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## Challenges in the Future Operating Environment.

BY MAJOR JAMES J. ONTIVEROS

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The trend toward global urbanization will have a profound impact on future military operations undertaken by the United States Army. It is estimated that 55 percent of the world's population currently lives in an urban area and it is estimated that the numbers will increase to 68 percent by 2050.<sup>01</sup> An increase in migration from impoverished rural areas to larger, more economically viable centers throughout the world has given rise to populations in certain cities. Cities that have a population in excess of 10 million are labeled megacities.<sup>02</sup> The U.S. military has operated in large population centers in past and present conflicts; however, the U.S. military has not operated in a dense urban environment with a population in excess of 10 million.

Globally, there are currently 37 cities with populations in excess of 10 million.<sup>03</sup> Eight of the top 10 megacities in the world listed by Demographia World Urban Areas are located in the U.S. Indo-Pacific Command area of responsibility. The top two urban areas listed, Tokyo-Yokohama, Japan and Jakarta, Indonesia, have populations estimated at 38,050,000 and 32,275,000, respectively. According to estimates by the UN, the number of cities with populations in excess of 10 million will grow to 43.<sup>04</sup>

This trend in urbanization has heavy consequences for military forces operating in dense urban areas. A city that includes skyscrapers, a robust infrastructure, defined transportation corridors, shipping and economic viability can have, within a few miles from the city cen-

ter, a patchwork of shantytowns, slums and makeshift settlements that are not governed or connected to the main city with water, electricity or funding. This sharp contrast will make it difficult for U.S. forces to operate in these areas. One square kilometer in different parts of the city can have completely different features in terms of poverty and prosperity, health and disease, access to clean water and drawing water from a polluted river.

Civil Affairs Soldiers are trained to engage with indigenous populations and institutions, enhance stability, set conditions to mitigate threats to civil society and assist in establishing local government capability.<sup>05</sup> Conducting Civil Affairs Operations in the cities and rural areas of Iraq, Afghanistan and the Philippines pose challenges as shifts in military, political and social dynamics can create setbacks in planned operations. When not deployed, CA Soldiers continue to hone their skills for operating in and among the populace through unit level training exercises and at any of the three combat training centers.

The outlook for operating in a megacity, whether in a period of war or in the midst of a natural disaster, will prove daunting. Organizations and individuals within the U.S. Army are exploring and studying potential issues and risks from the strategic-to-tactical level to U.S. forces operating in and around megacities. The Chief of Staff of the Army's Strategic Studies Group (Megacity Concept Team), Training and Doctrine Command's Mad Scientist Initiative, as well as the Maneuver Center of Excellence, have all looked at the complexities of operating in megacities. There is also a Department of the Army Strategic Broadening Seminar that focuses on dense urban areas and exposes mid-career captains and majors, warrant officers and senior noncommissioned officers to the complexities and critical issues that frame the problems of a megacity.

<sup>01</sup> Manila, Philippines, is a megacity with a population of 12,877,000 million people living in the city (within the unified administrative areas). As the city sprawls out from its center, buildings become smaller but the population is dense, with a total of 22,710,000 million people in the metro area (residents that are socially, culturally and economically dependent on the core city).



The SBS is conducted at Fort Hamilton, New York, and seminar attendees are exposed to the urban workshop of New York City to help them process the enormity of the city's flows, gain perspective on the interconnectedness of its infrastructure and visualize the three-dimensional nature (skyscrapers and urban canyons, subterranean geographies and street-level traffic flows) of a modern metropolitan area.<sup>06</sup>

The world's megacities may share some similar characteristics but each megacity is a unique living entity with its own characteristics that must be studied and mapped. The approaches and methodologies to study dense urban environments are still in development and up for debate. Regardless of the state of a megacity, the human terrain will be a major consideration and obstacle for Civil Affairs personnel working in the future operating environment.

## HUMAN TERRAIN

As previously stated, no two megacities are alike. As a result, it is important to develop an understanding of the human terrain of megacities. Understanding the make-up, demographics and diasporas of a megacity is a much more daunting task for CA formations than what they have encountered in previous conflicts. When operating in an area, units generally develop an in-depth understanding of the political, social and economic strata. In the case of the 2017 Battle of Mosul, the Mosul Study Group stated in its findings that, "Civil Affairs personnel developed a level of understanding of the Mosul populace down to the tribal-leader level. This facilitated information dissemination through informal networks."<sup>07</sup> This was a key factor to developing an understanding of the human terrain and providing

sound advice to the task force commander. Mosul had an estimated population of 1,377,000 in 2014, far below the threshold of a megacity.

Understanding the human terrain in a megacity will pose a much greater challenge. The dimensions and unit boundaries of different formations within a coalition of friendly forces will exacerbate information sharing and knowledge management for understanding the complexities of the disjointed and interconnected alliances between diasporas and city areas. A road or natural barrier may separate two completely different populations or diasporas. An example of this within the United States is in Lower Manhattan where Chinatown and Little Italy meet. Although this example represents a small population in each section, the diversity of the two neighborhoods is astounding. The sights, the smells and the noise

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of a large city with its pedestrian population carrying out its daily routine can be overwhelming. More than likely, this issue will be compounded in megacities where languages other than English are dominant.

Understanding the informal power structure of a megacity is crucial. An understanding of local politics and power bases will allow Civil Affairs forces to better cope with the complexities of their area of operations.

operating environment. Overlays depicting transportation networks, public utilities, communications nodes, demographics, elevation and land usage to name a few, can assist CA Soldiers in analyzing the physical and human terrain. Enterprising CA Soldiers do not need to attend a specialized school to learn the basics of GIS. Online learning venues, such as massive open online courses offer free or low-cost instruction on the basics

## MEGACITY POPULATIONS BY COMBATANT COMMAND

Figure 01 (Locations are approximate)

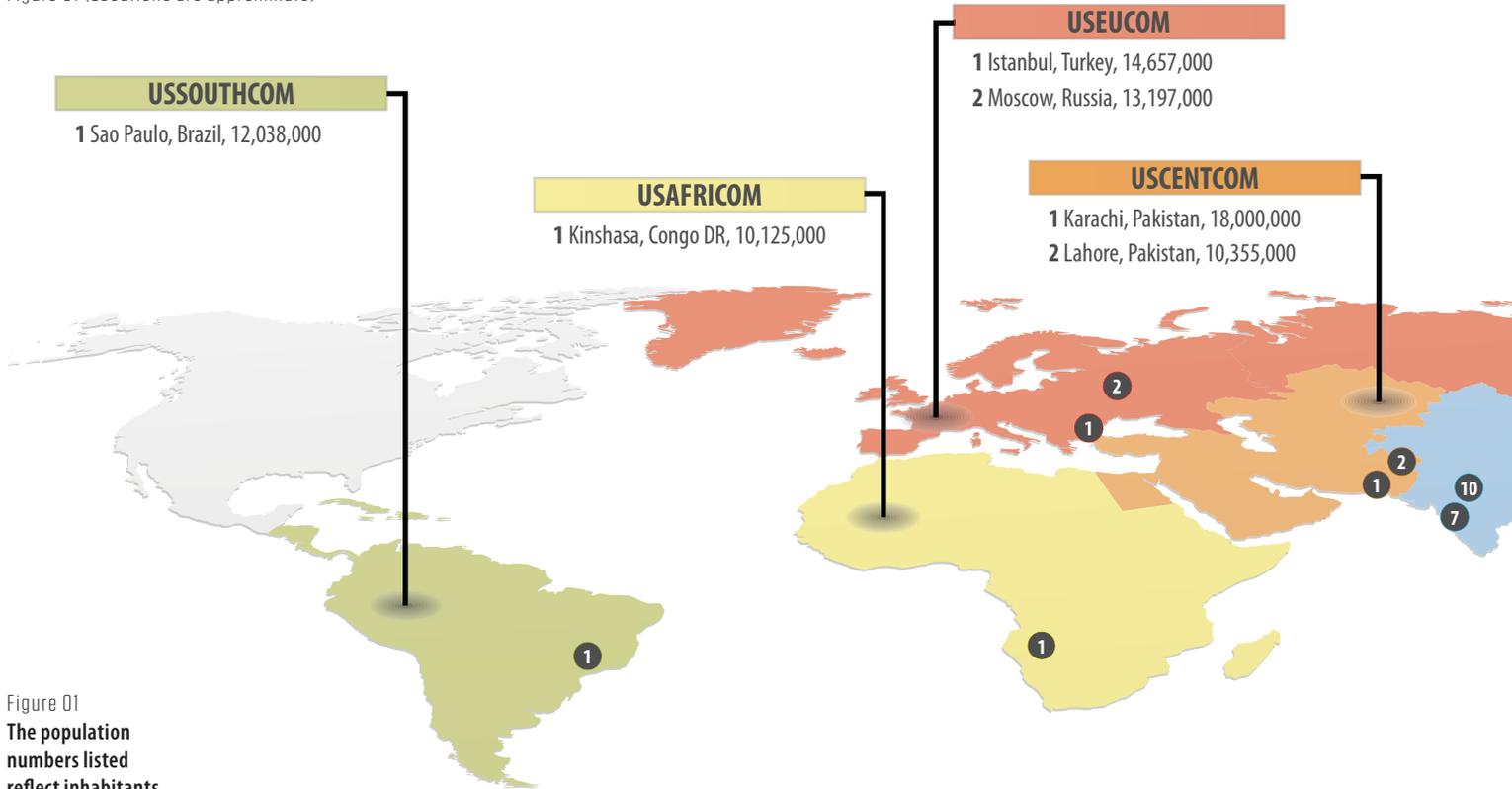


Figure 01  
The population numbers listed reflect inhabitants living in the core city, or the unified administrative area of the city, not the entire metro population. The metro population can be defined as areas that are socially, culturally, economically dependent on the core city. For example, the metropolitan area of Tokyo, Japan, boasts a metro population of approximately 37,800,000 inhabitants as compared to the city population of 13,617,000.<sup>10</sup>

Civil Affairs Soldiers must come to understand the influence and control a local leader has with other leaders and the local government. The territory that is controlled in one area may be of economic (ports and harbors) or social (religious sites) significance to the city at large and disrupting a pre-established equilibrium may inadvertently further complicate matters for U.S. forces. Conversely, in areas that are not governed or patrolled by municipal authorities, gangs and organized crime may be the law of the land. Again, it is critical to recognize the power strata within the area of operations in order not to exacerbate an on-going conflict without having an understanding of the environment.

Incorporating geographic information systems into mapping the human terrain will assist CA forces in creating graphical depictions of their areas. The ability to create and update overlays based on demographic data and civil information from open source databases and surveys can greatly improve one's understanding of the

of GIS. Online programs such as Google Earth can assist in developing a context for understanding the physical terrain and its characteristics. There are videos on YouTube that demonstrate how to create Google Earth fly throughs. These fly throughs are virtual excursions through a specified area. Using Google Maps Street View, a CA team can conduct initial civil reconnaissance with a panoramic view at street level of the crowded, densely packed seaside areas in Jakarta, Indonesia, that are vulnerable to flooding.

## CHALLENGES FOR THE FUTURE

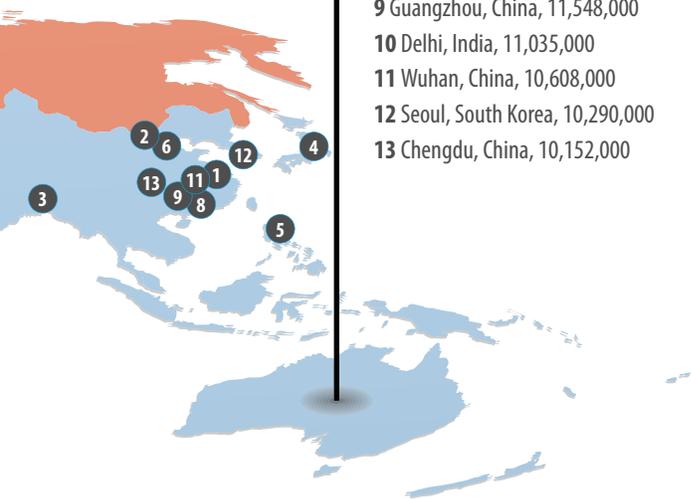
In his book, *Out of the Mountains: The Coming of the Urban Guerrilla*, David Kilcullen explains four trends that will shape the future operating environment and create a situation that is in stark contrast to what we see in the world today. These four elements are: rapid population growth, accelerating urbanization, littoral-

ization (tendency for things to cluster on a coastline) and increasing connectedness.<sup>08</sup> These factors will have a profound impact on how leaders at the regional and local levels are to sustain such a large populace and prevent it from turning on itself. The increasing numbers of megacities and the economic might they possess on a regional or global scale may lead to a competition or struggle among great powers for influence and control.

the “Three Block War” describes the future urban battlefield where simultaneous operations encompassing full-scale combat operations, humanitarian operations and peacekeeping operations occur within three city blocks.<sup>09</sup> A survey of the densely populated major metropolitan areas across the globe using Google Earth and the explosion of urbanization makes this scenario likely in future operations. Adding to the complexity and confusion of this scenario is the mass, panicked evacuation of the populace interfering with ongoing military operations.

### USINDOPACOM

- 1 Shanghai, China, 24,153,000
- 2 Beijing, China, 18,590,000
- 3 Dhaka, Bangladesh, 14,543,000
- 4 Tokyo, Japan, 13,617,000
- 5 Manila, Philippines, 12,887,000
- 6 Tianjin, China, 12,784,000
- 7 Mumbai, India, 12,400,000
- 8 Shenzhen, China, 11,908,000
- 9 Guangzhou, China, 11,548,000
- 10 Delhi, India, 11,035,000
- 11 Wuhan, China, 10,608,000
- 12 Seoul, South Korea, 10,290,000
- 13 Chengdu, China, 10,152,000



In this type of scenario, we may see near-peer competitors vying for influence in megacities. It is not unreasonable to believe that our CA forces may come face-to-face with “Red CA forces” from our peer of near-peer competitors, transnational criminal organizations and terrorist groups — as seen in countries like Sri Lanka. Faux nongovernmental organizations sponsored by competitors may also be seen in the city scapes attempting to undo and dismantle our operations and efforts. A competitor can use U.S. doctrine against U.S. forces. With a vast majority of our doctrine freely available on the Internet, an enterprising competitor at the tactical level with an understanding of the English language and the help of Google Translate can understand our tactics, techniques and procedures. This is a challenge that we will likely encounter in the future due to the interconnectedness of our world.

Another challenge in megacity operations was described by the 31st Commandant of the United States Marine Corps, General Charles C. Krulak. The concept of

## CONCLUSION

This article briefly touched on the human terrain and future challenges of the complexity of operating in a megacity. There are many more topics that require in-depth investigation and study. Some examples are the city as a system, insurgency in a megacity, operations in the subterranean environments of a megacity, the use of drones in contested areas, artificial intelligence applications, social media as a mobilizer in an urban environment, sophisticated surveillance systems and biometric scanners and mass atrocities response operations in a megaslum to name a few. Preparing for the future operating environment is part science fiction and part reality. The science fiction part can be covered by reading, discussing and participating in venues such as Small Wars Journal, Special Warfare or the TRADOC Mad Scientist Initiative. The reality of a megacity can be realized by visiting (physically or via Google Earth) and researching those major metropolitan areas that may be the battleground of the future prior to the onset of conflict or a disaster. 

## ABOUT THE AUTHOR

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**NOTES** **01.** “Sixty-eight percent of the world population projected to live in urban areas by 2050, says UN”. United Nations Press Release. (2018). <https://esa.un.org/unpd/wup/Publications/Files/WUP2018-PressRelease.pdf>. **02.** There is no one definition for the term “megacity”. Most definitions do agree that the population of a megacity is 10 million or more. The terms “dense urban area” and “dense urban terrain” are used to describe the environment within a megacity. **03.** “Demographia World Urban Areas.” Report: Demographia World Urban Areas, 14th Annual Edition, April 2018. **04.** “2018 Revision of World Urbanization Prospects | Multimedia Library - UN Department of Economic and Social Affairs.” UN. Accessed June 1, 2018. <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html>. **05.** U.S. Army. FM 3-57. Civil Affairs Operations. Change 2, 2014, 1-5. **06.** Kilcullen, David. *Out of the Mountains: the Coming Age of the Urban Guerrilla*. New York: Oxford University Press, 2015. Kilcullen describes the city as a system with a metabolism that has distinct flows. These flows consist of inputs and outputs that keep the city running. He gives examples of flows such as material flows (food, fuel, water, electrical power) and economic flows (ground, sea, air traffic, money). **07.** “Mosul Study Group: What the Battle of Mosul Teaches the Force”. US Army Training and Doctrine Command (TRADOC), September 2017. **08.** Kilcullen, 28. **09.** “The Strategic Corporal: Leadership in the Three Block War.” DOD Military Lessons Learned. Air University. Accessed June 2, 2018. [http://www.au.af.mil/au/awc/awgate/usmc/strategic\\_corporal.htm](http://www.au.af.mil/au/awc/awgate/usmc/strategic_corporal.htm). **10.** <http://www.citymayors.com/statistics/largest-cities-population-125.html>