas, often because poor development planning decisions have been made, planners and local governments fail to provide alternatives, or because the residents cannot afford (safer) land. The need for maintenance and upkeep of fast growing cities makes safety measures for their citizens crucial, thus making disaster risk an acute and increasingly urban issue (Albrito 2012).

3.1 Stakeholders' engagement

The probability of risk and the impacts of various threats and hazards can have on a city are largely influenced by the quality of the built environment (including infrastructure and building assets), by the extent to which urban planning and land-use management take risk reduction into account when constructing and expanding a city, and by the level of preparedness among the local government, emergency services as well as private stakeholders and communities (Satterthwaite 2008).

In order to reduce disaster risks, a number of approaches have been proposed that can systematically analyse and manage the casual factors of disasters 'through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events' (UNISDR, 2011). After decades of neglect, spatial planning is increasingly becoming an attractive and important tool for increasing resilience in cities, as it presents an opportunity to regulate long-term use of space through which exposure to natural hazards and human-induced threats can be minimised or even avoided (Sutanta et al., 2010).

Pro-active resilience measures implemented during design, construction and operation processes carried out by construction professionals, whose knowledge and experience fits into resilience approaches (Bosher et al. 2007; Chmutina et al. 2014b) can help protect societies and economies and adapt cities to the impacts of many risks. Other professions should not be underestimated either, as multi-stakeholder participation can increase the capacity and capability of those that play proactive role in increasing urban resilience. Involvement of various public and private stakeholders can also facilitate knowledge and experience sharing. It is essential to identify those stakeholders who can have a positive influence over the resilience of the built environment at various stages

of the design, construction and operation process, including commissioning, and maintenance (Mojtahedi and Oo, 2012), as decision making requires an integrated understanding of how to avoid and mitigate the effects of risks and disasters.

3.2 *Framework for incorporating multi-hazard and multi-stakeholder approach*

A number of recent extreme weather events and man-made threats and their impacts on the cities have shown that well planned but nonetheless reactive measures (i.e. emergency response and recovery) are not sufficient in keeping the built environment safe; it is vital to deal with hazards and threats proactively, with a broad range of key stakeholders being involved (Chmutina et al. 2014b). There are a variety of ways through which these can be addressed and thus the security of urban spaces can be improved. Muggah (2012) proposes the following solutions:

- Pacification and community policing;
- Promoting social capital and urban cohesion;
- Urban renewal and gentrification;
- Slum upgrading;
- Governance interventions.

Stakeholders' engagement is however often affected by the lack of understanding that the risks can potentially be minimised or even prevented if DRR measures are thought of at an early enough stage of the design, planning, operation and construction process (Chmutina et al. 2014a). There is an increasing amount of information and guidance on how hazards and threats can be reduced, mitigated or even eliminated through urban planning and design interventions; such information is supported by a variety of online-based open access tools aimed at assessing security and resilience of urban spaces. The range of guidance, tools and approaches typically vary depending on the types of hazards/ threats that need to be addressed and many are context/country specific in their requirements. In addition, some of these tools maybe too complex and technical, whereas others focus on either natural hazard(s) or man-made threat(s).

One of the frameworks taking a multi-hazard and multi-stakeholder approach is the Integrated Resilience Framework (ISR) (Table 1), based on the ISO 31000 'Risk management – Principles and guidelines'(British Standards Institution, 2011; 2009). It is a multi-hazard framework that covers both natural hazards and man-made threats and is aimed at different levels of stakeholders, from construction professionals to local authorities.

Table 1 ISR stages description (after Bosher 2014)

<table>
<tr><th colspan="2">ISR Stage</th><th colspan="2">Descriptor</th></tr>
<tr><td>1</td><td>Identify, characterise, and assess hazards/threats</td><td colspan="2">Hazard/Threat identification – the process of finding, recognising and describing hazards/threats to which the space is exposed.</td></tr>
<tr><td>2</td><td>Assess the vulnerability of urban spaces to specific hazards/threats</td><td colspan="2">Vulnerability assessment is the process of assessing the susceptibility of the intrinsic properties (the structure, materials, construction and planning) to a hazard/threat that can lead to an event with a consequence</td></tr>
<tr><td>3</td><td>Determine the risk (i.e. the expected consequences of specific hazards/threats on specific assets)</td><td colspan="2">Identifying the level of risk - magnitude of a risk or combination of risks, expressed in terms of the combination of the likelihood (chance of something happening) and the impact (consequences) of an incident caused by that hazard/threat. It utilises a Risk Matrix as a tool for ranking and displaying risks by defining ranges for consequence and likelihood</td></tr>
<tr><td>4</td><td>Identify ways to reduce those risks</td><td rowspan="2">Inherent safety (eliminate the possibility of hazards/threats occurring)
Prevention (reduce the likelihood of hazards/threats)
Detection (measures for early warning of hazards/threats)
Control (limiting the size of the hazards/threats)
Mitigation and adaptation (protection from the effects of hazards/threats)
Emergency response (planning for evacuation and access for emergency services)</td><td rowspan="2">Identifying (and prioritising) a course of action to address and treat the hazard/threat and its associated risks. Treatment can involve:
· avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk;
· removing the hazard/threat source;
· changing the likelihood or magnitude;
· changing the consequences;
· protecting assets/spaces from the effects of the risk
· preparedness planning for the impacts of risks (events)
· sharing the risk with another party or parties [including contracts and risk financing]; and retaining the risk by informed decision making</td></tr>
<tr><td>5</td><td>Prioritise risk reduction measures</td></tr>
</table>

The main advantage of the ISR is that it engages with the stakeholders that may not normally consider disaster risk reduction: with the intention of aiding their understanding of the vulnerabilities as well as resilience possibilities by allowing users to pursue decision-support scenarios of secure urban design and planning. Whilst the ISR does not set out to accurately predict every threat or hazard and provide an 'off the shelf' solution for the prevention or mitigation, it does help various stakeholders to consider prior knowledge of existing hazards and threats in a local context and to recognise that too often disasters occur because risk reduction measures have not been considered at all or undertaken too late in the development process.

4. **Conclusions**

'Urban dilemma' points out an interesting paradox highlighted by the rapid increase in urbanisation rates, which can be seen as a force for unparalleled development on the one hand, and as a risk for insecurity amongst the urban poor on the other (Muggah 2012). Many of the security solutions in low- and middle- income countries 'provide security for some but exclude many more' (Pelling 2007:1). Rapid urbanisation and the impacts of natural hazards and human-induced threats exacerbated by this process are and will be producing higher, more volatile, more uncertain and more concentrated risks. Although the actual process of urbanisation does not lead to reduction of security, in the face of social tensions, weak government capacity or poor infrastructure it may result in a deteriorating general security environment. Whilst these issues can be experienced in any country, they will have a more prominent impact on low and middle-income nations and in particular on the most vulnerable sections of society.

Many any of the challenges exacerbated by the process of urbanisation (and described in this chapter) are now being securitised. This trend has both pros and cons. Non-security events have become securitised, because such action can help to quickly mobilise resources. For instance, by securitising 'immigration' it could make it more 'justifiable' for policy makers to mobilise resources to deal with the threat of immigration (irrespective of whether immigration actually poses a security threat or not). However too often, the deep rooted causes of these insecurities causes are being neglected: for instance, natural hazards are seen as a security threat, whereas climate change is perceived to be a risk multiplier. Thus, although both challenges will remain prominent in the near future, climate change is likely to receive less attention as its impacts are not immediate/ obvious (and indeed, still in doubt by some key decision makers). Natural hazards, on the other hand often become a priority but tend to be dealt with reactively for instance only when critical assets and 'the electorate' have been affected.

It is however important to remember that urbanisation also provides various positive opportunities, and if adequately managed can - and should – provide urban dwellers with housing, water and electricity supply, jobs and education.

4.1 Implications for future development practitioners

In order to reduce cities' vulnerability and increase their resilience, the following considerations should be taken into account:

- Comprehensive plans and strategies created and implemented by a wide range of stakeholders should play a central role in urban development. These strategies should provide guidelines and goals for planning and construction taking into account the social and economic contexts of the (re-)developed areas;
- Land use and land management plans should be supported by appropriate long-term regulations, which would support prevention of land fragmentation and encourage monitoring of urban development. These long-term regulations should provide a framework for political, legal and institutional actions and involve a consistent and realistic vision of the cities' future.
- Adequate provisions for disaster preparedness including early warning, relocation etc. should be implemented, with communities and emergency services working together.
- Investment in climate-proof infrastructure should be attracting local private investment and mobilise new innovative approaches (e.g. renewable energy), which will be advantageous in the long term;
- The shift from traditional top-down governance approach is needed by encouraging decentralisation and innovative local governance based on multi-stakeholder cooperation and stewardship;
- Care should be taken when 'formalising' informal settlements, as imposing regulations that cannot be followed by the inhabitants will deprive them further;
- The shift to a low carbon restructuring and redevelopment is needed; this can be achieved by promoting the value of climate change mitigation and adaptation policies and the new economic and social forms of development they can provide.

Addressing these objectives would enhance the resilience and security concerns of the urban environment. It is crucial that security is understood in a holistic way as it can help to consider a broader range of issues as well as the interrelated benefits of multi-hazard/threat solutions. It is also critical that a city is seen as a system: increasing its resilience would involve the engagement of multiple stakeholders - from local authorities to community leaders, from urban planners to civil engineers – who could aid the identification of ways to build redundancy and flexibility into this larger system, thus enabling it to respond to urbanisation challenges. It is also important for the numerous stakeholders involved with the construction industry to take some responsibility for integrating resilience and related DRR activities into the planning, (re)design, construction and operation of the built environment. But it is also fundamentally important to understand which stakeholders should be involved and when their inputs should are needed in order for the urban security to be enhanced.

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