INTERNATIONAL
REVIEW
of the Red Cross

Future war in cities: Urbanization's challenge to strategic studies in the 21st century

Michael Evans
Michael Evans is the General Sir Francis Hassett Chair of Military Studies at the Australian Defence College in Canberra and a Professor in the School of Humanities and Social Sciences at Deakin University in Melbourne. He was Head of the Australian Army's think tank, the Land Warfare Studies Centre at the Royal Military College of Australia, Duntroon, from 2002 to 2006.

Abstract

This article argues that, despite an ongoing global revolution in urban demography, most Western military research into urbanization is narrowly focused and remains disengaged from the interdisciplinary expertise of urban studies. Because so many cities are sui generis *in terms of their governance, architectural design and demographic composition, the art of war must seek closer interaction with the science of cities. In the coming years, in order to control armed violence and reduce casualties across an urbanizing world, military analysts must seek greater cooperation with urban specialists. The common aim must be to develop an urban-oriented strand of strategic studies that is firmly based on a sophisticated understanding of the ecology of cities. Such a cooperative approach will assist in the development of military methods of operating in cities using appropriate rules of engagement that embrace international humanitarian law.*

One of the continuing weaknesses of Western strategic studies is the paucity of serious research on the role of the city in armed conflict. This is not a novel situation. In the 1990s, when the Revolution in Military Affairs was the research area *du jour*, the urban dimension of warfare was overshadowed by notions of networked warfare on open terrain. After 2001, the long wars in Afghanistan and Iraq saw urban military research either absorbed or eclipsed by an avalanche of material on population-centric counterinsurgency and hybrid warfare. In the second decade of the new millennium, little has changed. As we move away from an era dominated by Near East land wars into an Asia-Pacific century, it seems likely that offshore maritime strategies, naval power and long-range precision strikes – all of which play to the West's traditional technological strengths – may become the main future warfare priorities for liberal democracies such as the United States, Britain and Australia.[1]

The above serves as a useful reminder that despite the global revolution in urbanization that is now occurring, many Western militaries remain cautious about embracing urban warfare as a central mission. They have good reasons for such caution. In the Western military canon, all the tenets of modern theory and practice run counter to engaging in war in cities except as a last resort.[2] Doctrinal reservation is likely to be reinforced by war weariness, caused by long campaigns and their fiscal burden. Some leading Western armies are in the process of recovering from over a decade of protracted operations in the mountains of Afghanistan and the cities of Iraq. Moreover, in an era of economic austerity stemming from the 2008 global financial crisis – when Western armies have been forced to dramatically downsize in numbers and to reduce personnel costs – the suggestion that urban warfare in far-flung countries will be a future military priority involving large numbers of soldiers and expensive equipment is hardly welcome news to democratic electorates or their political representatives.

Add to these concerns the continuing demographic reality of ageing populations, rising health and welfare costs, and homeland security and immigration challenges, and one is confronted by a Western domestic political agenda that in no conceivable way favours armed forces establishments with large-scale urban operations as a major focus for force structure requirements and budgetary priorities. And yet, it is an indisputable reality that the world is urbanizing and that by 2050, two thirds of the human race will live in cities. We are faced, then, with a clear disparity between the geopolitical phenomenon of mass urbanization and the apparent unwillingness of many Western countries to prepare their armies to meet the likelihood of increased urban operations across

---

1   For the shift towards maritime warfare in Western countries, see Peter D. Haynes, *Towards a New Maritime Strategy: American Naval Thinking in the Post-Cold War Era*, Naval Institute Press, Annapolis, MD, 2015; Chris Parry, *Super Highway: Sea Power in the 21st Century*, Elliot and Thompson, London, 2014; Michael Evans, *The Third Way: Towards an Australian Maritime Strategy for the Twenty-First Century*, Army Research Paper No. 1, Directorate of Future Land Warfare, Commonwealth of Australia, Canberra, 2014.

2   For a historical overview, see Gregory J. Ashworth, *War and the City*, Routledge, London, 1991.

the spectrum of armed conflict, from humanitarian relief through stabilization missions to conventional warfare.[3]

What, then, is to be done? This article argues that a first step must be to understand the breadth of the urban challenge. Much greater conceptual clarity than exists at present is required to guide strategy, policy and operations for urban contingencies in the future. A rigorous intellectual framework must be developed, aimed at understanding the process of urbanization and determining what it may or may not mean for international security and the use of military force in the years ahead. To this end, two areas are examined. First, the process of global urbanization is summarized, with an emphasis on its variety and complexity. It is argued that there is no such phenomenon as a single urban future and, as a result, there can be no specific security solution and still less any single urban military posture. Second, if Western militaries are likely to face increasing operations in cities in coming years, long-term research must be conducted to investigate realistic "economy of force" approaches in order to align policy requirements, technological capabilities and human resources for a wide array of potential missions. Western defence establishments must embrace a form of multidisciplinary urban strategic studies to inform both their policy decisions and their military doctrinal considerations. Focusing on anarchy in "population-centric megacities" replete with *Mad Max*-style adversaries, as promoted by parts of the electronic media and popular literature, is a facile and misleading basis for serious research. What Western armed forces require are broad, not narrow research approaches; they need to invest in carefully integrated lines of inquiry which reflect the in-depth and lasting cross-disciplinary efforts required to develop a credible strategic agenda for the use of force in cities. Such an agenda will assist in using lethal force in a manner that reduces civilian casualties and which upholds humanitarian and legal norms in armed conflict.

"No single future for cities": The process of global urbanization

In 1950, the population of the world was two-thirds rural and one-third urban.[4] By 2050, it is estimated that global demographic distribution will be almost the exact reverse of a century ago, at 34% rural and 66% urban. Some 90% of all urban growth is occurring in Asia and Africa, with 70 million people annually becoming residents of a city somewhere on those two continents.[5] If research estimates are

---

3   For the background to contemporary issues surrounding urban warfare, see Alice Hills, *Future War in Cities: Rethinking a Liberal Dilemma*, Frank Cass and Routledge, London, 2004; Stephen Graham (ed.), *Cities, War and Terrorism: Towards an Urban Geopolitics*, Blackwell, Oxford, 2004.

4   UN Department of Economic and Social Affairs, *World Urbanization Prospects: The 2014 Revision – Highlights*, New York, 2014 (2014 World Urbanization Prospects), p. 1.

5   See *ibid.*, pp. 7–9 and Annex, p. 20 ff. By 2050 it is estimated that 52% of the global population will be located in Asia and 21% in Africa.

correct, the world's urban population will increase from 3.9 billion in 2014 to 6.3 billion in 2050.[6]

There can be little doubt that, in terms of demographic change, the movement of people from countryside to city represents a revolution of historic magnitude.[7] Not surprisingly, the transformation from rural to urban demographic predominance has spawned an intense debate on the implications for the world's future economic structure and geopolitical stability.[8] There are visions of both dystopia and utopia. For some security analysts, urban migration and city growth are seen as a prescription for growing anarchy, violent political breakdown and ecological decline throughout the developing world. Pessimists foresee a coming era of "feral cities" or of huge "population bombs", in which armed conflict will occur mainly in sprawling megalopolises from Karachi and Dhaka in Asia to Kinshasa and Lagos in Africa.[9] US writers P. H. Liotta and James F. Miskel argue that twenty-first-century megacities – usually defined as cities of over 10 million inhabitants – will emerge as unprecedented phenomena, at once "overwhelmed, dangerous, ungovernable … unlike anything the earth has ever seen".[10] Another US author describes war in megacities as follows:

> [We face] [h]igh-tech warfare at knife-fight ranges …. [I]magine a megacity of 10 or 20 million, where the slums have more inhabitants than some countries … [a place] where suspicious locals post every US military movement on Twitter with digital photos and GPS-precise coordinates. Imagine roadside bombs that *fly* because the bad guys downloaded blueprints for a kamikaze mini-drone and built it with their 3-D printer.[11]

While such a dystopian future is a possibility for some non-Western megacities, much of the urban studies research tends to be far more positive, even utopian,

---

6   *Ibid.*, pp. 1, 11–12.
7   See Shlomo Angel, *Planet of Cities*, Lincoln Institute of Land Policy, Cambridge, MA, 2012; McKinsey Global Institute, *Urban World: Mapping the Economic Power of Cities*, March 2011 (Economic Power Report), available at: www.mckinsey.com/global-themes/urbanization/urban-world-mapping-the-economic-power-of-cities (all internet references were accessed in October 2016); McKinsey Global Institute, *Urban World: Cities and the Rise of the Consuming Class*, June 2012 (Consuming Class Report), available at: www.mckinsey.com/global-themes/urbanization/urban-world-cities-and-the-rise-of-the-consuming-class.
8   See Robert Muggah, *Researching the Urban Dilemma: Urbanization, Poverty and Violence*, International Development Research Centre, Ottawa, May 2012, p. vi; Joel Kotkin, "Urban Legends: Why Suburbs, not Cities, are the Answer", *Foreign Policy*, 6 August 2010, available at: foreignpolicy.com/2010/08/06/urban-legends/; Joel Kotkin *et al.*, *The Problem with Megacities*, Chapman University Press, Center for Demographics and Policy, Orange, CA, 2014, available at: www.chapman.edu/wilkinson/_files/MegaCitiesUPDATED%20VERSION.pdf.
9   For dystopian views, see Richard J. Norton, "Feral Cities", *Naval War College Review*, Vol. 56, No. 4, 2003; Roy Woodbridge, *The Next World War: Tribes, Cities, Nations and Ecological Decline*, University Press of Toronto, Toronto, 2004, pp. 78–80; Stephen Graham, *Cities Under Siege: The New Military Urbanism*, Verso, New York, 2011; Peter H. Liotta and James F. Miskel, *The Real Population Bomb: Megacities, Global Security and the Map of the Future*, Potomac Books, Washington, DC, 2012; David Kilcullen, *Out of the Mountains: The Coming Age of the Urban Guerrilla*, Oxford University Press, New York, 2013, Ch. 5.
10 P. H. Liotta and J. F. Miskel, above note 9, p. 7.
11 Sydney Freedberg Jr., "Army Grapples with Cyber Battles in Mega-Cities", *Breaking Defense*, May 2014, available at: breakingdefense.com/2014/05/army-grapples-with-cyber-age-battles-in-megacities/.

in tone and outlook. In sharp contrast to dystopian security analysts, many urban specialists view the transition from a rural to an urban world as one of the twenty-first century's most encouraging drivers of economic growth and social mobility. The demographic shift to city living may offer solutions to help alleviate long-term poverty and political instability in diverse countries, from Asia through Latin America to parts of the Middle East and Africa.[12] Using a progressive lens, the global process of urbanization is viewed by many urban scholars as a means of strengthening the three traditional pillars of sustainable development: economic growth, social stability and environmental protection. As one 2014 United Nations (UN) research report notes:

> Cities are important drivers of development and poverty reduction in both urban and rural areas, 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 often associated with higher levels of literacy and education, better health, greater access to social services, and enhanced opportunities for cultural and political participation.[13]

In Africa and Asia, the two continents that will account for the swiftest pace in world urbanization over the next three decades, just three countries – India, China and Nigeria – are expected to account for 37% of the world's metropolitan growth out to the year 2050.[14] Indeed, within the next fifteen years, several Asian cities are likely to overtake US and European cities in prosperity. Based on current trends, by 2030, nine of the world's wealthiest twenty-five cities will be located in Asia. Shanghai and Beijing are expected to outrank Los Angeles and Paris in wealth, while Delhi and Bangkok are likely to surpass Detroit and Barcelona as economic hubs. By the early 2030s, some $30 trillion or 65% of global gross domestic product (GDP) will be generated by some 600 cities, over a third of which will be in the developing world.[15]

The growing cities of the developing world are, however, unlikely to follow any single pattern of growth. There is no "single future of cities" or one-size-fits-all program for urban development, and in many respects we may be entering a new analytical field – namely, the "science of cities". As one British report notes, "the science of cities is still emerging and has not yet generated global language norms. It is also an inter-disciplinary science, and this makes clarity of concepts harder to achieve."[16] Cities are simultaneously places of safety, resilience and opportunity and yet also homes to violence, inequality and squalor. Over the next

---

12 See Saskia J. Sassen (ed.), *Cities in a World Economy*, 4th ed., Pine Forge Press, Thousand Oaks, CA, 2011; Joel Kotkin, *Cities: A Global History*, Weidenfeld and Nicolson, London, 2005, especially Part 6; Neil Brenner and Roger Keil (eds), *The Global Cities Reader*, Routledge, New York, 2006.
13 2014 World Urbanization Prospects, above note 4, p. 3.
14 *Ibid.*, p. 1.
15 Economic Power Report, above note 7, pp. 17–20, 27–28, 30; Consuming Class Report, above note 7, p. 1.
16 Emily Moir, Tim Noonen and Greg Clark, *What are Future Cities? Origins, Meanings and Uses*, paper, UK Government Office for Science, Foresight Future of Cities Project, London, June 2014, p. 5.

quarter of a century, urban conglomerations are likely to reflect a bewildering and eclectic variety of sizes, shapes and spatial density alongside a plethora of differences in types of governance, demographic composition, economic growth and regional distribution. In the emerging science of cities, it seems as if hypothesis and heterogeneity will prevail over paradigm and homogeneity.[17]

Future urban conurbations will embrace a range of forms, including megacities, larger cities and middle-sized and small city complexes, with each metropolitan type displaying different developmental and governance levels. Despite a focus on the dramatic phenomenon of a few megacities with populations of over 10 million by parts of the Western media and military, most of the world's urbanization is more prosaic and is concentrated on a plethora of medium-sized and small cities. For example, at present, half of all the world's urbanites live in settlements of less than 500,000 people, with only one in eight persons inhabiting a megacity.[18] In 2014, medium-sized cities accounted for twenty-six of the world's forty-three fastest-growing cities, and their collective populations are likely to increase from 363 million to 509 million people by 2030 – accounting for around 10% of urban residents. Similarly, smaller rather than larger cities are likely to proliferate in the developing world. "Cities with populations of less than half a million", one report notes, "will remain highly significant everywhere, remaining home to almost half of the world's urban population by 2030."[19]

In China and India, a wave of smaller, high-technology "smart" cities is being constructed with the aim of creating urban systems that can act as catalysts and hubs for advanced urban infrastructure, transportation and economic services. For example, by 2025, it is estimated that of 136 smaller cities throughout Asia, 100 smart cities will be located in a fast urbanizing China.[20] As Thomas J. Campanella observes, when it comes to the promotion of new cities, China's energetic approach is akin to "a hundred Dubais, with a thousand times its ambition".[21] Even countries in Africa – a continent often associated by security analysts with poorly governed megacities such as Lagos and Kinshasa – are experimenting with smaller city conurbations. For example, in Kenya, Konza Techno City, dubbed the "Silicon Savannah", and Tatu City – both located outside metropolitan Nairobi – represent newer, smaller and more decentralized complexes that are seen as models for urban development in the future.[22]

17 Emily Moir, Tim Noonen and Greg Clark, *The Future of Cities: What is the Global Agenda?*, paper, UK Government Office for Science, Foresight Future of Cities Project, London, September 2014, pp. 35–50, 152–153.

18 *Ibid.*, p. 13.

19 *Ibid.*, pp. 11–12.

20 *Ibid.*, pp. 2, 11–12, 17; Alberto Vinolo, "Smartmentality: The Smart City as Disciplinary Strategy", *Urban Studies*, Vol. 51, No. 5, 2014.

21 Thomas J. Campanella, *The Concrete Dragon: China's Urban Revolution and What It Means for the World*, Princeton Architectural Press, New York, 2008, p. 15.

22 Jo Beall, Tom Goodfellow and Dennis Rodgers, *Cities, Conflict and State Fragility*, Working Paper No. 85, Crisis States Working Papers Series No. 2, Crisis States Research Centre, London School of Economics, London, January 2011.

The global pattern of migratory diversity from countryside to city runs counter to the notion advanced by some security analysts that megacities will be the dominant form of urban development and are the harbingers of a new form of international instability.[23] Such a view is not supported by evidence. As the urban specialist Joel Kotkin argues, the pattern of urban migration in the developing world is not concentrated on megalopolises, but is diverse and multidirectional and involves a maze of different-sized cities.[24] In 1990, there were ten megacities with 153 million people, representing 7% of the globe's urban dwellers. In 2014, there were twenty-eight megacities, including Tokyo, Delhi and Shanghai, with 453 million people, accounting for 12% of urbanites.[25] While megacities are expected to multiply from twenty-eight to forty-one by 2030, it seems unlikely that this particular urban form will predominate globally. Even if megacity populations double over the next fifteen years, they will still represent only a quarter of the global urban population. In 2011, the McKinsey Global Institute, a leading authority on global urbanization, cautioned:

> It is a common misperception that megacities have been driving global growth for the past 15 years. In fact, most have not grown faster than their host economies, and [McKinsey] expects this trend to continue. Today's 23 megacities … will contribute just over 10 percent of global growth to 2025, below their 14 percent share of global GDP.
>
> In contrast, 577 fast-growing middleweights … are seen contributing more than half of global growth to 2025, gaining share from today's megacities.[26]

In 2012, McKinsey identified an "Emerging 440" cities grouping that is projected to generate 47% of global growth, or $17.7 trillion, to 2025 and beyond.[27] Only twenty are categorized as megacities, with the remainder being middleweight urban centres. Of these middleweights, over 200 are in China; fifty more are located in Latin America; and thirty-nine are found in Africa and the Middle East. In many of these middleweight cities, growth is driven less by population density than by per capita GDP and by the number, rather than the demographic size, of individual households.[28] In 2014, research conducted by the UN endorsed McKinsey's findings, observing that by 2030 there might well be forty-one megacities but that "the fastest growing urban agglomerations are medium-sized cities and cities with less than one million inhabitants located in Asia and Africa".[29] As social scientist Saskia J. Sassen observes, what really matters when analyzing the anatomy of

---

23 P. H. Liotta and J. F. Miskel, above note 9, p. 9.
24 J. Kotkin *et al.*, above note 8, pp. 16–17.
25 2014 World Urbanization Prospects, above note 4, p. 13.
26 Economic Power Report, above note 7, p. 4.
27 Consuming Class Report, above note 7, pp. 5–6, 19.
28 *Ibid.*, pp. 5–6, 19; Mathew Burrows, *The Future, Declassified: Megatrends that Will Undo the World Unless We Take Action*, Palgrave Macmillan, New York, 2014, pp. 89–90.
29 2014 World Urbanization Prospects, above note 4, p. 1; Economic Power Report, above note 7, pp. 14–17, 28–31.

urban growth is less a city's demographic density than its political and economic effectiveness.[30]

Urbanization and military strategy: The case for urban strategic studies

Despite the complex and multi-varied pattern of urbanization outlined above, recent Western military research on urban warfare is narrowly focused on operating in megacities. The latter are believed by many security analysts to pose the most dangerous and demanding urban environment for Western forces in the future. Good examples of this type of research include the US Army's 2014 study *Megacities and the United States Army*, and the US Marine Corps' 2015 *Security Environment Forecast*.[31] The US Army report claims that in the twenty-first century, megacities represent a "fundamentally new operating environment" that will increasingly defy the military's ability to apply traditional methods of urban warfare and will provide "the strategic key terrain in any future crisis that requires US military intervention".[32]

Similarly, in its section on urbanization, the Marine Corps *Security Environment Forecast* states: "If current patterns and trends [in urbanization] continue, the world will reorient centred on massive, multifaceted urban clusters. Three-quarters of the world's population will live in cities and there will be forty-one megacities worldwide by 2030, making urbanized warfare unavoidable."[33] Such a situation means that conflicts in megacities will force adversaries not only to master the three-block war but also to think vertically and adapt to "three-floor wars".[34] Moreover, urban littorals will become of particular importance in the future because coastlines or coastal deltas host some 136 major port cities as well as eight of the world's ten largest cities.[35]

Much of the US Army and US Marine Corps research tends to treat the megacity as a novel phenomenon – an urban conurbation so different in form that it is disconnected from all previous modes of urban operations. Such a premise is both historically incorrect and misleading. Modern urban evolution is a process that has been occurring since the rise of the nineteenth-century

---

30 Saskia J. Sassen, "The Urban Complex in a World Economy", *International Social Science Journal*, Vol. 46, No. 1, 1994.

31 US Office of the Chief of Staff of the Army, *Megacities and the United States Army: Preparing for a Complex and Uncertain Future*, Strategic Studies Group, Megacities Concept Team, Arlington, June 2014 (US Army Megacities Paper); US Marine Corps, *2015 Marine Corps Security Environment Forecast: Futures 2030–2045*, Futures Directorate, USMC Futures Assessment Division, Quantico, VA, 2015 (US Security Environment Forecast).

32 US Army Megacities Paper, above note 31, pp. 5, 8.

33 US Security Environment Forecast, above note 31, p. vii. For the military debate over megacities, see Kevin M. Felix and Frederick D. Wong, "The Case *for* Megacities", *Parameters: US Army War College Quarterly*, Vol. 45, No. 1, 2015; Michael Evans, "The Case *against* Megacities", *Parameters: US Army War College Quarterly*, Vol. 45, No. 1, 2015.

34 US Security Environment Forecast, above note 31, p. vii.

35 *Ibid.*, pp. 54–59.

industrial city of steel and coal. Armed forces establishments have always sought to adapt older methods of city warfare to new metropolitan conditions of mass living, spatial expansion and industrial technologies. There is a pattern of tactical development in urban warfare that runs from the principles of controlling streets and buildings – first outlined by the French soldier Marshal Thomas Bugeaud in his 1847 primer, *La guerre des rues et des maisons* – through the World War II battles in cities such as Stalingrad, Manila and Gröningen to more recent encounters in Grozny, Fallujah and Mosul. Historically, while most conventional armies dislike urban warfare, once they are faced with the grim prospect of fighting in built-up areas they tend to adapt to the challenge with all the accompanying demands for large numbers of troops, decentralized tactics and heavy expenditure in logistics and munitions.[36]

While there are commonly understood methods for military operations conducted in cities involving fire and movement, it is a well-known and time-honoured reality that urban warfare involves an essential recognition of diversity. Confronted by an urban area, all militaries must confront "an endless variety of structures and facilities the seizure or control of which demands esoteric plans, programs, and procedures, since no two cities are quite alike".[37] The modern Western military's long-standing understanding of urban diversity has been influential in persuading operational planners – from Stalingrad through Hue to Fallujah – to focus on the role performed by troops rather than the environment inhabited by them. Troops must be multifunctional and able to fight across different forms of terrain, both rural and urban. A military focus on one urban form – namely that of megacities as representing a completely novel phenomenon – runs contrary to the basic principles of modern urban military operations. It is no accident that those who have been most successful in cities have been well-trained military forces capable of adaptation – whether US marines in Manila and Fallujah, British infantry in Belfast and Londonderry or French paratroops in Algiers.[38]

Faced by the revolution in urbanization, twenty-first-century militaries must avoid narrow research focused on megacities and move to engage with the broad field of urban studies.[39] If this engagement does not occur, military research will almost certainly become flawed. Contrary to recent US military claims on megacities, the relationships between instances of rapid urban growth and outbreaks of armed

---

36   Maréchal Bugeaud, *La guerre des rues et des maisons*, unpublished manuscript presented by Maité Boussy, Jean-Paul Rocher, Paris, 1997. This is significant as the first professional military study of a modern, industrial-age city. For the evolution of modern urban warfare and speculations on the future, see Michael Evans, "Lethal Genes: The Urban Military Imperative and Western Strategy in the Early Twenty-First Century", *Journal of Strategic Studies*, Vol. 32, No. 4, 2009; Michael Evans, *City Without Joy: Urban Military Operations into the 21st Century*, Occasional Paper No. 2, Australian Defence College, Canberra, 2007; M. Evans, above note 33, pp. 33–43.

37   John Collins, *Military Geography for Professionals and the Public*, National Defence University Press, Washington, DC, 1998, p. 195.

38   M. Evans, above note 33, pp. 33–43; M. Evans, "Lethal Genes", above note 36, pp. 534–535.

39   For those interested, useful from a strategic studies perspective are S. J. Sassen, above note 12; Neil Brenner and Roger Keil (eds), *The Global Cities Reader*, Routledge, New York, 2006; J. Kotkin, above note 12.

violence are not clear-cut. In understanding the anatomy of armed violence in diverse urban conglomerations, correlation and causation must be carefully distinguished and separated. For example, cross-disciplinary studies by urban analysts suggest that city fragility and organized violence in the developing world are less a function of metropolitan size and demographic density than of the existence of effective governance.[40] If there is a correlation between the process of urbanization and the incidence of violence in large cities, it has more to do with a linkage between weak State institutions and fragile cities. Much research indicates that "legacies of armed conflict, political authoritarianism and repressive policing are [tightly correlated] with the onset and persistence of urban violence".[41]

The capacity of a State's institutions is often intimately connected to the strength or weakness of metropolitan governance, and this factor plays a major role in determining the outbreak of armed violence in cities.[42] Armed violence may, of course, be exacerbated by metropolitan size and by population numbers, but it is seldom caused by these factors. Rather, weaknesses in governance ranging from political maladministration through to corrupt militaries and ineffective policing are often major causative factors in the breakdown of urban society.[43] While megacities may generate a range of negative consequences for their urban underclass, including crime, disease and squalor, organized violence by armed groups is not always one of these.[44] It is important to note that fast-growing Asian megacities such as Beijing and Calcutta are among the world's most stable urban conglomerations. Likewise, massive cities such as Bogota or Sao Paulo in Latin America have both experienced not only spikes but also instances of decline in outbreaks of armed violence.[45] In his 2012 work, *Researching the Urban Dilemma: Urbanization, Poverty and Violence*, Robert Muggah observes:

> Although in absolute terms more people may face poverty and insecurity in large and mega-cities, it is in fact medium- and small-sized cities in the developing world which are even more at risk [from violent breakdown]. This is because they are generally less well-resourced in terms of professional capacity, governance and finance. Their vulnerability is also greater because of more limited investment in infrastructure and urban services …. In addition, there is less experience of working with humanitarian and development actors and other international agencies.[46]

---

40 Alan Gilbert, *Urbanization and Security*, Comparative Urban Studies, Occasional Paper No. 31, Woodrow Wilson International Centre for Scholars, Washington, DC, 1999, pp. 16–17; Robert Muggah, "How Fragile are Our Cities?", *World Economic Forum*, 2016, available at: www.weforum.org/agenda/2016/02/how-fragile-are-our-cities; Kevin Savage and Robert Muggah, "Urban Violence and Humanitarian Action: Engaging the Fragile City", *Journal of Humanitarian Assistance*, 19 January 2012, available at: sites.tufts.edu/jha/archives/1524. For a recent perspective on security in cities, see Stephen Graham, *Vertical: The City from Satellites to Bunkers*, Verso, London, 2016, pp. 67–95.
41 R. Muggah, above note 8, p. 49.
42 *Ibid.*, pp. 49, 66.
43 *Ibid.*, pp. vii–ix.
44 K. Savage and R. Muggah, above note 40.
45 R. Muggah, above note 8, p. 11.
46 *Ibid.*, p. 69.

In short, there is nothing that is certain or inevitable about armed violence in cities in general or in megacities in particular. From a security perspective, military researchers must learn to distinguish between the global city of influence, the megacity of sprawl and the emerging middleweight city, and between smaller peri-urban, semi-urban and inner-urban forms of human habitation. All are different. Indeed, when it comes to assessing the frequency and character of insecurity in a diverse range of cities, generalizations are misleading and good research will seek to adopt a strictly evidence-based approach.[47]

The different conclusions about armed violence and megacities reached by military professionals and urban specialists are evidence both of a lack of communication and of misunderstanding. In considering the likelihood of future urban military operations, there is little common ground between policy-makers and security specialists on the one hand and urban development, aid and humanitarian agencies on the other. As Muggah notes, "the growing preoccupation with the urban dilemma amongst diplomats, development and defense sectors is not … matched with commensurate investment in research".[48] It is certainly true that current research into city development remains parochial and stove-piped, with security specialists and urban analysts possessing different outlooks, interests and methodologies.

Three distinct schools of thought on research into cities can be identified. The first is practised by quantitative macro-level researchers who focus mainly on collecting statistical data and whose ranks include criminologists, epidemiologists, economists and social scientists. The second school is that of qualitative micro-level researchers, which tends to be more concerned with field research and case studies and which includes historians, urban geographers, political scientists and sociologists. Finally, there is a security-oriented research school, a category that embraces military professionals, defence analysts and an array of affiliated social scientists.[49] All three schools tend to operate independently of each other, but this is markedly so in the security dimension. The security-oriented school of urban research tends to be focused on narrow operational and technological issues rather than broader strategic considerations. Operational research and analysis embraces the refinement of combined arms operations for a non-linear city environment, mastering close-quarter battle methods and better use of protected mobility in built-up areas. Similarly, technological research involves areas such as the employment of thermobaric weapons and precision munitions; the future role of robotics, drones and unmanned vehicles in cities; the exploitation of fibre-optics, laser range finders and counter-sniping devices in urban micro-environments; and the potential for non-lethal weapons usage in heavily populated urban areas.[50] In

---

47 M. Evans, "Lethal Genes", above note 36, pp. 540–552; Alexandre Vautravers, "Military Operations in Urban Areas", *International Review of the Red Cross*, Vol. 92, No. 878, 2010.
48 R. Muggah, above note 8, p. vi.
49 *Ibid*., pp. 9–10.
50 For useful insights, see R. Muggah, above note 8; Ian Kemp, "Urban Warfare: Complete Guide", *Armada International*, Vol. 32, No. 4, Supplement, 2008; Paolo Valpolini, "Urban Warfare: High-Tech Take-Over", *Armada International*, Vol. 34, No. 4, Compendium Urban Warfare Supplement, 2010.

contrast to these operational and technological efforts, urban security specialists have made few attempts to synthesize relevant strands of urban research into a form of strategic studies that might inform the judgments of both policy-makers and military practitioners. As a result, an ability to assess the roles of military forces in cities against different typologies of urban violence remains underdeveloped. Issues of legal obligation and rules of engagement as applied to stabilization operations and humanitarian relief; civil–military relationships in command and control functions; the roles of policing and community elites; and the nexus between national and metropolitan governance – all key areas of knowledge – remain under-researched.[51]

In the coming years, if we are to better understand the city as an armed conflict zone, an urban-oriented strand of strategic studies needs to be developed by security scholars working in close conjunction with the macro- and micro-level schools identified earlier. Achieving such an interdisciplinary effort may prove to be challenging for scholars who harbour sensitivities towards the employment of military force in populated areas. Indeed, we should not forget the adverse reaction of many anthropologists and other social scientists toward the development of human-terrain mapping in counterinsurgency after 2004. Yet, if urban studies scholars refuse to engage with security officials on the challenge of controlling and ameliorating armed violence in cities, they are only likely to contribute by default to increased, not decreased, numbers of civilian casualties.[52]

Given the requirements of operating in cities with civilian populations under the ever-present eye of a global electronic media, Western militaries will require assistance from urban specialists in order to formulate the kind of operational methods appropriate for a range of cities – methods that conform to international humanitarian law, also known as the law of armed conflict – and which reflect credible rules of engagement respecting the lives of non-combatants. One useful area in which city specialists in law enforcement and community development can assist military professionals is what might be styled the fluidity nexus between "high-end" policing and "low-end" military responses in cities. A comprehensive understanding of a particular urban environment will be important in determining how a crisis situation can be better conceptualized by security professionals in order to meet conditions where neither a purely military nor a traditional policing approach seems immediately obvious.[53]

In all cases, the integration of urban studies into strategic requirements needs to be conducted with both intellectual care and humane discrimination. An understanding of different typologies of violence is critical. Security analysts and

---

51 R. Muggah, above note 8, pp. vii–ix, 5–7.
52 For the reluctance of anthropologists to engage with security officialdom, see David H. Price, *Weaponizing Anthropology: Social Science in the Service of the Militarized State*, Counterpunch, Petrolia, CA, 2011; John D. Kelly *et al.* (eds), *Anthropology and Global Counterinsurgency*, Chicago University Press, Chicago, IL, 2010.
53 Brian Cox and Anna Powles, *Protecting Civilians in an Urban Conflict: Lessons Learned from Australia's Deployment Following the Timor-Leste Crisis, 2006–2007*, Centre for Defence and Security Studies, Massey University, Palmerston North, 2015, p. 2. See also Graduate Institute of International Studies, *Small Arms Survey: Guns and the City*, Cambridge University Press, Cambridge, 2007 (Small Arms Survey), pp. 178–188.

military professionals need to be able to distinguish between high-intensity crime by urban gangs and syndicates concerned with profit, and forms of low-intensity warfare by armed urban activists driven by politics. They also need to be able to differentiate between mass-casualty attacks by networked Islamist cadres on the Mumbai, Nairobi, Paris and Brussels models, and well-organized and prolonged campaigns of urban warfare by large non-State militias on the Hamas or Hezbollah models.[54]

There are clear differences between the Islamic State (ISIS) attacks in Europe in 2015–16[55] and the capability of a force like Hamas to engage the Israeli military in a semi-conventional struggle as it did in the 2014 Gaza War.[56] Unlike the ISIS cells that struck against civilian targets in Paris and Brussels with AK-47 assault rifles and suicide belts, Hamas represents a formidable non-State organization with an armed militia wing (the Qassam Brigades) equipped with an arsenal of rockets, anti-tank guided munitions and anti-air missiles that gives it a capacity for protracted operations in heavily populated urban environments.[57] In 2014, the reality of a Hamas base amidst the Gaza population forced the Israelis to adopt a restricted targeting methodology for air strikes using both low-yield precision munitions and non-lethal explosives to reduce non-combatant casualties, facilitate civilian evacuation and comply with international legal conventions.[58] Hamas successfully employed an underground assault tunnel network stretching for 70 kilometres in order to nullify Israel's aerial reconnaissance superiority and conceal the movements of its fighters, munitions and rocket attack sites. Air strikes could not neutralize this tunnel network, forcing the Israelis to deploy ground forces. In the Shejaiya stronghold in Gaza City, sixteen Israeli soldiers were killed and fifty wounded as the Israeli Defence Forces destroyed over thirty Hamas tunnels.[59]

The 2014 Gaza War demonstrated an array of issues that may dominate future Western interventions in cities. These include the need to nullify subterranean networks, the requirement of an effective information campaign, and the challenge of engaging an adversary that, while weaker militarily, is adept at employing the instruments of social media to win international support. Western armies that enter urban areas in future operations clearly need to be prepared to control the narrative of events by employing new technologies for the information domain, including not only social media tools but also wide-area, full-motion battlefield video surveillance systems.[60] In an ominous development,

---

54 M. Evans, above note 33, pp. 41–43.
55 See David E. Johnson, *Hard Fighting: Israel in Lebanon and Gaza*, RAND Corporation, Santa Monica, CA, 2011; Will McCants, *The ISIS Apocalypse: The History, Strategy and Doomsday Vision of the Islamic State*, St Martin's Press, New York, 2016.
56 For a military operational analysis, see Gaza Conflict Task Force, *Gaza War Assessment: The New Face of Conflict*, report, Jewish Institute for National Security Affairs, Washington, DC, March 2015 (Gaza Report); Eitan Shamir, "The 2014 Gaza War: Rethinking Operation Protective Edge", *Middle East Quarterly*, Spring 2015.
57 Gaza Report, above note 56, p. 10.
58 *Ibid.*, pp. 10–11.
59 *Ibid.*, pp. 19–20, 25–27.
60 *Ibid.*, pp. 13, 20

Hamas also experimented with primitive "model airplane" unmanned aerial vehicles (UAVs) during the Gaza War. In the years to come, this form of stand-off technology can only evolve and proliferate through commercial outlets. Over time, non-State groups such as ISIS and Al-Qaeda will surely acquire small drones as a non-State equivalent of a precision munition that can gather real-time intelligence and strike rapidly. As a result, Western militaries will need to consider developing counter-UAV networks – perhaps using laser technology – in order to deal with this new threat.[61]

In the future, given limited troop numbers, advanced militaries are unlikely to engage in frontal assaults in urban areas except under the most favourable circumstances. As retired US Army general Robert Scales has cautioned, policy-makers need to be constantly aware of one uncomfortable truth when considering the insertion of troops into cities: "America's treasure house of close-combat soldiers is only marginally larger than the New York City Police Department."[62] Proportionally, when it comes to available infantry and combined arms assets, other Western armies, such as those of Britain, France and Australia, face a similar situation to that of the United States, and this reality places a premium on economy of force operations. From this perspective, robotics, high-altitude UAVs, precision strikes and special operations forces all recommend themselves in the coming years.[63]

There are many diverse kinds of urban contingencies to consider in a wide range of localities: from all-out combat operations through humanitarian relief and the creation of protected enclaves and evacuation corridors for civilians and other non-combatants to over-the-horizon littoral missions. The Western requirement is for a discriminate range of direct and indirect urban strategies that are based on the level of political interests involved and judged on a case-by-case basis. A discriminate strategy might embrace containment of volatile cities; urban humanitarian evacuation and relief of threatened population groups by joint, interagency and multinational elements; the exploitation of high-technology assets for selective strikes; and the seizure of decisive points and nodes using joint forces.[64]

Conclusion

Because cities represent crucibles of civilization, it is uncomfortable to regard them as arenas for future armed conflict or as scenes of humanitarian emergency. From the Athens of Pericles, through the Florence of the Medici and the Paris of Picasso to the Berlin of Brecht, cities have always sought to celebrate the splendour of human culture and to avoid the inhumanity and squalor of armed conflict.[65] This situation is now challenged by the global revolution in urban demography and economic

---

61 *Ibid.*, pp. 57–58.
62 Robert H. Scales Jr., "Urban Warfare: A Soldier's View", *Military Review*, Vol. 85, No. 1, 2005, p. 10.
63 M. Evans, above note 33, pp. 33–43.
64 Robert H. Scales Jr., "The Indirect Approach: How US Military Forces Can Avoid the Pitfalls of Future Urban Warfare", in *Future Warfare*, US Army War College, Carlisle Barracks, PA, 1999.
65 J. Kotkin, above note 12, p. xviii.

transformation that will unfold over the next three decades. While urban military operations of diverse types are likely to increase in future years, the broader security implications of the globe's urban revolution are far from clear. This is especially so in terms of identifying causation and correlation between urban development and the incidence of armed violence.

Despite the recent Western military fashion for concentrating on megacities as the "worst-case security environment", what is most striking for the learned strategist is the fluidity, variety, diversity and unpredictability involved in the process of global urbanization. As we come to grips with the notion of a world population that by 2050, in the mere space of a century, will change from being predominantly rural to being overwhelmingly urban, there is no simple or singular template available to understand the anatomy of urban conflict. Neither the science of war nor the science of cities offers a clear guide to urban studies specialists and security professionals. In order to achieve greater clarity of thought, the best way forward into the future is for more holistic analysis to occur through alliances forged between the different fields of urban studies and war studies in universities, think tanks, security research departments and military establishments.

Those concerned with urban conflict need to acquire a balanced and nuanced understanding of the ecology of the developing world's cities. Military practitioners and urban studies scholars must seek to avoid trading in a language that evokes either spectres of dystopia or visions of utopia. Such black-and-white polarities are misleading and fail to take account of the many shades of grey that are found in the diversity of city ecology. Many cities are *sui generis* in levels of governance, population composition and architectural design, and no single disciplinary perspective can capture the inherent complexities of using military force in an urban area.[66] Like the phenomenon of insurgency, in urban conflict, modern methods evolved for the use of force in cities must be constantly refined to meet an infinite variety of changeable urban contexts. In cities plagued by armed conflict, it is the particular and the heterogeneous that are likely to be more illuminating than the general and the homogenous.

From a security perspective, then, the true novelty involved in militaries operating in twenty-first-century urban areas lies less in developing operational methodologies for megacities than in the task of evolving and integrating doctrine and concepts for the varied and multidisciplinary field of Western urban strategic studies. The latter must seek to highlight realistic policy choices on armed intervention in cities and to offer rules of engagement and operational solutions aimed at reducing violence and restricting casualties across a range of urban contingencies. Investment in a metropolitan form of strategic studies holds out the promise that, as a science of cities emerges and unfolds throughout the new millennium, Western militaries will become better prepared to confront the challenges of future conflict in an urban-dominated world.

66   Small Arms Survey, above note 53, p. 188.